United States Department of the Interior
BUREAU OF LAND MANAGEMENT

Colorado State Office
Denver Federal Center, Building 40
Lakewood, Colorado 80225
www.blm.gov/colorado

In Reply Refer To:
CO-932 (7250)

Mr. Rob Viehl
Colorado Water Conservation Board
1313 Sherman Street, Room 721
Denver, Colorado 80203

Dear Mr. Viehl:

The Bureau of Land Management (BLM) is writing this letter to formally communicate its instream flow recommendation for Burrows Creek, located in Water Division 7.

Location and Land Status. Burrows Creek is tributary to the Animas River approximately one mile north of the historic mining community of Animas Forks and approximately 12.9 miles north of Silverton. This recommendation covers a reach which extends from the headwaters, which is located on the northwest flank of Houghton Mountain, down to the confluence with the Animas River, a distance 1.4 miles. Of this reach, BLM manages approximately 0.4 miles, while approximately 1.0 miles are in private ownership in the form of patented mining claims.

Burrows Creek is located within the Bonita Peak Mining District Superfund Site. This site consists of 48 historic mines or mining-related sources where ongoing releases of metal-laden water and sediments are occurring within the Mineral Creek, Cement Creek, and Upper Animas River watersheds. BLM's Abandoned Mine Lands Program is working closely with the Environmental Protection Agency to remediate the various sources of mining-related contamination at the site. Current investigations and remediation planning in the Burrows Creek watershed include the Redcloud Mine, Dewitt Mine, London Mine, and Boston Mine. Burrows Creek flows through the Boston Mine site.

Biological Summary. Burrows Creek is located within a very high-altitude, U-shaped glaciated valley above tree line, with elevations ranging from 11,600 feet at the confluence with the Animas River to 12,400 feet at the headwaters. The stream is very high gradient, with slopes typically exceeding five percent and sometimes exceeding 10 percent. At previously surveyed sites in Burrows Creek, substrate is comprised mostly of gravels (14.29%), pebbles (60.95%), and cobbles (24.76%). The stream is often in contact with bedrock, and the stream channel does not appear to migrate significantly.

Water quality in Burrows Creek is significantly affected by both naturally occurring and anthropogenic sources. Naturally occurring movement of groundwater, surface water, and precipitation through pyritic rocks throughout the Burrows Creek watershed results in dissolution

of metals that ultimately make their way into Burrows Creek. This process is commonly referred to as "acid rock drainage." Dissolution of metals by water movement through historic mine tailings and mine infrastructure also affects water quality, which is commonly referred to as "mining influenced water." As a result of these two processes, Burrows Creek is affected by elevated concentrations of aluminum, cadmium, copper, manganese, lead, and zinc. (See Roberts, S. 2017. *Bonita Peak Mining District 2016 Benthic Macroinvertebrate Assessment*. Mountain Studies Institute; and also see Herndon Solutions Group, 2021. *Expanded Site Inspection Report, Burrows Gulch, San Juan County, Colorado*.

Despite the presence of heavy metals, Burrows Creek supports a water-dependent natural environment:

- Previous evaluations of habitat quality conclude that Burrows Creek is similar in habitat quality to other creeks in the upper Animas River watershed that have sufficient water quality to support fish, such as Maggie Gulch. Even if heavy metal concentrations were not a water quality issue for Burrows Creek, BLM does not believe that Burrows Creek could support a fishery. BLM's experience in the Silverton area is that fish populations cannot successfully overwinter in streams above 12,000 feet elevation. In addition, the pools on Burrows Creek are not sufficiently deep to keep them ice free during the winter.

- The natural environment consists of stream-side freshwater emergent wetlands mapped by the National Wetlands Inventory. The common wetland species Carex aquatalis dominates most of the vegetation community, accompanied by Arostis idahoensis, Carex hardina and isolated islands of Sphagnum moss. Calamagrostis canadensis and Agrostis scabra appear closer to Burrows Creek. These wetlands are intermixed with fens, which are an extremely rare wetland type that depend on constant, mineral-rich groundwater discharge. During 2024, BLM is implementing a project to restore the full functionality of these fens, which has been impaired by stream diversions and deposition of erosive materials from adjacent slopes. Together the freshwater and fen wetland complexes remove heavy metals from the hydrologic system by plant uptake and by adsorption on the sediments in the wetland complex.

- In addition to the wetland complexes described above, the creek supports a riparian community comprised of willows, sedges, and rushes. The riparian community has been impacted by historic sheep grazing practices during summer, but the riparian community is stable and vigorous.

- The Burrows Creek macroinvertebrate community is dominated by Chironomidea midges. Trichoptera caddisflies and two stonefly taxa (*Capnia and Zapada*) have been documented at various locations and times on Burrows Creek. The Hilsenoff Biotic Index calculated for Burrows Creek is 7.5, which indicates that the macroinvertebrate community is largely comprised of species tolerant of metals. The calculated Multi-Metric Index (Colorado Department of Public Health and Environment, 2010) for Burrows Creek is 15, which indicates that water quality in the creek is impaired. Burrows Creek passes through the historic Boston Mine site, and MMI scores and total taxa richness are lower below the Boston Mine. Remediation efforts to address acid mine

drainage from the Boston Mine site have begun, and BLM will be monitoring the effects of the remediation effort on water quality and macroinvertebrates.

Quantification of Instream Flow Needs. The recommended instream flow rates were quantified based on the needs of aquatic macroinvertebrates. Maintenance of stable aquatic macroinvertebrate populations is supported by continuously wetted stream surfaces, and adequate stream velocities. R2Cross methodology allows for identification of flows that generally meet these requirements. In addition, flows that meet CWCB's hydraulic instream flow criteria in riffles are also assist in providing stream temperatures and dissolved oxygen that meet macroinvertebrate requirements.

R2Cross Analysis. BLM and Colorado Parks and Wildlife (CPW) collected the following R2Cross data from Burrows Creek:

Cross Section Date	Discharge Rate	Top Width	Winter Flow Recommendation (meets 2 of 3 hydraulic criteria)	Summer Flow Recommendation (meets 3 of 3 hydraulic criteria)
08/26/2024 #1	2.65 cfs	15.88 feet	0.97 cfs	5.42 cfs
08/26/2024 #2	2.65 cfs	18.25 feet	2.60 cfs	2.63 cfs
		Averages:	1.785 cfs	4.025 cfs

BLM and CPW analysis indicate that the following flow rates are needed to protect the natural environment to a reasonable degree:

3.75 cfs is recommended from May 1 to June 15 during the peak of the snowmelt runoff period. This flow rate will provide a substantial extent of wetted surfaces, depth, and physical habitat availability for macroinvertebrates as they begin the active warm weather period of their life cycles. Maintaining adequate velocity supports oxygenation of riffles and reduces accumulation of fines in interstitial space, which supports a productive macroinvertebrate community.

1.6 cfs is recommended from June 16 to July 15 during the culmination of the snowmelt runoff period. This period is among the most active periods of the year for macroinvertebrate nymphs, larvae, and pupae, so it is important to provide as much wetted habitat and suitable depth as possible during this brief period.

0.58 cfs is recommended from July 16 to October 31. This recommendation is driven by limited water availability. Protection of flows during this period is important because it typically supports the highest biomass and diversity of aquatic macroinvertebrates during the year.

0.19 cfs is recommended from November 1 to March 31. This recommendation is driven by limited water availability. This flow rate will facilitate overwinter survival of

macroinvertebrates that embed themselves in the hyporheic zone of the creek and in wetlands immediately adjacent to the creek.

1.3 cfs is recommended from April 1 to April 30. This flow rate will facilitate macroinvertebrate activity in the active stream channel when macroinvertebrates start to emerge from the hyporheic zone of the creek as ice and snow begins to melt.

Relationship to BLM Management Actions. In October 2023, BLM acquired 10.75 cubic feet per second of the 11.0 cfs water right associated with the Mineral Point Ditch (WDID 3004661). In February 2025, BLM acquired the remaining 0.25 cfs ownership interest from another party. Mineral Point Ditch historically diverted water from Burrows Creek at the Boston Mine site and conveyed the water across a low saddle to the headwaters of the Uncompahgre River. The water was historically applied to irrigation use near the City of Ouray.

One of BLM's objectives for Burrows Creek is to protect the Mineral Point Ditch flows that have been redirected back to Burrows Creek. BLM is working collaboratively with CWCB staff to develop a lease agreement that would allow the purchased Mineral Point Ditch water rights to be committed to instream use in Burrows Creek. If CWCB leases the water right, it could function to help satisfy this recommended instream flow appropriation.

A second BLM objective for leasing the Mineral Point Ditch water right to the CWCB is protect water quality benefits for Burrows Creek. The portion of the Burrows Creek watershed above the Mineral Point is not significantly affected by mining influenced water. Historically, relatively cleaner water that flowed down Burrows Creek during the snowmelt runoff period was diverted to the Uncompahgre River watershed and could not serve to dilute acid rock drainage and mining influenced water lower in the Burrows Creek watershed. BLM anticipates that the dilution effects of returning the leased water right to Burrows Creek will help protect and improve water-dependent values on Burrows Creek and the Animas River.

Water Availability. The water from Mineral Point Ditch has already been returned to Burrows Creek, so that water right will no longer have any effect on water availability. Other than the Mineral Point Ditch water right, there is only one other water right that diverts from Burrows Creek, which is the Burrows Creek Diversion (WDID 3000857). This water right, which is owned by Houghton Mines LLC, is decreed for 0.9 cfs absolute, and 0.1 cfs conditional with a 2001 priority, and it is used to irrigate wetlands adjacent to Burrows Creek.

The only historic stream gaging activity on Burrows Creek was implemented from 2019-2021 as part of an Expanded Site Inspection Report conducted for BLM's Abandoned Mine Lands Program. As expected, that gaging demonstrated very high snowmelt runoff flows in May and June, and low baseflows in the August-September period. That report is conveyed to CWCB as part of this recommendation. In addition to the data described above, the Colorado Division of Water Resources has maintained a record of diversions made by Mineral Point Ditch. Since 2019, diversions were measured by a recording gage and made available by satellite telemetry, so these data should provide a record of flows that would have been available in Burrows Creek if the Mineral Point Ditch had not been operated.

Data sheets, model output, macroinvertebrate data, wetland data, and photographs of the cross sections have previously been transmitted to the CWCB staff. BLM thanks both Colorado Parks and Wildlife and the CWCB for their cooperation in this effort.

If you have any questions regarding our instream flow recommendation, please contact Roy Smith at 303-239-3940.

Sincerely,

JOEL HUMPHRIES Digitally signed by JOEL HUMPHRIES Date: 2025.02.27 09:55:48 -07'00' for

Alan Bittner
Deputy State Director
Resources

cc:

Stephanie McCormick, Southwest District
Jon Kaminsky, Gunnison Field Office
Melissa Smeins, Colorado State Office
Lisa Merrill, Silverton Field Station

BURROWS FEN RESTORATION

NATIONWIDE PERMIT 27 AQUATIC HABITAT RESTORATION, ESTABLISHMENT, & ENHANCEMENT ACTIVITIES

PERMIT APPLICATION

Purpose

The primary goal is to restore the Burrows Fen to a functioning condition that is representative of the surrounding reference sites. Burrows Fen was degraded by hillslope destabilization above Burrows fen and subsequent mass wasting and burial of the site due to a large number of mines and roadways. Restoration will be accomplished through three measurable subgoals:

1. *Erosion control.* Erosion on the side of Houghton Mountain has resulted in sediment deposition onto the fen. We will implement erosion control measures to prevent future burial of the fen following restoration.
    a. Install check dams, media lunas, and one rock dams along gullies and erosion paths to slow further sedimentation.
    b. Revegetate erosion channels to prevent current sedimentation indefinitely.
2. *Restore hydrology.* Reconnect the pool, fen and wet meadow to their natural groundwater hydrology by removing sediment deposited over top of the fen. This will also benefit the larger watershed by attenuating water flows, providing more streamflow during the dry season when demands are high.
3. *Restore native vegetation.* Native vegetation will be reestablished in the upland, wet meadow and fen areas post-hydrologic restoration using species identified in adjacent reference areas. The pool will be left unplanted to mimic other nearby reference pools.
4. *Improve habitat function.* By conducting the above methods, we will increase the area of diverse habitat that supports a number of different flora and fauna.
5. *Improve carbon sequestration.* Wetlands, and in particular peatlands, are one of the best-known carbon sinks on our terrestrial land surface. Although peatlands only represent 3% of our land surface they store more than double the carbon of the worlds forest, which represent roughly 37% of the global land surface. As this site is fully degraded and non-functional, not only do we lose carbon storage capabilities, but carbon release is also occurring as peat deposited over thousands of years decomposes. Restoring this system will return it to a carbon sink rather than a carbon source.

Existing Conditions

The proposed project site encompasses 4.94 acres of upland, degraded fen/wet meadow complex and reference fen (***Figure A- 1***). The degraded fen spans 0.29 acres and is buried beneath up to 20 cm of mineralized sediment from the hill slope above that does not support vegetation of any kind. Some of the 3.81 acres of upland has been similarly impacted by active erosion channels, old roadbeds, and historic mining. Houghton Mountain, located south of the proposed project site, is the primary source of sediment burying part of Burrows Fen. However, despite burial, groundwater well monitoring in both the degraded and reference area show that fen hydrology still exists at the degraded fen site below deposited sediment. Groundwater was present from 6 cm to 40 cm, with some areas having saturation at the surface on September 28th, 2022. The well installed in the reference wetland reflected water table levels near the surface during the entire summer while wells installed in the bare, degraded fen showed levels consistently 6-10 cm lower than the reference well, presumably due to the additional sediment. One well, placed in the area with roughly 20 cm deposited sediment, saw water table values ~25 cm lower than the reference site. The last well, located in degraded wet meadow, had groundwater below 40 cm most of the monitoring period and the soil within the well hole was mineral wetland soil (***Figure A- 2***).

There are limited channels supporting surface water flow, although gullies do exist that have led to the degradation of the site. There is one channel present that supports perennial flow called Burrows Creek. This channel was rerouted from the Animas basin to the Uncompahgre in the 1800's, creating a trans basin diversion. The BLM (land owner) has purchased the water rights and will eventually re-route Burrows creek into the Animas watershed, although that restoration is not part of this application. Surface water originating from Houghton Mountain and feeding Burrows Fen shows high natural metal loading due to the site's volcanic history, but groundwater flow paths altered by past mining activity have likely contributed to increased loading. Mining activity in the area spanning from the 1860s to the 1920s left highly disturbed areas of mineralized material in a steep gulch prone to erosion. Abandoned mines located in the Burrows Gulch Watershed include London, Dewitt, Red Cloud, Boston, Early Bird, Little Chief, and Ben Butler mines. Surface water sampling in the stream reach that feeds the Burrows Fen complex showed elevated levels of arsenic, lead, cobalt, manganese, cadmium, and aluminum. This may be attributed both to natural loading from Houghton Mountain and to the Little Chief mine adit located above the fen. Water sampled from this location shows high specific conductance and low dissolved oxygen values. Other tributaries draining off the mountain show similar patterns. This contrasts with water samples taken in surface water reaches above any mining operations (pH 5-6, specific conductance < 100 µS/cm). This water also interacts with the fen complex, although the majority of the fen is fed by groundwater sources from the surrounding mountains.

Soil cores taken throughout the project site showed silt loam to sandy soils with high mineral content in upland areas, peat in reference wetland areas, and peat capped with mineralized overburden in degraded areas (***Figure B- 1*** to ***Figure B- 5***).

Attached: Arial drone imagery as a .tiff file and georeferenced site photos as a .kmz file

Reference and Supporting Data

The intact portion of Burrows fen adjacent and downstream of the proposed project site will serve as an ecological reference for restoration efforts. The area is primarily fen with small areas of wet meadow on the connecting slopes, a few upland outcroppings, and pools scattered throughout (***Figure A- 3***). This complex contains a series of strings and flarks typical of fens in the region, as well as a surface water channel that runs along the northern edge. Water table values remain within a few centimeters of the surface throughout the summer months (***Figure A- 2***). The common wetland species *Carex aquatalis* dominates most of the vegetation community, accompanied by *Arostis idahoensis*, *Carex hardina* and isolated islands of *Sphagnum* moss (***Figure B- 10, Figure B- 6***). *Calamagrostis canadensis* and *Agrostis scabra* appear closer to the valley bottom. A soil core taken within the reference area showed over 40 cm of peat while a second core taken closer to the base of Houghton Mountain showed 10.5 cm of peat perched above a restricting bedrock layer (***Figure B- 5***, ***Figure B- 1***).

Monitoring Plan

Monitoring will take place on an annual basis at the site for three seasons following restoration. Baseline data will be collected where appropriate.

1. *Erosion control.* Monitoring erosion control structure success will utilize annual photo points at each structure and a quick measurement of sediment accumulation. This will be accomplished by measuring the linear distance between the ground surface upslope and the top of the structure. We will also capture overhead imagery with a drone that will allow us to track and quantify any mass wasting events and general shifts in vegetation type.
2. *Restore hydrology.* Wells will be re-established at the five previously monitored locations post-restoration and water table depths monitored throughout the growing season. Water depth in the restored pool will be included as a monitoring point as well (***Figure A- 4***).
3. *Restore native vegetation.* Vegetation community composition and total percent cover will be collected annually during peak growing season in plots established around well points. Funding dependent, we will also monitor sedge transplant and willow stake planting success.

APPENDIX A

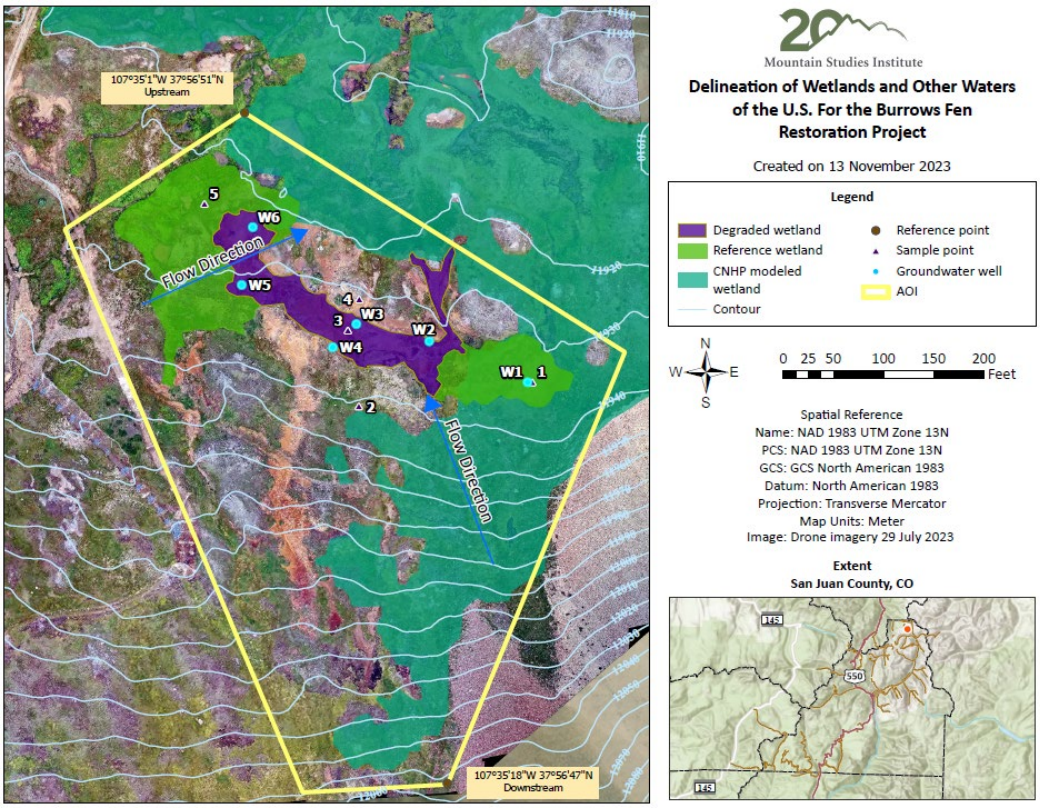


Figure A- 1. Delineation of the degraded Burrows Fen. Sample points are co-located with groundwater monitoring wells, installed in 2022.

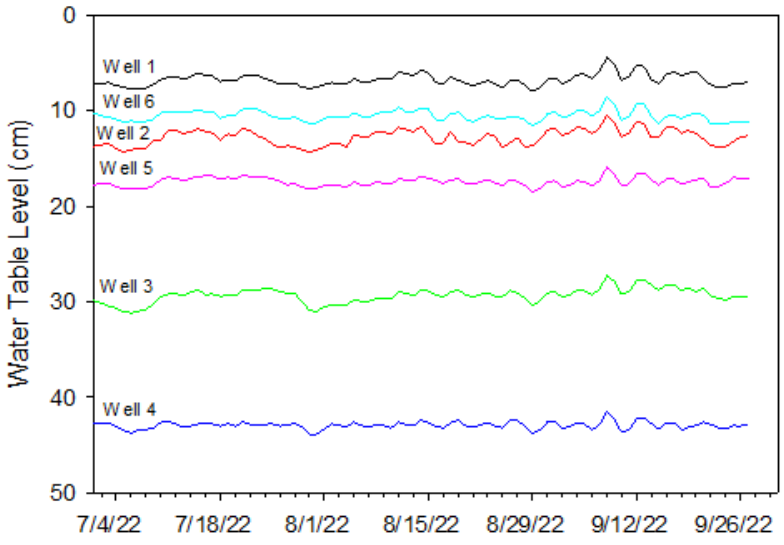


Figure A- 2. Water table depths collected via pressure transducers at 6 different wells in and around the degraded portion of Burrows fen during summer 2022. Well 1 is located in reference fen, wells 2, 3, 5, and 6 in buried, degraded fen, and well 4 on the boundary between degraded wet meadow and upland. See Figure 1-A for exact locations.



Figure A- 3. Reference site adjoined to the degraded Burrows Fen, located directly Northwest (left) and looking across valley at toward the degraded site (right)

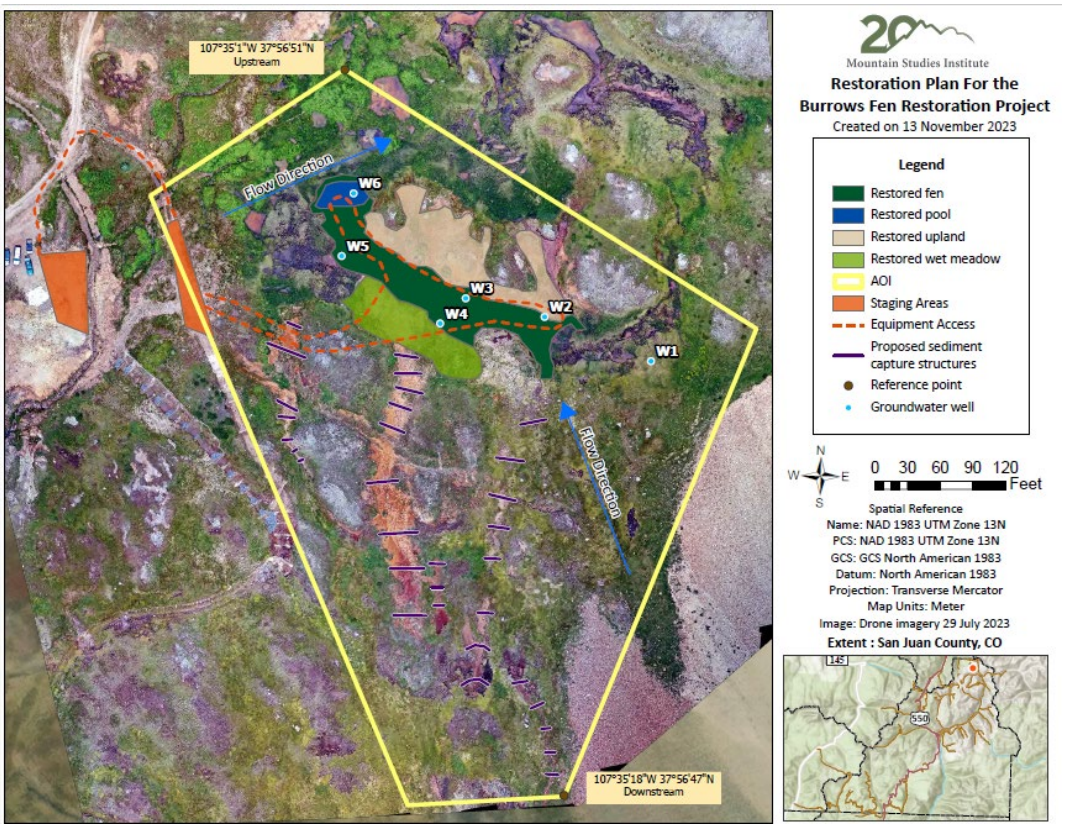


Figure A- 4. Proposed restoration map for Burrows fen. Polygons indicate desired final wetland type, short purple lines indicate proposed erosion control structure locations, and orange polygons and dashed lines indicate staging areas and equipment access paths. Blue points indicate well re-installation locations post restoration.

APPENDIX B. WETLAND DELINEATION DATA AND PHOTOS



Figure B- 1. Wetland delineation point 1 (top left), soil core hitting bedrock (top right), and soil core from point 1 showing reference wetland soil (bottom). Photos taken 27 July 2023.



Figure B- 2. Wetland delineation point 2 (top) and soil core from point 2 showing upland soil (bottom). Photos taken 27 July 2023.



Figure B- 3. Wetland delineation point 3 (top) and soil core from point 3 showing degraded wetland soil (bottom). Photos taken 27 July 2023.



Figure B- 4. Soil core from wetland delineation point 4 showing upland soil. Photo taken 27 July 2023.



Figure B- 5. Wetland delineation point 5 (top left), peat soil (top right), and soil core from 5 showing reference wetland soil. Photos taken 27 July 2023.

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Burrows Pass | City/County: San Juan County | Sampling Date: 7/29/2023

Applicant/Owner: BLM | State: CO | Sampling Point: 1

Investigator(s): Rod Chimner, Jake Kurzweil | Section, Township, Range: San Juan

Landform (hillside, terrace, etc.): Hillside/ Terrace | Local relief (concave, convex, none): concave, flat, convex | Slope (%): 0-30

Subregion (LRR): | Lat: 37.946444 | Long: -107.587755 | Datum:

Soil Map Unit Name: | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No
Hydric Soil Present?	Yes X	No
Wetland Hydrology Present?	Yes X	No
Is the Sampled Area within a Wetland?	**Yes X**	**No**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5mx5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 5mx5m)			
1. *salix planifolia*	1	No	OBL
2.			
3.			
4.			
5.			
	1 =Total Cover		
Herb Stratum (Plot size: 5mx5m)			
1. *carex aquatilis*	25	Yes	OBL
2. *arostis idahoensis*	30	Yes	
3. *carex hardina*	30	Yes	
4. *Abies*			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	26	x 1 =	26
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	26 (A)		26 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10.5	10yr 2/1	100					Peat	80% partially decomposed fiber

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- x Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 10.5

Hydric Soil Present? Yes X No ___

Remarks:
Very fibrib peat overlaying low lying bedrock.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- x Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- X Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes x	No ___	Depth (inches): 0
Water Table Present?	Yes x	No ___	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes x	No ___	Depth (inches): 0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Surface water present both visually and in the groundwater well.

Figure B- 6. Wetland delineation data for the reference area adjacent to Burrows fen collected 29 July 2023. Data corresponds with delineation point 1.

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Burrows Pass | City/County: San Juan County | Sampling Date: 7/29/2023

Applicant/Owner: BLM | State: CO | Sampling Point: 2

Investigator(s): Rod Chimner, Jake Kurzweil | Section, Township, Range: San Juan

Landform (hillside, terrace, etc.): Hillside | Local relief (concave, convex, none): sloped | Slope (%): 10

Subregion (LRR): | Lat: 37.946327 | Long: -107.588329 | Datum:

Soil Map Unit Name: | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5mx5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 5mx5m)			
1. *salix planifolia*	1	No	OBL
2. *vaccinium sespitosum*	25	Yes	
3. *salix reticulats*	1	No	
4.			
5.			
	27	=Total Cover	
Herb Stratum (Plot size: 5mx5m)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8. *antennaria media*	1	No	FAC
9. *geum rossii*	4	Yes	FACU
10. *poa aplina*	4	Yes	
11. *juncus drummondii*	2	No	FACW
	11	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	2	x 2 =	4
FAC species	1	x 3 =	3
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	8 (A)		24 (B)
Prevalence Index = B/A =			3.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:

Hillslope with outcropings and vegetation intermixed

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10yr 5/4	100					Loamy/Clayey	Very dry, more like a silt loam
8-16	10yr 4/3	100					Mucky Sand	no fiber observed, high mineral content with slightly more organic content.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 16

Hydric Soil Present? Yes ___ No X

Remarks:

This area is on an upland hillslope that does get ephemeral surface water flow during the melt season

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes ___ No ___ Depth (inches): ___

Saturation Present? Yes ___ No ___ Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Figure B- 7. Wetland delineation data for an upland area adjacent to Burrows fen collected 29 July 2023. Data corresponds with delineation point 2.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Burrows Pass | City/County: San Juan County | Sampling Date: 7/29/2023
Applicant/Owner: BLM | State: CO | Sampling Point: 3
Investigator(s): Rod Chimner, Jake Kurzweil | Section, Township, Range: San Juan
Landform (hillside, terrace, etc.): terrace | Local relief (concave, convex, none): sloped | Slope (%): 10
Subregion (LRR): | Lat: 37.946572 | Long: -107.588397 | Datum:
Soil Map Unit Name: | NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
Are Vegetation x, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes x No
Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No x	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes X	No	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5mx5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 5mx5m)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5mx5m)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	=Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	=Total Cover		
% Bare Ground in Herb Stratum			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: (A)
Total Number of Dominant Species Across All Strata: (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:
Area has been denuded of vegetation due to mass waisting from the above hillslope and mining activites. This is the area targeted for restoration

SOIL Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-11		100					Sandy	Rocky overbuerden from hillslope
11-16	10yr 2/1	100					Peat	peat goes deeper as evident during the installation of the ground water well

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ 1 cm Muck (A9) **(LRR D, G)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(LRR A, E)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: ____
Depth (inches): ____

Hydric Soil Present? Yes ____ No X

Remarks:
This area has 12 in of sandy overburden over peat. The overburden is from mass waisting due to the eroding hillslope and exaserbated by histroic mining activity in the area and is the target of restoration.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
x High Water Table (A2)
x Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) **(LRR A)**
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) **(LRR A)**
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes x	No ____	Depth (inches): 10.8
Saturation Present? (includes capillary fringe)	Yes x	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
There are two ground water wells in this area, one closer to the upland section has a ground water depth of 14.4 in and the other in the visibly more saturated area has a depth of 10.8 inches.

Figure B- 8. Wetland delineation data for the degraded area in Burrows fen collected 29 July 2023. Data corresponds with delineation point 3.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region
See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement: Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Burrows Pass | City/County: San Juan County | Sampling Date: 7/29/2023
Applicant/Owner: BLM | State: CO | Sampling Point: 4
Investigator(s): Rod Chimner, Jake Kurzweil | Section, Township, Range: San Juan
Landform (hillside, terrace, etc.): terrace | Local relief (concave, convex, none): flat | Slope (%): ____
Subregion (LRR): ____ | Lat: 37.946572 | Long: -107.588397 | Datum: ____
Soil Map Unit Name: ____ | NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5mx5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *picea engelmannii*	20	Yes	FAC
2.			
3.			
4.			
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: 5mx5m)			
1. *vaccinium cespitosum*	3	No	UPL
2.			
3.			
4.			
5.			
	3	=Total Cover	
Herb Stratum (Plot size: 5mx5m)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	3	x 5 =	15
Column Totals:	23 (A)		75 (B)
Prevalence Index = B/A =	3.26		

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
The vast majority of the area is a rock outcropping devoid of vegetation with two small picea engelmannii.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100					Sandy	Rock outcroping

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ 1 cm Muck (A9) **(LRR D, G)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) **(LRR A, E)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: bedrock
Depth (inches): 4

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) **(LRR A)**
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) **(LRR A)**
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____
Water Table Present? Yes ____ No ____ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Roucky outcroping confing the terraced fen above

Figure B- 9. Wetland delineation data for an upland area in Burrows fen collected 29 July 2023. Data corresponds with delineation point 4.

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Western Mountains, Valleys, and Coast Region

See ERDC/EL TR-10-3; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Burrows Pass | City/County: San Juan County | Sampling Date: 7/29/2023

Applicant/Owner: BLM | State: CO | Sampling Point: 5

Investigator(s): Rod Chimner, Jake Kurzweil | Section, Township, Range: San Juan

Landform (hillside, terrace, etc.): terrace | Local relief (concave, convex, none): flat | Slope (%): ____

Subregion (LRR): ____ | Lat: 37.946658 | Long: -107.588361 | Datum: ____

Soil Map Unit Name: ____ | NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes x No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5mx5m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 5mx5m)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5mx5m)			
1. *agrostis scabra*	2	No	FAC
2. *Calamagrostis canadensis*	12	No	
3. *carex aquatilis*	75	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	89	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	77 (A)		81 (B)
Prevalence Index = B/A =			1.05

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10yr 2/1	100					Peat	peat with 80% or more of fiber

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- x Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 1 cm Muck (A9) **(LRR D, G)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR A, E)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- x Surface Water (A1)
- x High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- x Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes x	No ___	Depth (inches):	0
Water Table Present?	Yes x	No ___	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes x	No ___	Depth (inches):	0

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Iron fen next to a well established pool and below the out rock out cropping and proposed restoration of degraded fen

Figure B- 10. Wetland delineation data for the reference area adjacent to Burrows fen collected 29 July 2023. Data corresponds with delineation point 5.

Bureau of Land Management
December 2021

EXPANDED SITE INSPECTION REPORT

Burrows Gulch
San Juan County, Colorado

Contract: 140L0619D0001
Order: 140L0620F0367
Version: 1.0

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Contents

Executive Summary **1**
Background 1
Scope of Work 1
Results 2
Conclusions 4
1.0 Background **5**
1.1 Site or Sampling Area Description 5
1.2 Site History 5
1.3 Water Rights 8
2.0 Conceptual Site Model **8**
2.1 Sources 8
2.1.1 Mines 8
2.1.2 Background Sources 10
2.2 Pathways 10
2.3 Exposure Route and Receptors 11
3.0 Expanded Site Inspection Design and Objectives **11**
3.1 Field Methods 12
3.1.1 Task 1: Surface Water and Sediment Sampling 12
3.1.2 Task 2: Background Soil Sampling 14
3.1.3 Task 3: Stream Flow Measurement 16
3.1.4 Task 4: Infrared Camera Stream Survey 16
3.1.5 Task 5: Passive Flux Meter Analysis 16
3.1.6 Sample Handling, Chain of Custody, and Waste Disposition 17
3.2 Laboratory Analyses 17
4.0 Quality Assurance/Quality Control **17**
4.1 Field Quality Control 17
4.2 Laboratory Quality Control 18
4.3 Data Validation 18
4.4 Deviations from the Work Plan 18
5.0 Expanded Site Inspection Results **19**
5.1 Task 1: Surface Water Sampling 19
5.1.1 Interpretation of Surface Water Results 19

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5.2 Task 2: Sediment Sampling 23
5.2.1 Interpretation of Sediment Sample Results 23
5.3 Task 2: Background Soil Sampling 24
5.3.1 Interpretation of Historical Soil Sample Results 24
5.4 Task 3: Stream Flow Measurements 26
5.5 Task 4: Infrared Camera Stream Survey 26
5.6 Task 5: Passive Flux Meter Analysis 27
5.6.1 Interpretation of Flux Meter Results 29
6.0 Conclusions and Recommendations 29
6.1 Contaminant Sources 29
6.2 Contaminant Pathways 29
7.0 References 30

Exhibits

Exhibit 1-1. Site Location Map 6
Exhibit 1-2. Previous Studies Relevant to the Site 7
Exhibit 2-1. Mine Locations Map 9
Exhibit 2-2. Preliminary Simplified Conceptual Fate and Transport Model 10
Exhibit 3-1. Surface Water and Sediment Sample Locations Map 13
Exhibit 3-2. Soil Sample Locations Map 15
Exhibit 5-1. Surface Water Sample Analytical Detections October 2020 20
Exhibit 5-2. Surface Water Sample Analytical Detections June 2021 21
Exhibit 5-3. Surface Water Sample Analytical Detections July 2021 22
Exhibit 5-4. Summary of COC_{sw} 23
Exhibit 5-5. Sediment Sample Analytical Detections 23
Exhibit 5-6. Background Threshold Values (mg/kg) 24
Exhibit 5-7. Historical Soil Sample Analytical Detections 25
Exhibit 5-8. Stream Flow Measurement Results 26
Exhibit 5-9. Annotated Stream Survey Map 28
Exhibit 6-1. Burrows Gulch Site CSM 30

Appendices

Appendix A Historical Analytical Data
Appendix B Field Documentation
Appendix C Burrows Gulch Stream Gauge Report 2021
Appendix D Data Validation Reports
Appendix E Analytical Laboratory Reports
Appendix F Analytical Results Summary Tables
Appendix G Background Soil Comparison Values
Appendix H Photographic Documentation
Appendix I Passive Flux Meter Results Report

Acronyms

Acronym	Definition
AMD	Acid Mine Drainage
ARSG	Animas River Stakeholders Group
BLM	Bureau of Land Management
BPMD	Bonita Peak Mining District
BTV	Background Threshold Value
cfs	Cubic Feet per Second
COC	Contaminant of Concern
COC_{soil}	Contaminant of Concern in Soil
COC_{sw}	Contaminants of Concern in Surface Water
COPC	Contaminant of Potential Concern
CSM	Conceptual Site Model
DMG	Division of Minerals and Geology
EPA	Environmental Protection Agency
ESI	Expanded Site Inspection
ESS	Environmental Support Services
GPS	Global Positioning System
HHRA	Human Health Risk Assessment
HSG	Herndon Solutions Group
IR	Infrared
IROD	Interim Record of Decision
LCS	Laboratory Control Standard
MS/MSD	Matrix Spike/Matrix Spike Duplicate
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RIWP	Remedial Investigation Work Plan
RSL	Regional Screening Level
UAA	Use Attainability Analysis
US	United States
UTL	Upper Tolerance Limit
USGS	United States Geological Survey
WQCC	Water Quality Control Commission

EXECUTIVE SUMMARY

The US Bureau of Land Management (BLM) tasked Herndon Solutions Group (HSG) through the Environmental Support Services (ESS) Contract to conduct an Expanded Site Inspection (ESI) of Burrows Gulch (the Site). The Site is located within the geographic boundary of the Bonita Peak Mining District (BPMD), which is on the Superfund National Priority List (NPL).

Through Executive Order (EO) 12580 as amended, the president of the United States has delegated authority to the Department of the Interior (DOI) to respond to any release or threatened release of a hazardous substance, pollutant, or contaminant on or from land under the DOI's jurisdiction, custody, or control, exercising the president's authority derived from the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). This CERCLA authority has been further delegated by the DOI secretary to the heads of each DOI bureau and agency, including BLM.

Background

Burrows Gulch is in a high alpine valley located above the tree line in the Bonita Peaks Mining District (BPDM). The confluence of Burrows Gulch with the Animas River is at an approximate elevation of 11,600 feet above mean sea level. The Burrows Gulch Watershed is one of three watersheds listed as part of the Headwaters Focus Area in the US Environmental Protection Agency's (EPA's) Remedial Investigation Work Plan (RIWP) for the BPDM (CDM Smith 2021). Mines present in Burrows Gulch and listed in the RIWP include Red Cloud, Boston, Dewitt, London, and Ben Butler. The Red Cloud Mine is located on BLM-managed land, and the Ben Butler Mine is a mixed-ownership site located partially on BLM-managed land and partially on privately owned property. The Boston, Dewitt, and London mines are located on privately owned property.

Scope of Work

This study was intended to establish a conceptual site model (CSM) to evaluate the fate and transport of metals both from historical mining and naturally occurring background sources and the relative contribution of each source to metal loading in the Animas River. One of the main goals of this ESI is to discover potential impacts of the Site on the Animas River, which includes gathering information on any metal loading coming from Burrows Gulch. The ESI was designed to:

- Identify the location and concentration of metals in Site media (surface water, sediment, and soil).
- Identify mining-impacted and background surface water quality.
- Identify rate of stream flow at points along Burrows Gulch and prior to flowing into the Animas River.
- Identify areas of interaction between surface water and groundwater.
- Identify mass flux and groundwater upwelling or downwelling.

Use or disclosure of data contained on this sheet is restricted.

The ESI was conducted in accordance with the EPA's Guidance for Site Inspections (EPA 1992). This ESI supports CSM development focused on collection of additional physical and chemical data to fill data gaps and expand the understanding of the Site. Consistent with guidance, the study relies on generic screening metrics such as the EPA's Tapwater Regional Screening Level (RSL) (EPA 2021) to gauge the magnitude of surface water concentrations as well as similar conservative risk screening metrics. The ESI is not a decision document but rather provides information for BLM's CERCLA decision-making process regarding land it manages within Burrows Gulch.

Additionally, the ESI was designed after evaluating previous data sets discussed in **Section 1.2** for data gaps and consideration of land ownership and water rights as discussed in **Section 1.3**.

The study was divided into five tasks:

- Task 1: Surface Water/Sediment Sampling
- Task 2: Background Soil Sampling
- Task 3: Stream Flow Measurements
- Task 4: Infrared Camera Stream Survey
- Task 5: Passive Flux Meter Analysis

Results

Surface water sample analysis reported detections of six metals at concentrations greater than the EPA Tapwater RSL; however, based on the exposure scenario used by the BPMD Human Health Risk Assessment (HHRA) (CDM Smith 2019) only arsenic, cadmium, cobalt, and manganese exceed the RSL near the confluence of Burrows Gulch and the Animas River and are therefore surface water contaminants of concern (COC_{sw}). Sample locations are shown in **Section 3.** Surface water and sediment sample locations are shown on **Exhibit 3-1** and soil sample locations are shown on **Exhibit 3-2**.

Sediment sample analysis reported detections of lead in one sample at concentrations greater than the EPA Industrial Soil RSL; however, based on the exposure scenario used by the BPMD HHRA (CDM Smith 2019), no analytes exceed the RSL near the confluence of Burrows Gulch and the Animas River. There are, therefore, no sediment COCs.

Soil samples collected as part of this study were used to calculate background threshold values (BTVs). Historical soil analysis data were compared to the BTVs (E&E 2019). Twelve metals were reported historically with concentrations greater than the BTVs. Of the 12 metals, only lead was found to exceed the EPA Industrial Soil RSL in surface soil samples near Red Cloud and London mines and in waste rock samples collected near London, Ben Butler, Boston, Dewitt, and Red Cloud mines. Lead is considered a soil COC (COC_{soil}) at the Site.

Stream flow was measured at the Burrows Gulch stream gauge over the course of the 2021 runoff season. The Burrows Gulch gauge was installed on 5/24/2021 and removed on 10/4/2021. Data were compared to the Upper Animas basin-wide discharge as measured at USGS gauge # 09358000 located at Silverton, Colorado (known as sampling point A68 by EPA).

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The peak discharge at A68 occurred on 6/5/2021 and measured 695 cubic feet per second (cfs). The peak discharge value from Burrows Gulch was also on 6/5/2021. Burrows Gulch contributes approximately 5.6% of the total discharge at A68 during peak flows. The lowest discharge recorded by the stream gauge was 0.226 cfs on 9/29/2021. The discharge at A68 during this period was 34.1 cfs, indicating that Burrows Gulch contributes just **0.7%** of discharge to the Animas River during fall low-flow conditions.

Stream flow measurements taken with the surface water samples indicate that metal loads carried by the stream increase proportionately with increased flow rates, except as follows:

- The flow rate between locations A07G and A07E increases by a factor of 2.2 (221%); however, cadmium and manganese loads increase by 5.4x (540%) and 14x (1,400%), respectively.
- The flow rate between locations A07E and A07C1 decreases by 78% due to the diversion; however, cadmium, and manganese loads only decrease by 33% and 64%, respectively.
- The flow rate between locations A07C1 and A07B increases by a factor of 2.8 (280%); however, the manganese load increases by 3.4x (340%).

Significant observations made during the infrared camera stream survey are listed as follows (shown in **Section 5, Exhibit 5-9**):

- **Stream Segment 1:** Several small tributaries enter the stream. Surface water is in contact with soils and talus.
- **Stream Segment 2:** Surface water is in contact with bedrock and is contained within a rocky channel. There is an inflow on the right (southeast) bank sampled in June 2021 called Houghton Tributary. Downstream approximately 100 feet there is an inflow on the left bank from flow originating near Red Cloud Mine features.
- **Stream Segment 3:** Surface water is in contact with talus and soil. Previous flow studies have shown this segment both gains and loses water indicating mixing with groundwater. The diversion ditch removes nearly all surface water from the stream channel in this segment (during certain times of year, typically high flows).
- **Stream Segment 4:** Surface water channels divert and rejoin throughout this upper wetland and fen area. Surface flow rapidly increases indicating significant gain from groundwater.
- **Stream Segment 5:** The lower wetland receives several right bank (south side) inflows. No continuous surface water flows from the mine adits to the stream from London or Ben Butler were observed, though both adits do have a small amount of seepage.
- **Stream Segment 6:** From the end of the lower wetland to the confluence with the Animas River the stream descends roughly 200 vertical feet. The stream carves into bedrock in this segment.

The passive flux meter data indicate that inflow from groundwater directly into the stream channel is not a significant source of stream flow gain. Given the high flow rate beneath the stream bed, the historically low flow rates recorded from London and Ben Butler mines, and the surface areas of Houghton Mountain and areas north of the wetland, the likely source for most of the surface and near surface water in the wetlands is from upwelling of groundwater originally infiltrated on Houghton Mountain.

Conclusions

Elevated metals concentrations were detected in the surface water sample collected from the Houghton Tributary. This surface water flow is not related to any known mining activities, which indicates that during periods of high runoff (specifically during snow melt) Houghton Mountain is a significant source of naturally occurring metal loading. However, late in the season the flow is reduced.

Previous studies (E&E 2019) have found that surface water and groundwater interact and mix near the Red Cloud Mine. Flow rates and metal loading observed during this ESI have confirmed this finding. The loading observed between A07E and A07C1 is partly sourced from this interaction. However, direct attribution of loading to mine features or background groundwater was not made.

Other increases in load (specifically that observed between A07C1 and A07B) are attributable to Houghton Mountain through several observed seeps and the apparent groundwater contribution to the wetlands as documented by the stream survey and flux meters.

Contaminants were found to exceed the screening levels set in the BPMD HHRA (CDM Smith 2019) for both surface water and for soil at the Site. Specifically, concentrations of arsenic, cadmium, cobalt, and manganese have been reported in exceedance of the RSL near the confluence of Burrows Gulch and the Animas River and are therefore considered COC_{sw} at the Site. Also, concentrations of lead have been reported in exceedance of the RSL in surface soil samples near Red Cloud and London mines and in waste rock samples collected near London, Ben Butler, Boston, Dewitt, and Red Cloud mines and are therefore considered COC_{soil} at the Site.

The conceptual exposure pathway to COC_{sw} for recreational users at the confluence of Burrows Gulch and the Animas River is complete and the exposure pathway to COC_{soil} for workers and recreational users within Burrows Gulch is complete. The significance of these conceptually complete exposure pathways (in the context of the larger BPMD) is not evaluated at this time and will require clarification.

This Executive Summary is a description of the background, scope, results, conclusions, and recommendations and is not intended to be used separate from the ESI report. The report should be used in its entirety.

Use or disclosure of data contained on this sheet is restricted.

1.0 BACKGROUND

The US BLM tasked HSG through the ESS Contract to conduct an ESI of Burrows Gulch (the Site), which is located at the headwaters of the Animas River at 37.947274, -107.584706 (the approximate central point of the watershed). The Site location is illustrated in **Exhibit 1-1.**

1.1 Site or Sampling Area Description

The Upper Animas River watershed in San Juan County, Colorado, is in contact with mineralized material, either naturally or because of mining activities. Mining operations have disturbed the land, contributing to highly mineralized conditions in areas of the watershed.

Mineralized waste rock exposed to air and water can cause acidic conditions to mobilize the release of heavy metals to the environment.

Specifically of interest for this study is the Burrows Creek or Burrows Gulch Watershed. The "Burrows Creek" Watershed is one of three watersheds listed as part of the Headwaters Focus Area in the US EPA's Remedial Investigation Work Plan (RIWP) Section 5.2.2.2 (CDM Smith 2021). Mines present in the Burrows Gulch Watershed and listed in the RIWP include Red Cloud, Boston, Dewitt, London, and Ben Butler. Several other mines also exist in the Burrows Gulch Watershed. The RIWP states:

> These reaches are headwaters reaches and are characterized by high reach loads of metals that are likely a combination of anthropogenic sources and naturally occurring background because of the highly mineralized geology. Adit discharges represent a small proportion of the overall metals load. (CDM Smith 2021)

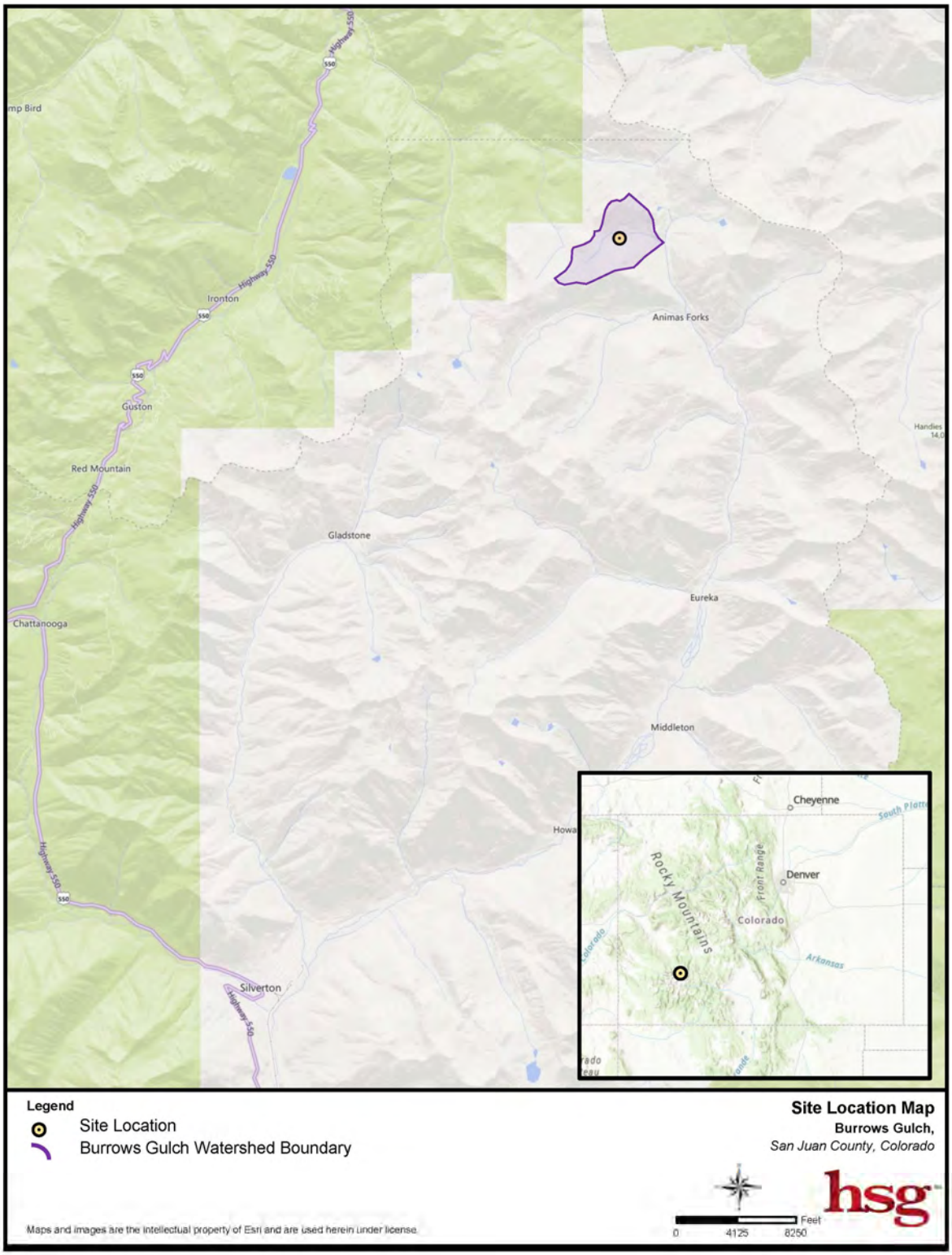
Burrows Gulch is in a high alpine valley located above the tree line in the Bonita Peaks Mining District (BPDM). The confluence of Burrows Gulch with the Animas River is at an approximate elevation of 11,600 feet above mean sea level. The vegetation in the valley are high alpine plants, grasses, and wetland plants. Burrows Gulch also contains fens, which is a type of peat-accumulating wetland occurring in areas fed by mineral-rich surface water and groundwater.

1.2 Site History

Burrows Gulch lays at the northern-most edge of a volcanic caldera (ARSG 2001). The volcanism of the area is what caused the metamorphism and geothermal alteration that led to heavy metal deposits and later mining. More recent glaciation helped carve the gulch and the Upper Animas River into the steep terrain that currently exists. Glacial carving created broad "U"-shaped valleys with steep, talus-covered slopes that make up Burrows Gulch.

Use or disclosure of data contained on this sheet is restricted.

Exhibit 1-1. Site Location Map



Though the area was originally Ute Indian Territory and was visited by Spanish prospectors, modern settlement and mining activity began around 1860 and 1870. Mining in the area was aided by the construction of the narrow-gauge railroad in 1882, with extensions to Eureka and Animas Forks by 1895 and 1904, respectively. Most mining was discontinued by the 1920s due to commodity price fluctuations (ARSG 2001).

Several studies of the area and the Site have been undertaken. **Exhibit 1-2** details the information relevant to this study.

Exhibit 1-2. Previous Studies Relevant to the Site

Title: Reclamation Feasibility Report Animas River Above Eureka		
Author: Colorado Division of Minerals and Geology (DMG)	**Date:** October 1999	**Purpose:** For use by Animas River Stakeholders Group (ARSG) in planning mine site restorations throughout the Animas River Watershed above the Eureka townsite.
Information Relevant to the Site: This paper describes the results of surveys conducted between 1991 and 1993 and sampling conducted between 1997 and 1998. The surveys and sampling included several locations within Burrows Gulch. The paper also describes the geologic setting of Burrows Gulch. The paper attributes "the majority of the iron in the Animas River" to Burrows Gulch but notes that adit discharge is not a major contributor of metal loading from the gulch stating, "virtually all the aluminum load must come from groundwater inflow sources."		
Title: Use Attainability Analysis (UAA) for the Animas River Watershed		
Author: ARSG	**Date:** January 2001	**Purpose:** The UAA was written as required by the Clean Water Act for use by the Colorado Water Quality Control Commission (WQCC) in promulgating use class and water quality standards.
Information Relevant to the Site: The UAA does not specifically discuss Burrows Gulch. The paper provides a great deal of information about the Site area setting, metals loading, and aquatic exposure.		
Title: USGS Professional Paper 1651		
Author: US Geological Survey (USGS)	**Date:** 2007	**Purpose:** Paper 1651 is one of two watershed studies conducted by USGS as part of their 1997 Abandoned Mine Lands Initiative. The paper is a detailed summary and investigation into the effects of mining on the Animas River Watershed.
Information Relevant to the Site: The paper describes the history of the BPMD and results of several studies. Information included in the corresponding database informed the data gap analysis used in the design of this ESI. The document also mapped the major geologic features including identification of Houghton Mountain as quartz-sericite pyrite (QSP) alteration.		
Title: Interim Record of Decision (IROD) for BPMD Superfund Site Operable Unit 1 (OU-1)		
Author: EPA	**Date:** May 2019	**Purpose:** The IROD was written to establish OU-1 at the BPMD. The IROD includes the preliminary remedial investigation and focused feasibility study.
Information Relevant to the Site: This document describes the contributing sources located in Burrows Gulch and reference samples collected as part of the investigation. Data from EPA investigations consolidated in the EPA Scribe database were used to inform the data gap analysis used in the design of this ESI.		

Title: Final Supplemental Site Investigation, BPMD, San Juan County, Colorado		
Author: Ecology and Environment, Inc. (E&E)	**Date:** April 2019	**Purpose:** This report summarizes findings of the supplemental investigation, completed on behalf of BLM, in the Cement Creek and the Upper Animas River watersheds.
Information Relevant to the Site: This document concludes that mixing of surface water and groundwater near Red Cloud Mine results in increased loads of metals in the Burrows Gulch (though direct attribution of loading to specific features is not made). The document also concludes that the Ben Butler Mine has little to no influence on surface water quality in Burrows Gulch. Soil data from the report is tabulated as **Appendix A Historical Analytical Data** for comparison with background concentrations.		

1.3 Water Rights

In September of 1956, a trans-basin diversion ditch, officially named the Mineral Point Ditch, was constructed to transport water from the upper Burrows Gulch to land owned by Warren Gibbs in the Uncompahgre Watershed. The Mineral Point Ditch was claimed with a right to 11.0 cubic feet per second (cfs) of water from Burrows Gulch. In 2001 an application for appropriation from the ditch was granted to Philip Bennett for 1.00 cfs.

2.0 CONCEPTUAL SITE MODEL

A CSM is an iterative, living representation of a site at a specific point in time that summarizes and helps project teams visualize and understand available information and identify information needs. The CSM is refined as additional information emerges over the course of an investigation.

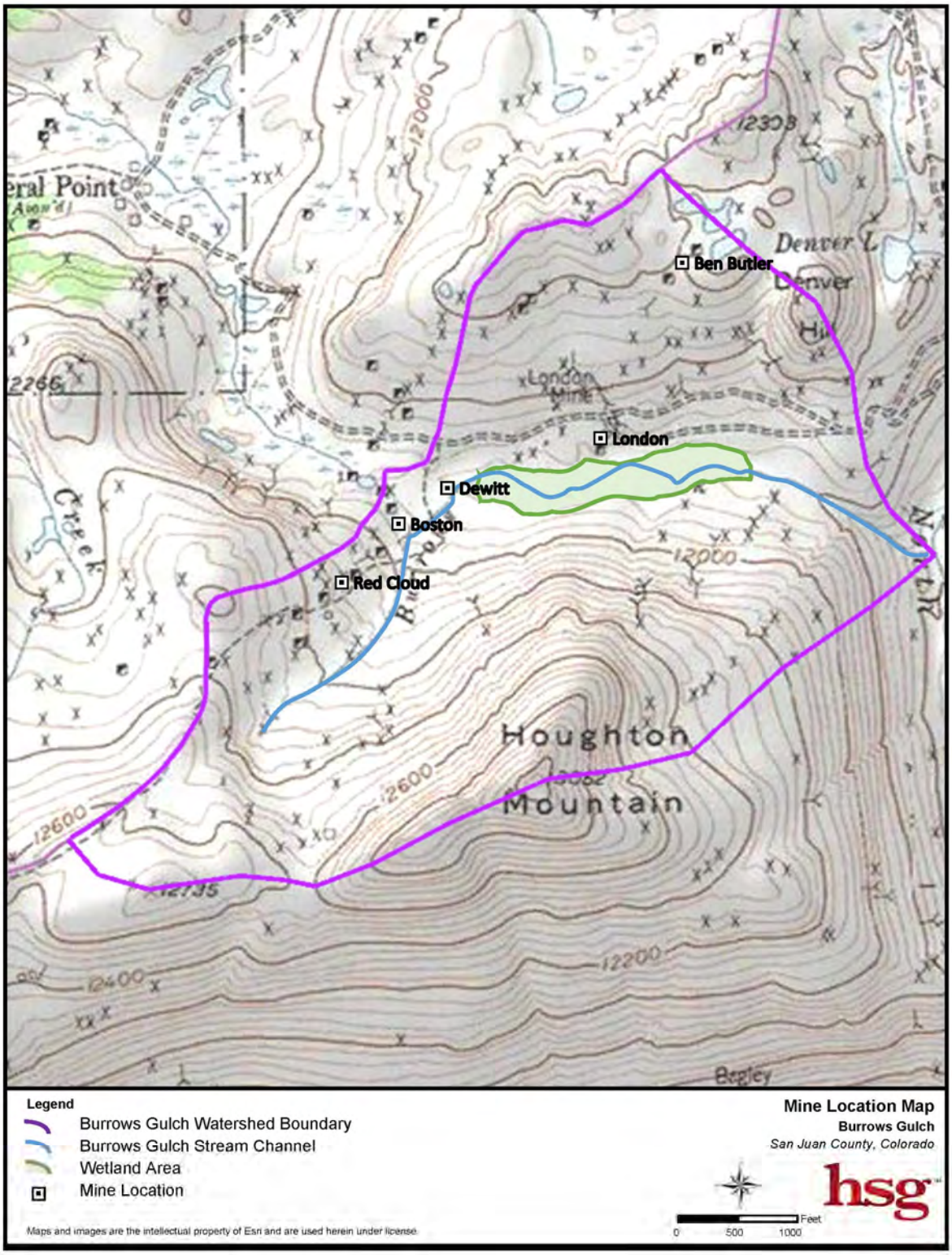
2.1 Sources

2.1.1 Mines

The anthropogenic contamination at the Site originates from the acid mine drainage (AMD) leaving the mines across the Site. AMD is generated when rocks containing sulfur, such as pyritic rock (FeS_2), encounter surface water or groundwater. The chemical reaction of the sulfur-heavy rock and the water creates sulfuric acid. The sulfuric acid that is created enters the surface water and shallow groundwater and can cause heavy metals to leach from the rocks that encounter the acidic waters.

Mines present in Burrows Gulch (**Exhibit 2-1**) and listed in the EPA's RIWP include Red Cloud, Boston, Dewitt, London, and Ben Butler (CDM Smith 2021). Appendix A of the RIWP provides detailed descriptions of each mine (CDM Smith 2021). Several other mines also exist in the Burrows Gulch Watershed.

Exhibit 2-1. Mine Locations Map



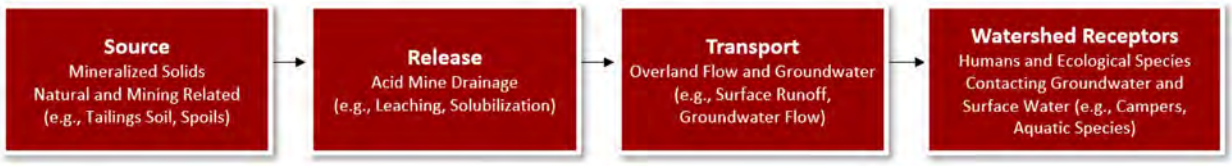
2.1.2 Background Sources

The regional geology contains significant amounts of altered pyritic rock. Houghton Mountain is specifically listed as quartz-sericite pyrite alteration (QSP). The soils and rocks of the area weather naturally and expose the pyritic rock to water, which lowers the pH and releases heavy metals (USGS 2007). The heavy metals released include but are not limited to zinc, cadmium, and copper. The weathered disseminated pyrite has also resulted in the iron-stained areas on Houghton Mountain that are readily visible.

2.2 Pathways

The pathways and linkages to the sources (e.g., mines) and receptors can be related through a simplified conceptual model as shown below. In concept, watershed receptors (humans and ecological species) can be exposed to heavy metals in this manner. Additionally, receptors can be exposed through direct contact with the mineralized solids (tailing, spoils). This linkage is illustrated theoretically in **Exhibit 2-2**.

Exhibit 2-2. Preliminary Simplified Conceptual Fate and Transport Model



The BPMD HHRA (CDM Smith 2019) identified the following as the pathways of concern for BPMD overall:

- Solid particles released to air
- Solid wastes eroded into surface water and sediment
- Adit discharge
- Plant and animal tissue
- Dissolved contaminants in surface water runoff
- Dissolved contaminants infiltrated in groundwater
- Groundwater interacting with surface water

Not all BPMD risk pathways are pertinent to the ESI. Moreover, while the Burrows Gulch Watershed receptors are relevant in this preliminary CSM; the overall CSM should address concerns for receptors in the Animas River.

Pathways of concern for Burrows Gulch include:

- Solid wastes eroded into surface water and sediment
- Dissolved contaminants in surface water runoff
- Direct contact with surface solids

2.3 Exposure Route and Receptors

The opportunity for significant human exposure to Burrows Gulch waters, sediments, and soils is very limited. There are no residences or occupied structures within 200 feet of potential source areas. The only humans on or near the Site are workers, recreational users (hiker, hunter, all-terrain vehicle rider, camper, and fisherman), and/or trespassers. Recreational users access the Site from the Alpine Loop and may walk around the Site. Thus, while conceivable that humans could be exposed to heavy metals associated with mining-related activities, this opportunity is limited and only applicable during the warmer months (the Site is snow-covered and frozen much of the year). Additionally, exposure to aquatic species is similarly restricted due to seasonal considerations.

The exposure scenarios considered in the BPMD HHRA include hiker, hunter, and worker exposure to surface soil; all-terrain vehicle rider exposure to surface soil; camper consumption of surface water and exposure to sediment and surface soil; and fisherman exposure to surface water and sediment (CDM Smith 2019). The exposure scenarios for campers includes surface water and sediment within 200 feet of established camp sites (no established campsites are present in Burrows Gulch). The exposure scenarios for fisherman are limited to Mineral Creek and the Animas River based on the presence of fish species. Given the lack of established campgrounds and fish species within Burrows Gulch the exposure pathway for surface water and sediment is incomplete. However, the exposure scenarios are potentially complete within the Animas River watershed, and therefore the confluence of Burrows Gulch and the Animas River is used as a point of contact for surface water and sediment.

Given the low potential for significant human and ecological risk in the Burrows Gulch Watershed itself, a consideration arising from the simplified source to receptor model is the relative contribution to loading of metals released to the Animas River and downstream reaches from the Burrows Gulch Watershed.

Workers, recreational users, and trespassers within Burrows Gulch may be exposed to:

- Incidental ingestion of surface soil
- Dermal contact with soil
- Inhalation of soil particles

3.0 EXPANDED SITE INSPECTION DESIGN AND OBJECTIVES

This ESI was intended to establish a CSM to evaluate the fate and transport of metals from mining and background sources and the relative contribution of metals to the Animas River. The ESI objectives were designed to:

- Identify the location and concentration of metals in Site media (surface water, sediment, and soil).
- Identify mining-impacted and background surface water quality.

- Identify rate of stream flow at points along Burrows Gulch including points flowing into the Animas River.
- Identify areas of interaction between surface water and groundwater.
- Identify mass flux and groundwater upwelling or downwelling.

Field documentation of the ESI is provided as **Appendix B.**

3.1 Field Methods

The ESI was divided into five tasks.

- Task 1: Surface Water/Sediment Sampling
- Task 2: Background Soil Sampling
- Task 3: Stream Flow Measurement
- Task 4: Infrared Camera Stream Survey
- Task 5: Passive Flux Meter Analysis

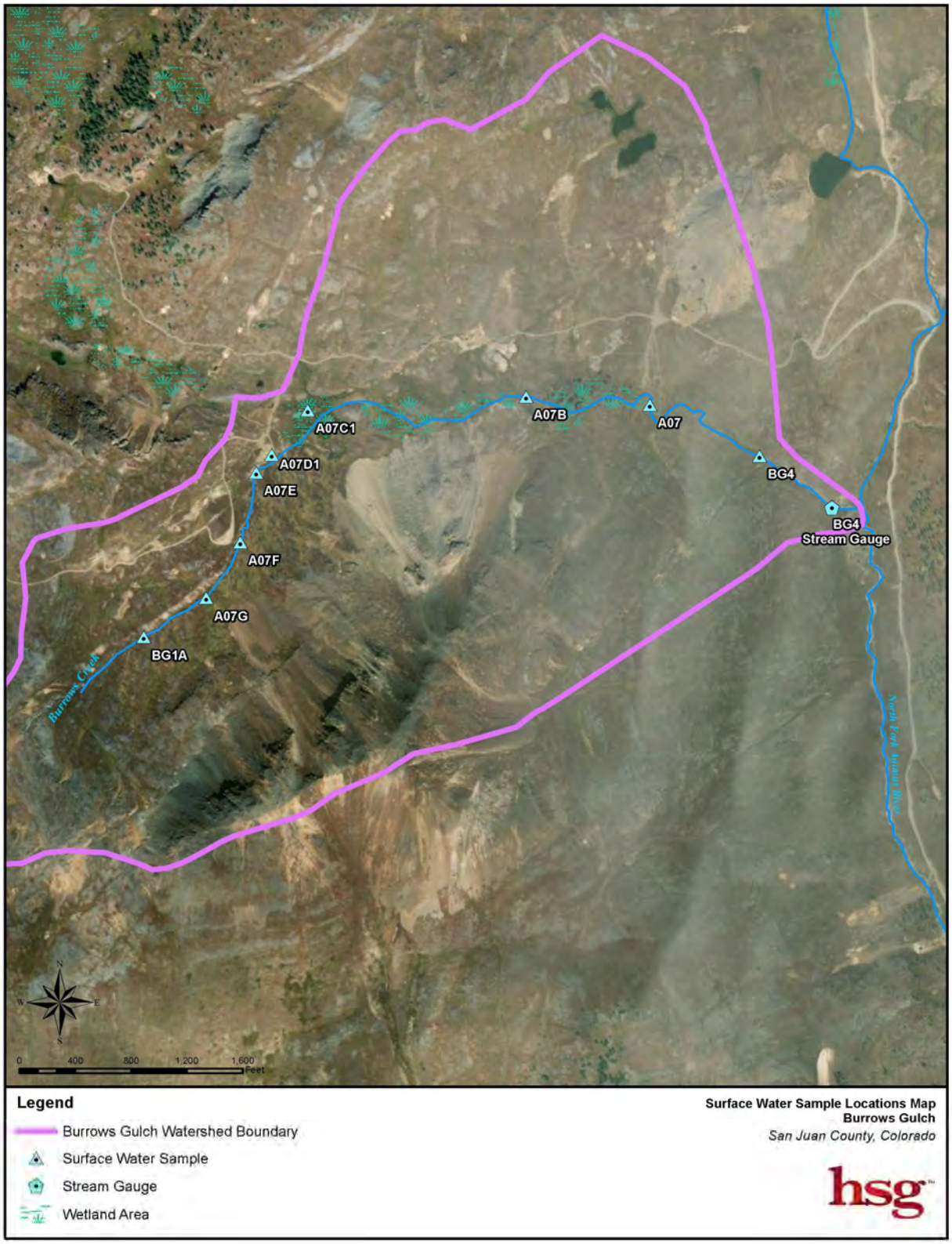
Methods used for each task are described in the following subsections. Methods used were in conformance with the approved Burrows Gulch Work Plan (HSG 2021) and the BPMD Quality Assurance Project Plan (QAPP) (CDM Smith 2020).

3.1.1 Task 1: Surface Water and Sediment Sampling

Several rounds of historical surface water and sediment sampling have occurred in Burrows Gulch. The primary purpose of this task was to evaluate whether conditions at the Site are stable and correlate with the previous data set.

Six locations were selected for surface water and sediment sampling (BG1A, A07G, A07E, A07C1, A07B, A07, and BG4). The sample locations were selected based on locations downstream of areas of interest, in addition to one location upstream (relatively unaffected by mining activities). Locations are shown in **Exhibit 3-1**.

Exhibit 3-1. Surface Water and Sediment Sample Locations Map



In July 2021 Surface water samples were collected prior to sediment sampling at each location to prevent artificially increasing the water turbidity when disturbing the sediment. Surface water samples were collected using the dip method. The dip method requires placing a laboratory-provided container into the water, slowly allowing water to flow in, and removing prior to being completely filled to prevent loss of preservative.

After collection of a surface water sample for total metals analysis. A second, filtered, sample was collected for dissolved metals analysis. The filtered sample was collected using a disposable syringe to push the sample through a 0.45-micron filter.

Following water sampling, sediment was collected by scraping the laboratory-provided container through the sediment. Water was drained from the container and additional sediment added as needed.

At each sampling location a water quality meter (calibrated according to the appropriate operation manual) was placed into the water. Readings were documented after stabilization.

Additional surface water sampling events occurred in October 2020 and June 2021 to determine the changes in metal load over the course of a year.

3.1.2 Task 2: Background Soil Sampling

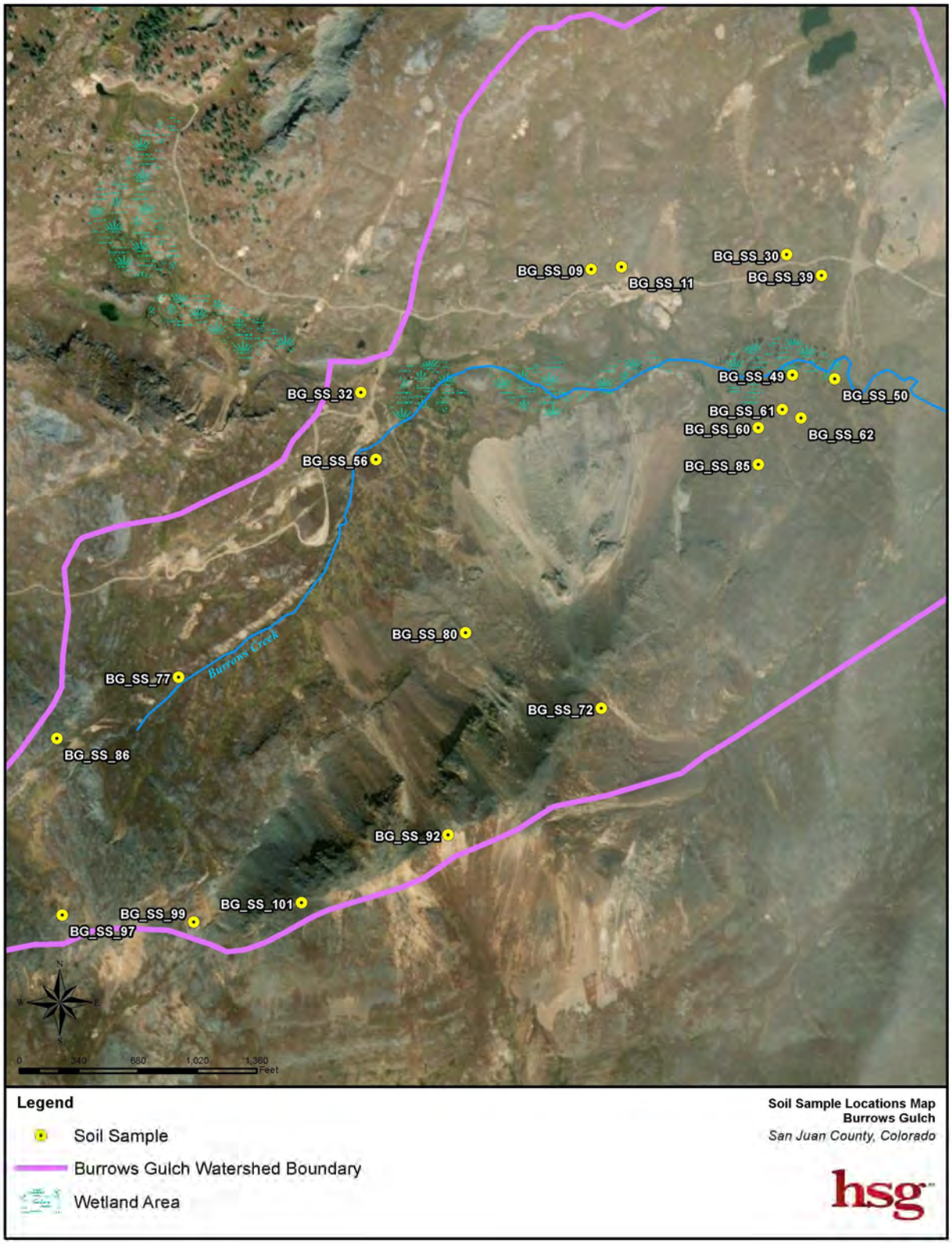
The mean concentration in the Burrows Gulch Watershed of metals in soil unaffected by mining activities is not known. The primary purpose of Task 2 is to establish, with a high level of certainty, the mean background metals concentration in the Burrows Gulch Watershed's soil and to identify the leaching potential of the metals from native soil.

Twenty random locations were selected for background soil sampling. A grid overlain on a map of the watershed was produced for the Work Plan (HSG 2021); each grid was assigned a number. To randomly select grid blocks, numbers were chosen using the "=RANDBETWEEN" function in Microsoft Excel.

If a selected grid was determined to be affected by mining activities, an unaffected adjacent grid area was sampled instead. The final sampling locations are shown in **Exhibit 3-2**.

Within each selected grid, an area of exposed soil was selected for sampling and the background soil sample was collected as a five-point composite. At each selected sampling location, a central aliquot and four additional aliquots (one in each cardinal direction north, south, east, and west) within 3 to 5 feet of the central aliquot were collected. Collection of aliquots occurred within a 0- to 2-inch depth interval using a disposable plastic scoop. Equal volumes were collected for each aliquot (e.g., two level scoops collected at each aliquot). All aliquots were placed into a plastic zip-top bag and homogenized. The homogenized composite samples were placed in laboratory-provided containers.

Exhibit 3-2. Soil Sample Locations Map



3.1.3 Task 3: Stream Flow Measurement

The primary purpose of this task is to establish flow rates and associated metal loading. Flow measurements were collected at each surface water sample location and the Burrows Gulch stream gauge following procedures outlined in the BPMD QAPP (CDM Smith 2020). At each location, the width of the stream was measured and recorded. The width was segmented into intervals. Each interval depth was measured and recorded. Flow velocity was then measured using a velocity meter at 60% of total depth.

The flow rate at each location was calculated as the sum of the interval rates:

$$Q_i = A_i(d/t)$$

Where Q_i is the interval flow rate, A_i is interval area (width x depth), and d/t is flow velocity.

Additional stream flow data collected over the course of the 2021 season are documented in the Burrows Gulch Stream Gauge Report 2021 provided in **Appendix C**.

3.1.4 Task 4: Infrared Camera Stream Survey

The primary purpose of this task is to evaluate groundwater/surface water interaction. The survey consisted of walking the entire stream length (with exception of the canyon area upstream of the Burrows Gulch Stream Gauge). The location of each observation was recorded on a Site map using a global positioning system (GPS).

A visual inspection, including through infrared (IR) camera, was performed as well as documentation of conditions along the stream. Specific items documented include IR temperature gradients, mineral staining, wet soil indicative of seep, and vegetation or the condition of vegetation.

3.1.5 Task 5: Passive Flux Meter Analysis

The primary purpose of this task is to estimate the volume of groundwater upwelling to surface water in the ESI areas. Two locations were selected in the field within the wetlands. The selected locations were in low-gradient areas near the stream channel and away from fens where significant depths of soil and sediment were present. These locations were anticipated to have higher levels of exchange between the surface water and groundwater based on the depositional conditions. Boreholes were advanced using a hand auger and other hand tools such as shovels and rock bars. After boring, a length of slotted polyvinyl-chloride (PVC) tubing was placed into the hole and passive flux meters (provided and manufactured by Enviroflux) were installed per manufacturer guidance. Field personnel returned to the Site two weeks after installation to retrieve the meters and return them to the manufacturer for analysis and reporting.

Use or disclosure of data contained on this sheet is restricted.

3.1.6 Sample Handling, Chain of Custody, and Waste Disposition

Personnel performing sampling donned appropriate personal protective equipment (PPE). Contact PPE, such as gloves, were changed between samples or after contacting non-sample media or equipment.

Samples were placed in laboratory-provided containers and preserved as indicated by the laboratory. Containers were labeled, recorded on the chain of custody form, and immediately placed on ice. Samples were maintained under the control of the sampler until relinquished. If the samples were left unattended by the custody holder, a custody seal was signed and taped along the front and back seem of the cooler. The chain of custody was maintained from point of sampling until samples arrived at the laboratory.

Investigative derived waste consisted of disposable sampling materials (gloves, needle-less syringes, PVC screen, and filters) and was disposed as general refuse.

3.2 Laboratory Analyses

Samples were transported by commercial carrier from Silverton, Colorado, to Pace Analytical Laboratories (Mt. Juliet, Tennessee). The laboratories used for this study maintain National Environmental Laboratory Accreditation Conference certification, as necessary. All laboratory methods are EPA-approved.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

Sampling was carried out in conjunction with a quality assurance (QA) program conforming to the EPA's QA program for the BPMD. For specific requirements on QA/quality control (QC), data validation, and chain of custody procedures, refer to the BPMD QAPP Revision 4 (CDM Smith 2020). The goal of the field QA program is to document that samples are collected without the effects of accidental cross-contamination or systematic contamination and that sample collection followed the sampling, analysis, and data validation procedures for generating valid and defensible data. The following sections describe the required field and laboratory QC and data validation procedures as well as any deviations from the Work Plan (HSG 2021).

4.1 Field Quality Control

Instruments used in the field consisted of a pH/conductivity/temperature meter, GPS, digital cameras, and an IR camera. Instrument calibration was checked daily. No maintenance was required during Site activities as operation of each piece of equipment was verified to conform with its manufacturer's specifications.

For every 10 samples, or portion thereof, collected in the field, one field duplicate was collected and submitted for laboratory analyses to verify the reproducibility of the sampling methods. Field duplicates were prepared by separately submitting an aliquot from the same sample location to the laboratory for the same analyses. Results of parent and duplicate samples are compared in the data validation reports (**Appendix D**).

4.2 Laboratory Quality Control

Laboratory QC procedures were followed consistent with relevant state and federal regulatory guidance. Laboratory deliverables contain the supporting documentation necessary for data validation. Internal laboratory QC checks included method blanks, matrix spikes (and matrix spike duplicates), surrogate samples, calibration standards, and laboratory control standards (LCSs). Deviations or exceptions to these controls are noted in the data validation or analytical results reports (**Appendix D** and **Appendix E**).

Matrix spike/matrix spike duplicate (MS/MSD) samples refer to field samples spiked with analytes prior to being analyzed at the laboratory to gauge the quality of analysis. Approximately one in 20 samples were analyzed as MS/MSD samples. Results of MS/MSD samples are compared in the data validation reports (**Appendix D**).

4.3 Data Validation

All laboratory data underwent Level II validation according to EPA's National Functional Guidelines (EPA 2017). The Level II data review and validation found that the laboratory analysis had few issues, none that are uncommon in this type of analysis, and no complications that would limit the usability of the analytical results. Field activities, sample handling, and processing were satisfactory and did not introduce variables that would jeopardize data usability. Data qualifiers were applied, as appropriate. The qualifiers do not limit data usability. Overall, the data is determined to be of suitable quality and reliability for assessing the Burrows Gulch Watershed.

Third-party data was evaluated for soundness, applicability, completeness, and uncertainty as required by the BPMD QAPP (CDM Smith 2020). Third-party data used in the ESI was evaluated to be acceptable for the uses applied.

4.4 Deviations from the Work Plan

Due to the ongoing evaluation and refinement of the ESI design and objectives, changes can occur to the approved plan based on Site conditions encountered. The following changes were noted:

- **Task 2: Background Soil Sampling.** Proposed samples located at grid locations 25 and 43 were not collected based on observations of mining-related disturbances. Composite background soil samples were collected from grid locations 9 and 32.
- **Task 5: Passive Flux Meter Analysis.** The passive flux meters were installed via hand-augered boreholes. The prescribed depth of 5 feet was not achieved due to continual collapse of gravels within the borehole limiting installation of the flux meters to a depth of 3 feet below surface water level.

No other deviations from the approved Burrows Gulch Work Plan (HSG 2021) were noted during this ESI.

Use or disclosure of data contained on this sheet is restricted.

5.0 EXPANDED SITE INSPECTION RESULTS

The following sections summarize the results of each ESI task.

5.1 Task 1: Surface Water Sampling

The analytical reports for water samples collected at the Site indicated the detection of several metals in samples collected (detected analytes shown in **Exhibits 5-1, 5-2, and 5-3**). Laboratory analytical reports are provided in **Appendix E** and tables summarizing reported analytical results with comparison to screening levels are provided as **Appendix F**. **Exhibits 5-1 through 5-3** are highlighted to show the highest and lowest concentrations of each metal in order to illustrate areas of relatively low load and areas with significant increases in concentration.

Of the reported detections, six metals (aluminum, arsenic, cadmium, cobalt, lead, and manganese) concentrations exceeded the EPA Tapwater RSL, and, per the BPMD HHRA (Section 3.4.2), these six metals are considered contaminants of potential concern (COPC) that require further evaluation (CDM Smith 2019).

5.1.1 Interpretation of Surface Water Results

The exposure scenarios considered in the BPMD HHRA for surface water specifically consider fisherman and campers (CDM Smith 2019). Given the assumptions presented in the HHRA, the surface water in Burrows Gulch does not meet the criteria for point of exposure (specifically there are no fish species in Burrows Gulch and no established or dispersed campsites) (CDM Smith 2019, Section 4.1.3.2). Therefore, only concentrations of aluminum, arsenic, cadmium, cobalt, lead, and manganese exceeding the EPA Tapwater RSL collected at sample locations SW-05 [Stream Gauge] and BG4, near the outfall of Burrows Gulch to the Animas River, are to be evaluated.

It should be noted that this will likely be an overly conservative screening assessment since humans are not expected to use this water for regular consumption. The human consumption of tapwater exposure criterion (daily consumption for an extended period of time), while used previously in the BPMD HHRA, is not relevant for the Burrows Gulch or Animas River receptors. This highly conservative application of the EPA Tapwater RSL should be used only as an indicator for ESI screening and for consistency with the approach used in the BPMD HHRA.

Exhibit 5-1. Surface Water Sample Analytical Detections October 2020

Analyte	EPA Tapwater RSL	BG_SW_01_1020 (BG1A)	BG_SW_02_1020 (A07G)	BG_SW_03_1020 (A07F)	BG_SW_04_1020 (A07E)	BG_SW_05_1020 (Stream Gauge)
Aluminum, total	20	0.149	1.12	10.4	22	6.94
Arsenic, total	0.000052	ND	0.00041	0.0007	0.00211	0.00093
Barium, total	3.8	0.0184	0.014	0.0103	0.0134	0.0193
Beryllium, total	0.025	0.000248	0.000199	0.000913	0.00209	0.00283
Cadmium, total	0.0092	0.000993	0.0014	0.0124	0.0227	0.016
Cobalt, total	0.006	ND	ND	ND	0.021	ND
Copper, total	0.8	ND	0.018	0.056	0.105	0.052
Iron, total	14	0.069	0.228	ND	0.218	ND
Lead, total	0.015	0.00142	0.119	0.0129	0.0393	0.00611
Manganese, total	0.43	0.037	0.406	6.43	11.4	4.78
Nickel, total	0.39	ND	ND	0.0088	0.0211	0.014
Selenium, total	0.1	ND	ND	ND	0.00032	ND
Thallium, total	0.0002	ND	ND	0.00011	0.00016	ND
Zinc, total	6	0.223	0.237	2.02	3.44	2.35
Aluminum, dissolved	20	0.189	0.526	10.2	22	7
Arsenic, dissolved	0.000052	ND	0.00024	0.00031	0.0005	0.0003
Barium, dissolved	3.8	0.0305	0.0262	0.0236	0.0269	0.033
Beryllium, dissolved	0.025	0.000404	0.000217	0.00113	0.00238	0.00313
Cadmium, dissolved	0.0092	0.00103	0.000995	0.0126	0.0226	0.0159
Chromium, dissolved	0.006	0.012	0.01	0.011	0.012	ND
Cobalt, dissolved	0.8	0.01	0.011	0.026	0.036	0.016
Copper, dissolved	14	0.013	0.015	0.075	0.123	0.065
Iron, dissolved	0.015	ND	ND	0.077	0.242	ND
Lead, dissolved	0.43	0.00137	0.00857	0.013	0.0388	0.00601
Manganese, dissolved	0.39	0.023	0.059	5.9	10.6	4.48
Nickel, dissolved	0.1	ND	ND	0.0096	0.0212	0.0133
Thallium, dissolved	0.0002	ND	ND	0.00012	0.00011	ND
Zinc, dissolved	6	0.227	0.22	1.98	3.43	2.33

ND = not detected
Units = milligrams per liter (mg/l)

Orange highlight indicates concentrations exceeding RSL.
Green highlight indicates lowest reported concentration.

Red highlight indicates highest reported concentration.

Exhibit 5-2. Surface Water Sample Analytical Detections June 2021

Analyte	EPA Tapwater RSL	B6_SW_A07_G (A07G)	B6_SW_HT (Houghton Tributary)	B6_SW_A07_D1 (A07D1)	B6_SW_A07_C1 (A07C1)	B6_SW_A07_B (A07B)	B6_SW_A07 (A07)	B6_SW_5 (Stream Gauge)	B6_SW_95 (Stream Gauge)
Aluminum	20	**0.642**	**10.4**	**1.87**	**6.68**	**5.17**	**3.24**	**2.88**	**2.88**
Barium	3.8	**0.0133**	**0.00842**	**0.0107**	**0.0215**	**0.0188**	**0.0156**	**0.0162**	**0.0169**
Cadmium	0.0092	ND	**0.0109**	**0.00255**	**0.0135**	**0.0135**	**0.00837**	**0.00739**	**0.00751**
Cobalt	0.006	ND	**0.0164**	ND	ND	ND	ND	ND	ND
Copper	0.8	**0.0115**	**0.0752**	**0.018**	**0.0285**	**0.0262**	**0.0309**	**0.0289**	**0.0271**
Iron	14	**0.277**	**0.703**	**0.107**	ND	**0.129**	**0.121**	**0.101**	**0.111**
Lead	0.015	**0.00778**	**0.00894**	**0.00638**	**0.0107**	**0.00754**	**0.0115**	**0.0117**	**0.0118**
Manganese	0.43	**0.524**	**3.8**	**0.866**	**2.15**	**2.16**	**1.57**	**1.37**	**1.36**
Zinc	6	**0.238**	**1.36**	**0.41**	**2.13**	**2.13**	**1.25**	**1.12**	**1.12**
Aluminum, Dissolved	20	**0.628**	**10.4**	**1.9**	**6.72**	**5.1**	**3.13**	**2.82**	**2.83**
Barium, Dissolved	3.8	**0.0133**	**0.00917**	**0.0108**	**0.0217**	**0.0189**	**0.0156**	**0.0156**	**0.0161**
Cadmium, Dissolved	0.0092	ND	**0.011**	**0.00258**	**0.014**	**0.0138**	**0.00864**	**0.0074**	**0.00786**
Cobalt, Dissolved	0.006	ND	**0.0167**	ND	ND	ND	ND	ND	ND
Copper, Dissolved	0.8	ND	**0.0775**	**0.0186**	**0.0291**	**0.0253**	**0.0297**	**0.0261**	**0.0266**
Iron, Dissolved	14	ND	**0.666**	ND	ND	ND	ND	ND	ND
Lead, Dissolved	0.015	**0.00666**	**0.00701**	ND	**0.0109**	**0.00634**	**0.00906**	**0.0098**	**0.00696**
Manganese, Dissolved	0.43	**0.522**	**3.79**	**0.864**	**2.16**	**2.13**	**1.56**	**1.37**	**1.36**
Nickel, Dissolved	6	ND	**0.0107**	ND	ND	ND	ND	ND	ND
Zinc, Dissolved	20	**0.217**	**1.37**	**0.416**	**2.14**	**2.12**	**1.25**	**1.14**	**1.14**

Units = milligrams per liter (mg/l)
ND = not detected

Orange highlight indicates concentrations exceeding RSL.
Green highlight indicates lowest reported concentration.
Red highlight indicates highest reported concentration.

Exhibit 5-3. Surface Water Sample Analytical Detections July 2021

Analyte	EPA Tapwater RSL	BG-SW-BG1A (BG1A)	BG-SW-A07G (A07G)	BG-SW-A07E (A07E)	BG-SW-A07C1 (A07C1)	BG-SW-A07B (A07B)	BG-SW-97B (A07B)	BG-SW-A07 (A07)	BG-SW-BG4 (BG4)
Aluminum	20	0.821	0.423	3.37	6.77	6.52	6.6	4.54	4.22
Barium	3.8	0.017	0.0174	0.0152	0.0269	0.0231	0.0232	0.0175	0.0185
Beryllium	0.025	ND	ND	ND	ND	0.0028	0.00282	0.00216	0.00217
Cadmium	0.0092	ND	ND	0.00501	0.0144	0.0134	0.0134	0.0107	0.0103
Copper	0.8	0.0109	ND	0.029	0.0466	0.037	0.0375	0.0523	0.049
Iron	14	ND	ND	0.113	ND	0.119	0.113	0.101	ND
Lead	0.015	0.0194	0.0105	0.0127	0.0132	0.0103	0.011	0.00965	0.0104
Manganese	0.43	0.259	0.242	1.5	2.45	2.93	2.92	2.77	2.57
Zinc	6	0.277	0.256	0.714	2.36	2.4	2.42	1.62	1.54
Aluminum, Dissolved	20	0.233	0.402	3.44	6.88	6.69	6.67	4.59	3.98
Barium, Dissolved	3.8	0.0176 B	0.0183 B	0.0159 B	0.0279 B	0.0238 B	0.024 B	0.0192 B	0.0197 B
Beryllium, Dissolved	0.025	ND	ND	ND	ND	0.00278	0.00278	0.00212	0.00226
Cadmium, Dissolved	0.0092	ND	ND	0.00487	0.0149	0.0138	0.0139	0.0108	0.0106
Copper, Dissolved	0.8	ND	ND	0.0293	0.0467	0.0364	0.0371	0.0513	0.0499
Iron, Dissolved	14	ND	ND	ND	ND	0.113	ND	ND	ND
Lead, Dissolved	0.015	0.00942	0.00867	0.0127	0.0124	0.0108	0.0096	0.00712	0.00914
Manganese, Dissolved	0.43	0.235	0.237	1.52	2.48	2.99	3	2.79	2.62
Zinc, Dissolved	6	0.286	0.272	0.75	2.44	2.47	2.48	1.68	1.59

Units = milligrams per liter (mg/l)
ND = not detected
B = analyte detected in the laboratory blank

Orange highlight indicates concentrations exceeding RSL.
Green highlight indicates lowest reported concentration.
Red highlight indicates highest reported concentration.

Concentrations of arsenic, cadmium, cobalt, and manganese have been reported in exceedance of the EPA Tapwater RSLs and are therefore considered the contaminants of concern for surface water (COC_{sw}) at the Site. **Exhibit 5-4** summarizes the reported concentrations and RSLs.

Exhibit 5-4. Summary of COC_{sw}

Analyte	EPA Tapwater RSL	October 2020	June 2021		July 2021
		BG_SW_05_1020-T (Stream Gauge)	B6_SW_5 (Stream Gauge)	B6_SW_95 (Stream Gauge)	BG-SW-BG4 (BG4)
Arsenic	0.000052	**0.00093**	ND	ND	ND
Cadmium	0.0092	**0.016**	**0.0074**	**0.00786**	**0.0106**
Cobalt	0.006	**0.016**	ND	ND	ND
Manganese	0.43	**4.78**	**1.37**	**1.36**	**2.62**

Units = milligrams per kilogram (mg/kg)
ND = not detected
Orange highlight indicates concentrations exceeding RSL.

5.2 Task 2: Sediment Sampling

The analytical reports for sediment samples collected at the Site indicated the detection of several metals (**Exhibit 5-5**). Laboratory analytical reports are provided in **Appendix E** and tables summarizing reported analytical results are provided as **Appendix F**.

Exhibit 5-5. Sediment Sample Analytical Detections

Analyte	EPA Industrial Soil RSL	BG-SD-BG1A	BG-SD-A07G	BG-SD-A07E	BG-SD-A07C1	BG-SD-A07B	BG-SD-97B (A07B)	BG-SD-A07	BG-SD-BG4
Beryllium	2,300	ND	**0.772**	**0.353**	**0.441**	ND	**2.22**	**2.17**	**0.984**
Cadmium	100	ND	**1.63**	ND	ND	**6.26**	**8.73**	**9.51**	**1.86**
Chromium	-	**15.9**	**3.24**	**12.3**	**7.09**	ND	ND	ND	**1.47**
Cobalt	350	**19.7**	**14.7**	**6.52**	**3.02**	**28.6**	**47.4**	**28.6**	**14.1**
Copper	47000	**117**	**106**	**49.7**	**46**	**127**	**168**	**187**	**98.5**
Lead	800	**568**	**895**	**273**	**158**	**403**	**618**	**404**	**76.9**
Manganese	-	**6650**	**4840**	**1580**	**201**	**12400**	**17200**	**12500**	**3920**
Nickel	22000	**37.3**	**4.81**	**3.65**	**5**	ND	ND	ND	**3.33**
Zinc	350000	**444**	**290**	**139**	**226**	**557**	**620**	**675**	**293**

Units = milligrams per kilogram (mg/kg)
ND = not detected
Orange highlight indicates concentrations exceeding RSL.

Of the reported detections, the concentration of lead in sample BG-SD-A07G exceeded the EPA Industrial Soil RSL and is considered a COPC for further evaluation.

5.2.1 Interpretation of Sediment Sample Results

The exposure scenarios considered in the BPMD HHRA specifically consider recreational activities (fishing, boating, and camping). Given the assumptions presented in the BPMD HHRA

the sediment in Burrows Gulch does not meet the criteria for point of exposure (CDM Smith 2019, Section 4.1.3.2). Only concentrations of COPC near the outfall of Burrows Gulch (sample location BG4) to the Animas River were evaluated for this report. The BMPD HHRA employed the EPA Industrial Soil RSL screening level for sediment. Though the concentration of lead exceeds the RSL (800 mg/kg) in the sample collected at location A07G, this location is not a point of exposure. The concentration of lead reported for the sample collected at BG4 is significantly below the RSL and therefore lead is not a COC for sediment.

Based on the exposure scenarios used, no concentrations of metals have been reported in exceedance of the RSL near the confluence of Burrows Gulch and the Animas River. Therefore, there are no COCs for sediment at the Site.

5.3 Task 2: Background Soil Sampling

Appendix G describes the methodology for deriving BTV for use in screening measured concentrations of heavy metals from areas suspected of being affected by mining activities. The BTV is recognized as the upper limit of background variation for an element in soil, which is free of anthropogenic influence (mining in this case). Based on consultation with EPA guidance (2016), the BTV used was the upper 95% tolerance limit (UTL_{95}) or, in the case where a UTL_{95} was not appropriate (e.g., small sample size for antimony and others), the maximum concentration was used. The derived BTVs for the Site are listed in **Exhibit 5-6**.

Exhibit 5-6. Background Threshold Values (mg/kg)

Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium, Total	Cobalt	Copper
16877	8.02	427.9	246	1.381	5.32	11.32	14.47	84.43

Iron	Lead	Manganese	Mercury	Nickel	Silver	Thallium	Vanadium	Zinc
66315	772	3763	0.164	8.84	5.72	5.93	34.5	575.5

The reported data for soil samples collected at the Site during the supplemental site investigation (E&E 2019) indicates detection of several metals in samples collected (**Exhibit 5-7**).

Of the reported detections, 12 metal concentrations (antimony, barium, cadmium, cobalt, copper, iron, lead, manganese, mercury, nickel, silver, and zinc) exceeded the BTV and were considered COPC requiring further evaluation.

5.3.1 Interpretation of Historical Soil Sample Results

The screening level employed in the BMPD HHRA (CDM Smith 2019) for soil is the EPA Industrial Soil RSL. Of the COPCs retained, only concentrations of lead exceeded the RSL (800 mg/kg) in samples near Red Cloud and London mines and in waste rock samples collected near London, Ben Butler, Boston, Dewitt, and Red Cloud mines.

Concentrations of lead were reported in exceedance of the RSL and are therefore considered the contaminants of concern for soil (COC_{soil}) at the Site.

Exhibit 5-7. Historical Soil Sample Analytical Detections

Analyte	BTV	Industrial Soil RSL	LON-HA-SOL-017	LON-HA-SOL-018	LON-HA-SOL-019	LON-T2-2	LON-T3-4	LON-T4-1	LON-T4-5	LON-T5-5	LON-T7-3	RCM-HA-SOL-025	RCM-HA-SOL-026
Antimony	8.02	470	2.91	17.8	1.52	1.04	7.71	33.8	4.45	3.78	1.26	1.03	1.89
Barium	246	220000	73.3	62.8	52.4	84.6	45.8	38.5	27.5	754	87.2	36.4	66.3
Cadmium	5.32	100	8.48	2.79	3.55	2.22	3.81	8.45	7.37	47.7	4.38	0.79	1.23
Cobalt	14.47	350	4.1	6	1.49	3.43	4.87	0.472	1.86	52.8	4.11	1.45	2.1
Copper	84.43	47000	60	256	51.2	32.4	160	91.5	552	339	115	106	146
Iron	66315	820000	15200	25000	14900	18500	13900	13500	10500	81100	14000	17700	10900
Lead	772	800	1170	3100	775	722	15900	1880	966	295	550	852	1550
Manganese	3763	26000	946	691	273	633	1070	192	144	72300	886	167	268
Mercury	0.164	46	0.096	0.236	0.099	0.047	0.095	0.06	0.127	0.095	0.077	0.256	0.181
Nickel	8.84	22000	3.21	2.39	2.49	4.4	5.5	ND	2.12	21.6	4.52	2.8	2.98
Silver	5.72	5800	4.91	16.7	2.62	1.9	4.53	9.55	4.04	1.97	1.91	13.8	10.2
Zinc	575.5	350000	1400	549	352	577	650	1790	656	8730	628	285	378

Analyte	BTV	Industrial Soil RSL	RCM-HA-SOL-027	RCM-HA-SOL-028	RCM-T4-2	WR1-LND	WR2-LND	WR-BB	WR-BB	WR-BSN	WR-DWT	WR-RC
Antimony	8.02	470	1.77	1.82	1.54	99.3	87.9	125	125	81.1	23.7	209
Barium	246	220000	438	494	51.7	73	52.5	53.2	53.2	191	37.3	300
Cadmium	5.32	100	2.26	1.76	2.63	17.8	33.3	66.9	66.9	15.8	1.1	22.1
Cobalt	14.47	350	2.67	4.53	2.68	0.74	2.1	1.9	1.9	0.5	5.2	0.31
Copper	84.43	47000	32.9	80.1	107	166	143	482	482	81.8	167	251
Iron	66315	820000	17700	15800	7540	28900	25000	37000	37000	25900	33300	32700
Lead	772	800	2050	1840	1750	3300	5490	29000	29000	4660	5840	19100
Manganese	3763	26000	436	792	294	161	713	124	124	122	939	43
Mercury	0.164	46	0.723	0.53	0.106	0.6	0.53	0.85	0.85	1.7	0.22	3.6
Nickel	8.84	22000	3.1	2.97	4.49	1	1.3	1.3	1.3	0.68	2.3	0.61
Silver	5.72	5800	6.67	8.85	2.43	16.9	35.4	97.6	97.6	22.4	40.8	34.4
Zinc	575.5	350000	498	415	450	2250	7690	21200	21200	4450	589	10300

Units = milligrams per kilogram (mg/kg)
ND = not detected

Gold highlight indicates concentrations exceeding BTV.
Orange highlight indicates concentrations exceeding RSL.

5.4 Task 3: Stream Flow Measurements

Stream flow was measured at the Burrows Gulch stream gauge over the course of the 2021 runoff season (see **Appendix C**). The Burrows Gulch gauge was installed on 5/24/2021 and removed on 10/4/2021. Data were compared to the Upper Animas River basin-wide discharge as measured at USGS gauge # 09358000 located at Silverton, Colorado (known as sampling point A68 by EPA).

The peak discharge at A68 occurred on 6/5/2021 and measured 695 cubic feet per second (cfs). The peak discharge value from Burrows Gulch was also on 6/5/2021. Burrows Gulch contributes approximately 5.6% of the total discharge at A68 during peak flows. The lowest discharge recorded by the stream gauge was 0.226 cfs on 9/29/2021. The discharge at A68 during this period was 34.1 cfs, indicating that Burrows Gulch contributes just **0.7%** of discharge to the Animas River during fall low-flow conditions.

Stream flow measurements collected on July 6, 2021, are presented in **Exhibit 5-8.** Stream flow rates increase from location BG1A to A07E; however, a diversion of surface water results in a flow rate drop between A07E and A07C1. Flow rates then steadily increase from A07C1 to BG4.

Metal loads carried by the stream increase proportionately with increased flow rates, except as noted below:

- The flow rate between locations A07G and A07E increase by a factor of 2.2 (221%); however, cadmium and manganese loads increase by 5.4x (540%) and 14x (1,400%), respectively.
- The flow rate between locations A07E and A07C1 decreases by 78% due to the diversion; however, cadmium and manganese loads only decrease by 33% and 64%, respectively.
- The flow rate between locations A07C1 and A07B increase by a factor of 2.8 (280%); however, the manganese load increases by 3.4x (340%).

Exhibit 5-8. Stream Flow Measurement Results

Location	BG1A	A07G	A07E	A07C1	A07B	A07	BG4
Date	**7/6/2021**						
Flow Rate (cfs)	0.297	0.387	0.857	0.187	0.527	1.104	1.402
As Load (lb./day)	<0.016	<0.021	<0.046	<0.010	<0.028	<0.060	<0.076
Cd Load (lb./day)	<0.0032	<0.0042	0.023	0.015	0.039	0.064	0.080
Co Load (lb./day)	<0.016	<0.021	<0.046	<0.010	<0.028	<0.060	<0.076
Mn Load (lb./day)	0.41	0.51	7.0	2.5	8.5	17	20

< Indicates the analyte was not detected in the sample collected.

5.5 Task 4: Infrared Camera Stream Survey

Infrared photos taken during the survey have been assembled with the visible light photos in **Appendix H**. Significant observations are listed as follows and shown in **Exhibit 5-9**:

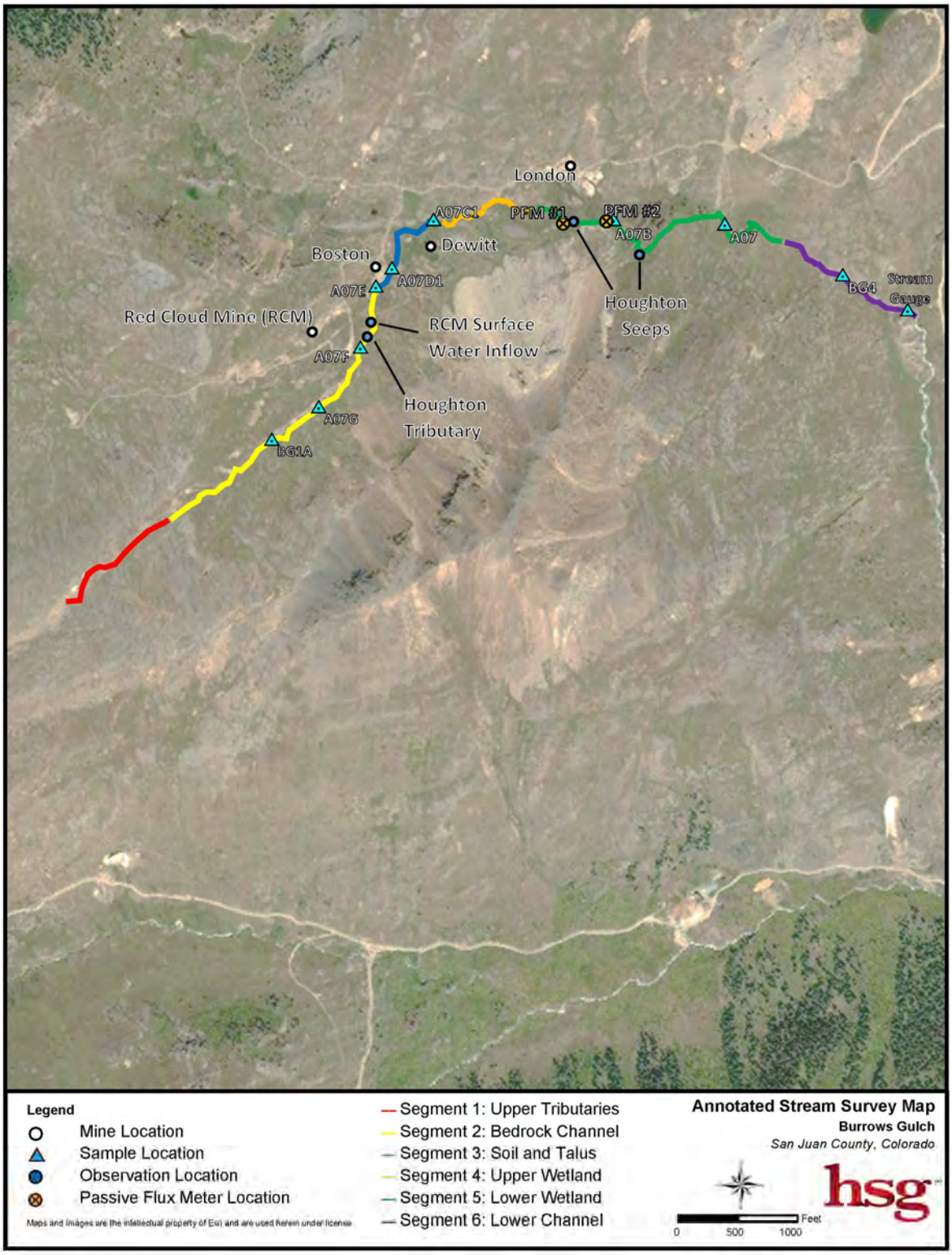
- **Stream Segment 1:** Several small tributaries enter the stream. Surface water is in contact with soils and talus (photos 346-353).
- **Stream Segment 2:** Surface water is in contact with bedrock and is contained within a rocky channel. There is an inflow on the right (southeast) bank sampled in June 2021 called Houghton Tributary (photos 338-341). Downstream approximately 100 feet there is an inflow on the left bank from overland flow near Red Cloud Mine features (photos 334-337). Sample locations BG-1A, A07G, A07F, and A07E are within this segment.
- **Stream Segment 3:** Surface water is in contact with talus and soil. Previous flow studies have shown this segment both gains and loses water indicating mixing with groundwater. The diversion ditch removes nearly all surface water from the stream channel in this segment (during certain times of year, typically high flows). Sample locations A07D1 is within this segment.
- **Stream Segment 4:** Surface water channels divert and rejoin throughout this upper wetland and fen area. Surface flow rapidly increases indicating significant gain from groundwater (photos 298-320). Sample location A07C1 is within this segment.
- **Stream Segment 5:** The lower wetland receives several right bank (south side) inflows (photos 274-277 and 354-365). No continuous surface water flows from the mine adits to the stream from London or Ben Butler were observed, though both adits do have a small amount of seepage. Sample locations A07B and A07 are within this segment.
- **Stream Segment 6:** From the end of the lower wetland to the confluence with the Animas River the stream descends roughly 200 vertical feet. The stream carves into bedrock in this segment. Sample location BG4 and the Burrows Gulch Stream Gauge are within this segment.

5.6 Task 5: Passive Flux Meter Analysis

The data reported by Enviroflux are provided in **Appendix I**. Flux meter placement is shown on **Exhibit 5-9**. Average lateral flow velocities were reported at 5.6 centimeters per day (cm/day) for PFM-1 and 1.5 cm/day for PFM-2. Flow velocities are reported in three vertical intervals (0 to 1, 1.5 to 2.5, and 3 to 4 feet below water surface). Data collected from the Passive Flux Meters indicated that:

- Flow velocity is more limited (than shallower or deeper intervals) at the average stream elevation (1.5-2.5 ft.).
- The highest flow velocity was reported below the streambed elevation (>3 ft.).

Exhibit 5-9. Annotated Stream Survey Map



During installation of the passive flux meters, groundwater within each bore hole was observed to rise to elevations greater than the water surface of the stream. This observation indicates a hydraulic gradient toward the stream (generally to the north) from Houghton Mountain and indicates the stream or wetland is gaining in these areas.

5.6.1 Interpretation of Flux Meter Results

The passive flux meter data indicate that inflow from groundwater directly into the stream channel is not a significant source of stream flow gain. Given the high flow rate beneath the stream bed, the historically low flow rates recorded from London and Ben Butler mines, and the surface areas of Houghton Mountain and areas north of the wetland, the likely source for most of the surface and near surface water in the wetlands is from upwelling of groundwater originally infiltrated at Houghton Mountain.

6.0 CONCLUSIONS AND RECOMMENDATIONS

This Burrows Gulch ESI was conducted on behalf of BLM in accordance with the approved Burrows Gulch Work Plan (HSG 2021), the BPMD QAPP (CDM Smith 2020), and in consultation with the BPMD HHRA (CDM Smith 2019). The conclusions of this ESI are summarized as follows and an updated CSM is shown as **Exhibit 6-1**.

6.1 Contaminant Sources

Elevated metals concentrations were detected in the sample collected from the Houghton Tributary. This surface water flow is not related to any known mining activities, which indicates that during a period of high runoff (specifically during snow melt) Houghton Mountain is a significant source of metal loading. However, late in the season this tributary's flow rate is reduced.

Previous studies (E&E 2019) have found that surface water and groundwater interact and mix downstream and to the north of the Red Cloud Mine. Flow rates and metal loading observed during this ESI have confirmed this finding. An increase in loading was recorded in this area between A07E and A07C1.

Other increases in load (specifically observed between A07C1 and A07B) are attributable to Houghton Mountain through several observed seeps and the apparent groundwater contribution to the wetlands as documented by the stream survey and flux meters.

6.2 Contaminant Pathways

The exposure scenarios considered in the BPMD HHRA for surface water specifically consider fisherman and campers (CDM Smith 2019). Given the assumptions presented in the HHRA, only the area near the outfall of Burrows Gulch (sample locations SW05 [Stream Gauge] and BG4) to the Animas River is considered a point of contact. The screening level employed in the BMPD HHRA for surface water is the EPA Tapwater RSL. Use of the EPA Tapwater RSL is conservative since humans are not expected to use this water for regular consumption (the assumption embedded in the RSL).

Use or disclosure of data contained on this sheet is restricted.

Concentrations of arsenic, cadmium, cobalt, and manganese have been reported in exceedance of the RSLs (0.000052 mg/l [arsenic], 0.0092 mg/l [cadmium], 0.0060 mg/l [cobalt], and 0.43 mg/l [manganese]) near the confluence of Burrows Gulch and the Animas River and are therefore considered COC_{sw} at the Site.

The screening level employed in the BMPD HHRA for soil is the EPA Industrial Soil RSL. Historical metals in soil concentrations were screened against the Site-specific BTVs. Concentrations of lead exceed the RSL (800 mg/kg) in samples near Red Cloud and London mines and in waste rock samples collected near London, Ben Butler, Boston, Dewitt, and Red Cloud mines. Concentrations of lead have been reported in exceedance of the RSL and are therefore considered the COC_{soil} at the Site.

Exhibit 6-1. Burrows Gulch Site CSM

	Surface Water	Sediment	Soil
Contaminant	**Metals**		
Concentration Exceeds Background?	Yes*	Yes	Yes
Concentration Exceeds Screening Level**?	Yes	No	Yes
Exposure Scenario			
Residential	-	-	-
Worker	-	-	X
Recreational User	X	-	X
Ecological	Not Evaluated		

* Background values (or a BPMD-wide strategy to establish background values) for surface water are not well established. Though upstream samples such as BG1A exhibit relatively lower concentrations of metals, other unaffected sources such as the Houghton Tributary exhibit relatively higher concentrations when compared to downstream samples.
** Screening levels used in the ESI are extremely conservative and may not accurately represent risk of exposure.
X = Complete exposure pathway
– = Exposure pathway incomplete

7.0 REFERENCES

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Appendix A

Historical Analytical Data

Use or disclosure of data contained on this sheet is restricted.

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
MH1E53	RDBH1	ISM02.3	7429-90-5	Aluminum	15300		mg/kg	2.2		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-36-0	Antimony	4.4	J	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-38-2	Arsenic	54.1		mg/kg	0.1		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-39-3	Barium	39.1		mg/kg	0.048		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-41-7	Beryllium	0.36		mg/kg	0.044		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-43-9	Cadmium	2.4	J	mg/kg	0.046	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-70-2	Calcium	1750		mg/kg	6.4		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-47-3	Chromium	5		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-48-4	Cobalt	4.9	J	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-50-8	Copper	60.8		mg/kg	0.056		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7439-89-6	Iron	27800		mg/kg	0.91		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7439-92-1	Lead	1490		mg/kg	0.12		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7439-95-4	Magnesium	4490	J	mg/kg	2.4	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7439-96-5	Manganese	1410	J	mg/kg	0.067	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7439-97-6	Mercury	0.19		mg/kg	0.0035		Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7439-98-7	Molybdenum	13.4		mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-02-0	Nickel	3.4		mg/kg	0.049	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7782-49-2	Selenium	0.86		mg/kg	0.075		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-22-4	Silver	7.3		mg/kg	0.03		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-28-0	Thallium	0.38	J	mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-62-2	Vanadium	22.3		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E53	RDBH1	ISM02.3	7440-66-6	Zinc	1000	J	mg/kg	0.29	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94835745	-107.5890711	T
MH1E54	RDBH2	ISM02.3	7429-90-5	Aluminum	7060		mg/kg	2.2		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-36-0	Antimony	3.8	J	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-38-2	Arsenic	88.4		mg/kg	0.099		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-39-3	Barium	59.4		mg/kg	0.048		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-41-7	Beryllium	0.35		mg/kg	0.044		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-43-9	Cadmium	2	J	mg/kg	0.092	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-70-2	Calcium	480	J	mg/kg	6.3	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-47-3	Chromium	2.3		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-48-4	Cobalt	6.2	J	mg/kg	0.066	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-50-8	Copper	42.7		mg/kg	0.056		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7439-89-6	Iron	20800		mg/kg	0.91		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7439-92-1	Lead	728		mg/kg	0.12		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7439-95-4	Magnesium	1600	J	mg/kg	2.4	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7439-96-5	Manganese	2410	J	mg/kg	0.13	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7439-97-6	Mercury	0.062	J	mg/kg	0.0035	J	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7439-98-7	Molybdenum	17.3		mg/kg	0.098	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-02-0	Nickel	1.7		mg/kg	0.098	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7782-49-2	Selenium	0.63		mg/kg	0.074		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-22-4	Silver	3		mg/kg	0.059	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-28-0	Thallium	0.52	J	mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-62-2	Vanadium	10		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E54	RDBH2	ISM02.3	7440-66-6	Zinc	622	J	mg/kg	0.28	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94669991	-107.5899239	T
MH1E52	RDBH3	ISM02.3	7429-90-5	Aluminum	7910		mg/kg	2.2		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-36-0	Antimony	1.2	J-	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-38-2	Arsenic	77.2		mg/kg	0.099		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-39-3	Barium	59.4	J	mg/kg	0.048	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-41-7	Beryllium	0.24		mg/kg	0.043		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-43-9	Cadmium	0.66		mg/kg	0.046		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-70-2	Calcium	312	J	mg/kg	6.3	J*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-47-3	Chromium	3	J	mg/kg	0.089	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-48-4	Cobalt	3.5		mg/kg	0.033		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-50-8	Copper	21.7		mg/kg	0.055		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7439-89-6	Iron	20200	J	mg/kg	0.9	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7439-92-1	Lead	237		mg/kg	0.12		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7439-95-4	Magnesium	1920		mg/kg	2.4	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7439-96-5	Manganese	1120		mg/kg	0.066	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7439-97-6	Mercury	0.11	U	mg/kg	0.0035	J	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7439-98-7	Molybdenum	6.8	J	mg/kg	0.049	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-02-0	Nickel	1.9		mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7782-49-2	Selenium	0.62		mg/kg	0.074		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-22-4	Silver	1.3		mg/kg	0.029		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-28-0	Thallium	0.52		mg/kg	0.041		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-62-2	Vanadium	11.1		mg/kg	0.089		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E52	RDBH3	ISM02.3	7440-66-6	Zinc	104	J	mg/kg	0.28	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94550066	-107.5905236	T
MH1E55	RDBH4	ISM02.3	7429-90-5	Aluminum	13700		mg/kg	2.2		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-36-0	Antimony	1.9	J	mg/kg	0.034	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-38-2	Arsenic	46.8		mg/kg	0.1		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-39-3	Barium	41.7		mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-41-7	Beryllium	0.57		mg/kg	0.045		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-43-9	Cadmium	3.3	J	mg/kg	0.094	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
MH1E55	RDBH4	ISM02.3	7440-70-2	Calcium	711		mg/kg	6.5		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-47-3	Chromium	4.5		mg/kg	0.092		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-48-4	Cobalt	12.5	J	mg/kg	0.067	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-50-8	Copper	62.5		mg/kg	0.057		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7439-89-6	Iron	24300		mg/kg	0.93		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7439-92-1	Lead	1320		mg/kg	0.12		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7439-95-4	Magnesium	2630	J	mg/kg	2.5	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7439-96-5	Manganese	4810	J	mg/kg	0.21	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7439-97-6	Mercury	0.024	J-	mg/kg	0.0036	J	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7439-98-7	Molybdenum	5.3		mg/kg	0.1	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-02-0	Nickel	3.8		mg/kg	0.1	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7782-49-2	Selenium	0.77		mg/kg	0.076		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-22-4	Silver	3		mg/kg	0.061	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-28-0	Thallium	0.68	J	mg/kg	0.043		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-62-2	Vanadium	15.7		mg/kg	0.092		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E55	RDBH4	ISM02.3	7440-66-6	Zinc	637	J	mg/kg	0.29	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94476779	-107.5914753	T
MH1E56	RDBH5	ISM02.3	7429-90-5	Aluminum	13700		mg/kg	2.3		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-36-0	Antimony	3.7	J	mg/kg	0.034	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-38-2	Arsenic	78.5		mg/kg	0.1		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-39-3	Barium	83.5		mg/kg	0.05		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-41-7	Beryllium	0.37		mg/kg	0.046		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-43-9	Cadmium	1.2	J	mg/kg	0.096	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-70-2	Calcium	556	J	mg/kg	6.6	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-47-3	Chromium	5.1		mg/kg	0.094		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-48-4	Cobalt	4.2	J	mg/kg	0.068	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-50-8	Copper	27.7		mg/kg	0.058		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7439-89-6	Iron	27900		mg/kg	0.95		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7439-92-1	Lead	2040		mg/kg	0.13		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7439-95-4	Magnesium	2250	J	mg/kg	2.5	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7439-96-5	Manganese	576	J	mg/kg	0.07	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7439-97-6	Mercury	0.021	J-	mg/kg	0.0037	J	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7439-98-7	Molybdenum	25.3		mg/kg	0.1	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-02-0	Nickel	3		mg/kg	0.1	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7782-49-2	Selenium	0.63		mg/kg	0.078		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-22-4	Silver	5.1		mg/kg	0.062	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-28-0	Thallium	0.46	J	mg/kg	0.043		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-62-2	Vanadium	20.1		mg/kg	0.094		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E56	RDBH5	ISM02.3	7440-66-6	Zinc	726	J	mg/kg	0.3	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94417769	-107.5934075	T
MH1E82	RDLM1	ISM02.3	7429-90-5	Aluminum	15300	J	mg/kg	1.5	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-36-0	Antimony	5	J	mg/kg	0.032	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-38-2	Arsenic	96.3		mg/kg	0.098		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-39-3	Barium	49.3		mg/kg	0.047		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-41-7	Beryllium	0.74		mg/kg	0.043		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-43-9	Cadmium	2.8		mg/kg	0.045		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-70-2	Calcium	1750	J	mg/kg	3	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-47-3	Chromium	4.6		mg/kg	0.088		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-48-4	Cobalt	9.7		mg/kg	0.032		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-50-8	Copper	54.4	J	mg/kg	0.044	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7439-89-6	Iron	28400	J	mg/kg	0.54	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7439-92-1	Lead	577	J	mg/kg	0.14	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7439-95-4	Magnesium	4740	J	mg/kg	2.2	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7439-96-5	Manganese	3500	J	mg/kg	0.071	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7439-97-6	Mercury	0.077	J-	mg/kg	0.0034	J	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7439-98-7	Molybdenum	7.7	J	mg/kg	0.048	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-02-0	Nickel	3.5	J	mg/kg	0.048	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7782-49-2	Selenium	0.87		mg/kg	0.073		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-22-4	Silver	2.8		mg/kg	0.029		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-28-0	Thallium	0.42		mg/kg	0.041		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-62-2	Vanadium	21.5		mg/kg	0.088		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E82	RDLM1	ISM02.3	7440-66-6	Zinc	669	J	mg/kg	0.053	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94892092	-107.5835201	T
MH1E83	RDLM2	ISM02.3	7429-90-5	Aluminum	8640	J	mg/kg	1.5	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-36-0	Antimony	44.2	J	mg/kg	0.032	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-38-2	Arsenic	114		mg/kg	0.096		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-39-3	Barium	47.6		mg/kg	0.046		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-41-7	Beryllium	0.42		mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-43-9	Cadmium	7.7		mg/kg	0.044		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-70-2	Calcium	1320	J	mg/kg	3	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-47-3	Chromium	2.8		mg/kg	0.086		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-48-4	Cobalt	6.1		mg/kg	0.032		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-50-8	Copper	172	J	mg/kg	0.043	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7439-89-6	Iron	28600	J	mg/kg	0.53	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7439-92-1	Lead	1320	J	mg/kg	0.14	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
MH1E83	RDLM2	ISM02.3	7439-95-4	Magnesium	2940	J	mg/kg	2.1	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7439-96-5	Manganese	1550	J	mg/kg	0.023	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7439-97-6	Mercury	0.22		mg/kg	0.0034		Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7439-98-7	Molybdenum	35	J	mg/kg	0.047	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-02-0	Nickel	2.1	J	mg/kg	0.047	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7782-49-2	Selenium	1.1		mg/kg	0.072		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-22-4	Silver	7.8		mg/kg	0.028		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-28-0	Thallium	0.52		mg/kg	0.04		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-62-2	Vanadium	12.2		mg/kg	0.086		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E83	RDLM2	ISM02.3	7440-66-6	Zinc	1430	J	mg/kg	0.052	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94877881	-107.5840455	T
MH1E84	RDLM3	ISM02.3	7429-90-5	Aluminum	5580	J	mg/kg	1.6	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-36-0	Antimony	6.1	J	mg/kg	0.067	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-38-2	Arsenic	259		mg/kg	0.1		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-39-3	Barium	116		mg/kg	0.098	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-41-7	Beryllium	0.25		mg/kg	0.045		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-43-9	Cadmium	2.7		mg/kg	0.094	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-70-2	Calcium	352	J	mg/kg	3.1	J*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-47-3	Chromium	2.6		mg/kg	0.092		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-48-4	Cobalt	12.4		mg/kg	0.067	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-50-8	Copper	215	J	mg/kg	0.046	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7439-89-6	Iron	39100	J	mg/kg	0.56	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7439-92-1	Lead	10300	J	mg/kg	0.58	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7439-95-4	Magnesium	849	J	mg/kg	2.2	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7439-96-5	Manganese	237	J	mg/kg	0.025	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7439-97-6	Mercury	0.57		mg/kg	0.0036		Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7439-98-7	Molybdenum	11.4	J	mg/kg	0.1	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-02-0	Nickel	7.6	J	mg/kg	0.1	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7782-49-2	Selenium	2.4		mg/kg	0.076		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-22-4	Silver	10		mg/kg	0.06	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-28-0	Thallium	1.8		mg/kg	0.043		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-62-2	Vanadium	7.7		mg/kg	0.092		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E84	RDLM3	ISM02.3	7440-66-6	Zinc	6270	J	mg/kg	0.22	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94876942	-107.5846001	T
MH1E85	RDLM4	ISM02.3	7429-90-5	Aluminum	6410	J	mg/kg	1.5	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-36-0	Antimony	75.6	J	mg/kg	0.032	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-38-2	Arsenic	97.4		mg/kg	0.096		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-39-3	Barium	46.2		mg/kg	0.047		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-41-7	Beryllium	0.21		mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-43-9	Cadmium	3		mg/kg	0.044		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-70-2	Calcium	971	J	mg/kg	3	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-47-3	Chromium	2.2		mg/kg	0.087		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-48-4	Cobalt	2.9		mg/kg	0.032		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-50-8	Copper	79.7	J	mg/kg	0.043	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7439-89-6	Iron	19600	J	mg/kg	0.53	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7439-92-1	Lead	1150	J	mg/kg	0.14	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7439-95-4	Magnesium	1590	J	mg/kg	2.1	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7439-96-5	Manganese	747	J	mg/kg	0.023	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7439-97-6	Mercury	0.18		mg/kg	0.0034		Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7439-98-7	Molybdenum	32	J	mg/kg	0.048	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-02-0	Nickel	1.4	J	mg/kg	0.048	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7782-49-2	Selenium	1.7		mg/kg	0.072		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-22-4	Silver	17		mg/kg	0.029		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-28-0	Thallium	0.85		mg/kg	0.04		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-62-2	Vanadium	9		mg/kg	0.087		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E85	RDLM4	ISM02.3	7440-66-6	Zinc	1070	J	mg/kg	0.052	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.94874087	-107.5851331	T
MH1E91	RDLM5	ISM02.3	7429-90-5	Aluminum	14400	J	mg/kg	1.6	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-36-0	Antimony	4.3	J	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-38-2	Arsenic	70.3		mg/kg	0.1		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-39-3	Barium	104		mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-41-7	Beryllium	0.77		mg/kg	0.044		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-43-9	Cadmium	2.2		mg/kg	0.047		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-70-2	Calcium	2230	J	mg/kg	3.1	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-47-3	Chromium	4		mg/kg	0.091		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-48-4	Cobalt	10		mg/kg	0.033		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-50-8	Copper	295	J	mg/kg	0.046	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7439-89-6	Iron	26800	J	mg/kg	0.56	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7439-92-1	Lead	625	J	mg/kg	0.14	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7439-95-4	Magnesium	3540	J	mg/kg	2.2	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7439-96-5	Manganese	1690	J	mg/kg	0.024	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7439-97-6	Mercury	0.027	J-	mg/kg	0.0036	J	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7439-98-7	Molybdenum	17.2	J	mg/kg	0.05	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-02-0	Nickel	3.8	J	mg/kg	0.05	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7782-49-2	Selenium	0.88		mg/kg	0.076		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
MH1E91	RDLM5	ISM02.3	7440-22-4	Silver	4.7		mg/kg	0.03		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-28-0	Thallium	0.46		mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-62-2	Vanadium	16.8		mg/kg	0.091		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1E91	RDLM5	ISM02.3	7440-66-6	Zinc	494	J	mg/kg	0.055	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948679	-107.5856899	T
MH1F20	WR1-LND	ISM02.3	7429-90-5	Aluminum	3240		mg/kg	1.5		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-36-0	Antimony	99.3		mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-38-2	Arsenic	94		mg/kg	0.099		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-39-3	Barium	73		mg/kg	0.048		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-41-7	Beryllium	0.085	J	mg/kg	0.043	J	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-43-9	Cadmium	17.8	J	mg/kg	0.046	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-70-2	Calcium	190	J	mg/kg	3	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-47-3	Chromium	2.3		mg/kg	0.089		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-48-4	Cobalt	0.74	J	mg/kg	0.033		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-50-8	Copper	166		mg/kg	0.045		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7439-89-6	Iron	28900		mg/kg	0.54		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7439-92-1	Lead	3300	J	mg/kg	0.28	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7439-95-4	Magnesium	449	J	mg/kg	2.2	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7439-96-5	Manganese	161		mg/kg	0.024		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7439-97-6	Mercury	0.6	J	mg/kg	0.0035	*	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7439-98-7	Molybdenum	16.2	J	mg/kg	0.049	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-02-0	Nickel	1	J	mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7782-49-2	Selenium	2.9		mg/kg	0.074		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-22-4	Silver	16.9	J	mg/kg	0.029	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-28-0	Thallium	0.63		mg/kg	0.041		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-62-2	Vanadium	5.7		mg/kg	0.089		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F20	WR1-LND	ISM02.3	7440-66-6	Zinc	2250		mg/kg	0.11	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948376	-107.583879	T
MH1F24	WR2-LND	ISM02.3	7429-90-5	Aluminum	4980		mg/kg	1.5		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-36-0	Antimony	87.9		mg/kg	0.032	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-38-2	Arsenic	169		mg/kg	0.098		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-39-3	Barium	52.5		mg/kg	0.047		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-41-7	Beryllium	0.19	J	mg/kg	0.086	JD	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-43-9	Cadmium	33.3	J	mg/kg	0.09	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-70-2	Calcium	719		mg/kg	3		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-47-3	Chromium	1.7		mg/kg	0.088		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-48-4	Cobalt	2.1		mg/kg	0.064	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-50-8	Copper	143		mg/kg	0.044		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7439-89-6	Iron	25000		mg/kg	0.54		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7439-92-1	Lead	5490	J	mg/kg	0.7	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7439-95-4	Magnesium	1570		mg/kg	2.1		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7439-96-5	Manganese	713		mg/kg	0.024		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7439-97-6	Mercury	0.53	J	mg/kg	0.0034	*	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7439-98-7	Molybdenum	48.9	J	mg/kg	0.096	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-02-0	Nickel	1.3		mg/kg	0.096	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7782-49-2	Selenium	1.4		mg/kg	0.073		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-22-4	Silver	35.4	J	mg/kg	0.058	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-28-0	Thallium	2		mg/kg	0.041		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-62-2	Vanadium	12		mg/kg	0.088		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1F24	WR2-LND	ISM02.3	7440-66-6	Zinc	7690		mg/kg	0.26	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.948617	-107.583758	T
MH1E27	WR-BB	ISM02.3	7429-90-5	Aluminum	7000		mg/kg	2.2		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-36-0	Antimony	125	J-	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-38-2	Arsenic	323	J-	mg/kg	0.1	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-39-3	Barium	53.2	J	mg/kg	0.048		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-41-7	Beryllium	0.21		mg/kg	0.044		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-43-9	Cadmium	66.9	J	mg/kg	0.046		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-70-2	Calcium	288	J	mg/kg	6.4	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-47-3	Chromium	2.2		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-48-4	Cobalt	1.9	J	mg/kg	0.033		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-50-8	Copper	482		mg/kg	0.056		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7439-89-6	Iron	37000	J	mg/kg	0.91	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7439-92-1	Lead	29000		mg/kg	2.8	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7439-95-4	Magnesium	864		mg/kg	2.4		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7439-96-5	Manganese	124		mg/kg	0.067		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7439-97-6	Mercury	0.85		mg/kg	0.0035		Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7439-98-7	Molybdenum	61.5		mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-02-0	Nickel	1.3	J	mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7782-49-2	Selenium	2.7		mg/kg	0.074		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-22-4	Silver	97.6	J	mg/kg	0.059	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-28-0	Thallium	2.4		mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-62-2	Vanadium	10.9		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1E27	WR-BB	ISM02.3	7440-66-6	Zinc	21200		mg/kg	1.1	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7429-90-5	Aluminum	6720		mg/kg	1.5		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-36-0	Antimony	128		mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
MH1F30	WR-BB	ISM02.3	7440-38-2	Arsenic	207		mg/kg	0.1		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-39-3	Barium	58.6		mg/kg	0.048		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-41-7	Beryllium	0.14		mg/kg	0.044		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-43-9	Cadmium	29.3	J	mg/kg	0.046	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-70-2	Calcium	358	J	mg/kg	3.1	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-47-3	Chromium	2.1		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-48-4	Cobalt	0.97	J	mg/kg	0.033		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-50-8	Copper	435		mg/kg	0.045		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7439-89-6	Iron	35500		mg/kg	0.55		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7439-92-1	Lead	24000	J	mg/kg	2.1	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7439-95-4	Magnesium	995		mg/kg	2.2		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7439-96-5	Manganese	194		mg/kg	0.024		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7439-97-6	Mercury	0.77	J	mg/kg	0.0035	*	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7439-98-7	Molybdenum	49.8	J	mg/kg	0.05	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-02-0	Nickel	0.97	J	mg/kg	0.05		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7782-49-2	Selenium	1.2		mg/kg	0.075		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-22-4	Silver	93.7	J	mg/kg	0.059	D*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-28-0	Thallium	2.3		mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-62-2	Vanadium	10		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F30	WR-BB	ISM02.3	7440-66-6	Zinc	20200		mg/kg	0.81	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.951893	-107.582484	T
MH1F31	WR-BSN	ISM02.3	7429-90-5	Aluminum	3270		mg/kg	1.5		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-36-0	Antimony	81.1		mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-38-2	Arsenic	245		mg/kg	0.099		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-39-3	Barium	191		mg/kg	0.048		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-41-7	Beryllium	0.11	J	mg/kg	0.087	JD	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-43-9	Cadmium	15.8	J	mg/kg	0.046	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-70-2	Calcium	240	J	mg/kg	3.1	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-47-3	Chromium	1.3		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-48-4	Cobalt	0.5	J	mg/kg	0.033		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-50-8	Copper	81.8		mg/kg	0.045		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7439-89-6	Iron	25900		mg/kg	0.55		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7439-92-1	Lead	4660	J	mg/kg	0.43	D*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7439-95-4	Magnesium	455	J	mg/kg	2.2	J	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7439-96-5	Manganese	122		mg/kg	0.024		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7439-97-6	Mercury	1.7	J	mg/kg	0.01	D*	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7439-98-7	Molybdenum	118	J	mg/kg	0.049	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-02-0	Nickel	0.68	J	mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7782-49-2	Selenium	0.99		mg/kg	0.074		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-22-4	Silver	22.4	J	mg/kg	0.029	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-28-0	Thallium	2.3		mg/kg	0.041		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-62-2	Vanadium	4.5		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F31	WR-BSN	ISM02.3	7440-66-6	Zinc	4450		mg/kg	0.16	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.946291	-107.589907	T
MH1F49	WR-DWT	ISM02.3	7429-90-5	Aluminum	9320	J	mg/kg	1.5	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-36-0	Antimony	23.7	J	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-38-2	Arsenic	169		mg/kg	0.1		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-39-3	Barium	37.3		mg/kg	0.049		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-41-7	Beryllium	0.56		mg/kg	0.088	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-43-9	Cadmium	1.1	J-	mg/kg	0.046	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-70-2	Calcium	907		mg/kg	3.1	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-47-3	Chromium	2.8		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-48-4	Cobalt	5.2	J-	mg/kg	0.033	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-50-8	Copper	167		mg/kg	0.045		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7439-89-6	Iron	33300	J	mg/kg	0.55	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7439-92-1	Lead	5840		mg/kg	0.43	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7439-95-4	Magnesium	2750	J	mg/kg	2.2	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7439-96-5	Manganese	939	J+	mg/kg	0.024	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7439-97-6	Mercury	0.22		mg/kg	0.0035		Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7439-98-7	Molybdenum	22.4	J	mg/kg	0.05	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-02-0	Nickel	2.3	J	mg/kg	0.05		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7782-49-2	Selenium	5.6	J	mg/kg	0.075	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-22-4	Silver	40.8	J-	mg/kg	0.03	*	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-28-0	Thallium	0.71		mg/kg	0.042		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-62-2	Vanadium	8.6		mg/kg	0.09		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F49	WR-DWT	ISM02.3	7440-66-6	Zinc	589		mg/kg	0.054		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.947198	-107.588872	T
MH1F59	WR-RC	ISM02.3	7429-90-5	Aluminum	2440		mg/kg	1.5		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-36-0	Antimony	209	J	mg/kg	0.033		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-38-2	Arsenic	369		mg/kg	0.2	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-39-3	Barium	300	J	mg/kg	0.048		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-41-7	Beryllium	0.12	J	mg/kg	0.087	JD	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-43-9	Cadmium	22.1	J	mg/kg	0.091	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-70-2	Calcium	149	J	mg/kg	3	J*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-47-3	Chromium	0.8		mg/kg	0.18	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
MH1F59	WR-RC	ISM02.3	7440-48-4	Cobalt	0.31	J	mg/kg	0.065	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-50-8	Copper	251		mg/kg	0.044	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7439-89-6	Iron	32700		mg/kg	0.54		Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7439-92-1	Lead	19100		mg/kg	1.4	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7439-95-4	Magnesium	257	J	mg/kg	2.2	J*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7439-96-5	Manganese	43	J	mg/kg	0.024	*	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7439-97-6	Mercury	3.6		mg/kg	0.035	D	Soil	Hg		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7439-98-7	Molybdenum	18.3		mg/kg	0.098	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-02-0	Nickel	0.61	J	mg/kg	0.098	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7782-49-2	Selenium	3.7		mg/kg	0.15	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-22-4	Silver	34.4	J	mg/kg	0.059	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-28-0	Thallium	1.5		mg/kg	0.041		Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-62-2	Vanadium	3.3		mg/kg	0.18	D	Soil	ICP_MS		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
MH1F59	WR-RC	ISM02.3	7440-66-6	Zinc	10300		mg/kg	0.53	D	Soil	ICP_AES		mg/kg	2016_JUL_SOIL_Bonita Peak_SPLP-TM-Hg_CLP	7/26/2016	T	7/26/2016	37.945318	-107.591469	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7429-90-5	Aluminum	9870		mg/kg dry wt	19.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-36-0	Antimony	1.04	J-	mg/kg dry wt	0.494	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-38-2	Arsenic	41	J-	mg/kg dry wt	0.494	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-39-3	Barium	84.6		mg/kg dry wt	0.494	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7440-41-7	Beryllium	4.94	U	mg/kg dry wt	0.988	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-43-9	Cadmium	2.22		mg/kg dry wt	0.0988	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7440-70-2	Calcium	3460		mg/kg dry wt	98.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-47-3	Chromium	6.04		mg/kg dry wt	0.988	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-48-4	Cobalt	3.43		mg/kg dry wt	0.0988	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-50-8	Copper	32.4	J-	mg/kg dry wt	0.494	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7439-89-6	Iron	18500		mg/kg dry wt	98.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7439-92-1	Lead	722		mg/kg dry wt	0.0988	BD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7439-95-4	Magnesium	2840		mg/kg dry wt	98.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7439-96-5	Manganese	633		mg/kg dry wt	1.98	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	7473	7439-97-6	Mercury	0.047	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7439-98-7	Molybdenum	3.04		mg/kg dry wt	0.988	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-02-0	Nickel	4.4		mg/kg dry wt	0.494	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	9/7/7440	Potassium	1150	J-	mg/kg dry wt	247	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7782-49-2	Selenium	1.98	U	mg/kg dry wt	0.988	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-22-4	Silver	1.9		mg/kg dry wt	0.494	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7440-23-5	Sodium	988	U	mg/kg dry wt	247	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7440-24-6	Strontium	21.8		mg/kg dry wt	1.98	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-28-0	Thallium	1.98	U	mg/kg dry wt	0.988	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2 / 200.8	7440-62-2	Vanadium	18.2		mg/kg dry wt	1.98	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4761	LON-T2-2	EPA 200.2/200.7	7440-66-6	Zinc	577	J+	mg/kg dry wt	9.88	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.949211	-107.584473	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7429-90-5	Aluminum	8550		mg/kg dry wt	20.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-36-0	Antimony	7.71	J-	mg/kg dry wt	0.504	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-38-2	Arsenic	14.5	J-	mg/kg dry wt	0.504	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-39-3	Barium	45.8		mg/kg dry wt	0.504	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7440-41-7	Beryllium	5.04	U	mg/kg dry wt	1.01	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-43-9	Cadmium	3.81		mg/kg dry wt	0.101	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7440-70-2	Calcium	6150		mg/kg dry wt	101	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-47-3	Chromium	5.8		mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-48-4	Cobalt	4.87		mg/kg dry wt	0.101	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-50-8	Copper	160	J-	mg/kg dry wt	0.504	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7439-89-6	Iron	13900		mg/kg dry wt	101	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7439-92-1	Lead	15900		mg/kg dry wt	0.101	BD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7439-95-4	Magnesium	2460		mg/kg dry wt	101	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7439-96-5	Manganese	1070		mg/kg dry wt	2.01	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	7473	7439-97-6	Mercury	0.095	J-	mg/kg dry wt	0.013	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7439-98-7	Molybdenum	3.72		mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-02-0	Nickel	5.5		mg/kg dry wt	0.504	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	9/7/7440	Potassium	706	J-	mg/kg dry wt	252	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7782-49-2	Selenium	1.93	J	mg/kg dry wt	1.01	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-22-4	Silver	4.53		mg/kg dry wt	0.504	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7440-23-5	Sodium	1010	U	mg/kg dry wt	252	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7440-24-6	Strontium	48.8		mg/kg dry wt	2.01	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-28-0	Thallium	2.01	U	mg/kg dry wt	1.01	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2 / 200.8	7440-62-2	Vanadium	16.1		mg/kg dry wt	2.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4762	LON-T3-4	EPA 200.2/200.7	7440-66-6	Zinc	650	J+	mg/kg dry wt	10.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948553	-107.585212	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7429-90-5	Aluminum	1230		mg/kg dry wt	19.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-36-0	Antimony	33.8	J-	mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-38-2	Arsenic	84.8	J-	mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-39-3	Barium	38.5		mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7440-41-7	Beryllium	4.98	U	mg/kg dry wt	0.996	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-43-9	Cadmium	8.45		mg/kg dry wt	0.0996	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7440-70-2	Calcium	595		mg/kg dry wt	99.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-47-3	Chromium	1.99	U	mg/kg dry wt	0.996	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-48-4	Cobalt	0.472		mg/kg dry wt	0.0996	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-50-8	Copper	91.5	J-	mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7439-89-6	Iron	13500		mg/kg dry wt	99.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7439-92-1	Lead	1880		mg/kg dry wt	0.0996	BD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7439-95-4	Magnesium	422		mg/kg dry wt	99.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7439-96-5	Manganese	192		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	7473	7439-97-6	Mercury	0.06	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7439-98-7	Molybdenum	61.7		mg/kg dry wt	0.996	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-02-0	Nickel	0.996	U	mg/kg dry wt	0.498	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	9/7/7440	Potassium	545	J-	mg/kg dry wt	249	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7782-49-2	Selenium	1.2	J	mg/kg dry wt	0.996	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-22-4	Silver	9.55		mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7440-23-5	Sodium	996	U	mg/kg dry wt	249	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7440-24-6	Strontium	13.9		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-28-0	Thallium	1.99	U	mg/kg dry wt	0.996	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2 / 200.8	7440-62-2	Vanadium	3.45		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4763	LON-T4-1	EPA 200.2/200.7	7440-66-6	Zinc	1790	J+	mg/kg dry wt	9.96	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948622	-107.584722	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7429-90-5	Aluminum	3320		mg/kg dry wt	19.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-36-0	Antimony	4.45	J-	mg/kg dry wt	0.497	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-38-2	Arsenic	10.3	J-	mg/kg dry wt	0.497	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-39-3	Barium	27.5		mg/kg dry wt	0.497	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7440-41-7	Beryllium	4.97	U	mg/kg dry wt	0.994	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-43-9	Cadmium	7.37		mg/kg dry wt	0.0994	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7440-70-2	Calcium	3040		mg/kg dry wt	99.4	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-47-3	Chromium	3.61		mg/kg dry wt	0.994	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-48-4	Cobalt	1.86		mg/kg dry wt	0.0994	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-50-8	Copper	552	J-	mg/kg dry wt	0.497	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7439-89-6	Iron	10500		mg/kg dry wt	99.4	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7439-92-1	Lead	966		mg/kg dry wt	0.0994	BD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7439-95-4	Magnesium	538		mg/kg dry wt	99.4	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7439-96-5	Manganese	144		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	7473	7439-97-6	Mercury	0.127	J-	mg/kg dry wt	0.033	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7439-98-7	Molybdenum	4.27		mg/kg dry wt	0.994	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-02-0	Nickel	2.12		mg/kg dry wt	0.497	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	9/7/7440	Potassium	322	J-	mg/kg dry wt	248	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7782-49-2	Selenium	1.5	J	mg/kg dry wt	0.994	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-22-4	Silver	4.04		mg/kg dry wt	0.497	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7440-23-5	Sodium	994	U	mg/kg dry wt	248	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7440-24-6	Strontium	21.6		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-28-0	Thallium	1.99	U	mg/kg dry wt	0.994	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2 / 200.8	7440-62-2	Vanadium	3.74		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4764	LON-T4-5	EPA 200.2/200.7	7440-66-6	Zinc	656	J+	mg/kg dry wt	9.94	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948157	-107.584744	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7429-90-5	Aluminum	4080		mg/kg dry wt	20	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-36-0	Antimony	3.78	J-	mg/kg dry wt	0.499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-38-2	Arsenic	53.3	J-	mg/kg dry wt	0.499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-39-3	Barium	754		mg/kg dry wt	0.499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7440-41-7	Beryllium	1.05	J	mg/kg dry wt	0.998	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-43-9	Cadmium	47.7		mg/kg dry wt	0.0998	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7440-70-2	Calcium	3940		mg/kg dry wt	99.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-47-3	Chromium	2.65		mg/kg dry wt	0.998	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-48-4	Cobalt	52.8		mg/kg dry wt	0.0998	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-50-8	Copper	339	J-	mg/kg dry wt	0.499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7439-89-6	Iron	81100		mg/kg dry wt	99.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7439-92-1	Lead	295		mg/kg dry wt	0.0998	BD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7439-95-4	Magnesium	1110		mg/kg dry wt	99.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7439-96-5	Manganese	72300		mg/kg dry wt	2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	7473	7439-97-6	Mercury	0.095	J-	mg/kg dry wt	0.014	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7439-98-7	Molybdenum	7.74		mg/kg dry wt	0.998	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-02-0	Nickel	21.6		mg/kg dry wt	0.499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	9/7/7440	Potassium	576	J-	mg/kg dry wt	249	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7782-49-2	Selenium	2	U	mg/kg dry wt	0.998	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-22-4	Silver	1.97		mg/kg dry wt	0.499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7440-23-5	Sodium	998	U	mg/kg dry wt	249	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7440-24-6	Strontium	79.6		mg/kg dry wt	2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-28-0	Thallium	2	U	mg/kg dry wt	0.998	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2 / 200.8	7440-62-2	Vanadium	6.52		mg/kg dry wt	2	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4765	LON-T5-5	EPA 200.2/200.7	7440-66-6	Zinc	8730	J+	mg/kg dry wt	9.98	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.947916	-107.584209	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7429-90-5	Aluminum	8740		mg/kg dry wt	20.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-36-0	Antimony	1.26	J-	mg/kg dry wt	0.506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-38-2	Arsenic	37.4	J-	mg/kg dry wt	0.506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-39-3	Barium	87.2		mg/kg dry wt	0.506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7440-41-7	Beryllium	5.06	U	mg/kg dry wt	1.01	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-43-9	Cadmium	4.38		mg/kg dry wt	0.101	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7440-70-2	Calcium	2520		mg/kg dry wt	101	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-47-3	Chromium	5.48		mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-48-4	Cobalt	4.11		mg/kg dry wt	0.101	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-50-8	Copper	115	J-	mg/kg dry wt	0.506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7439-89-6	Iron	14000		mg/kg dry wt	101	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7439-92-1	Lead	550		mg/kg dry wt	0.101	BD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7439-95-4	Magnesium	2400		mg/kg dry wt	101	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7439-96-5	Manganese	886		mg/kg dry wt	2.02	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	7473	7439-97-6	Mercury	0.077	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7439-98-7	Molybdenum	3.42		mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-02-0	Nickel	4.52		mg/kg dry wt	0.506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	9/7/7440	Potassium	953	J-	mg/kg dry wt	253	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7782-49-2	Selenium	2.02	U	mg/kg dry wt	1.01	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-22-4	Silver	1.91		mg/kg dry wt	0.506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7440-23-5	Sodium	1010	U	mg/kg dry wt	253	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7440-24-6	Strontium	14.4		mg/kg dry wt	2.02	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-28-0	Thallium	2.02	U	mg/kg dry wt	1.01	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2 / 200.8	7440-62-2	Vanadium	16		mg/kg dry wt	2.02	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4766	LON-T7-3	EPA 200.2/200.7	7440-66-6	Zinc	628	J+	mg/kg dry wt	10.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.948386	-107.5834	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7429-90-5	Aluminum	7100		mg/kg dry wt	19.5	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-36-0	Antimony	0.894	J-	mg/kg dry wt	0.488	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-38-2	Arsenic	69.5	J-	mg/kg dry wt	0.488	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-39-3	Barium	69.1		mg/kg dry wt	0.488	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7440-41-7	Beryllium	4.88	U	mg/kg dry wt	0.975	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-43-9	Cadmium	0.337		mg/kg dry wt	0.0975	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7440-70-2	Calcium	219	J	mg/kg dry wt	97.5	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-47-3	Chromium	3.89		mg/kg dry wt	0.975	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-48-4	Cobalt	2.65		mg/kg dry wt	0.0975	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-50-8	Copper	42.5	J-	mg/kg dry wt	0.488	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7439-89-6	Iron	19900		mg/kg dry wt	97.5	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7439-92-1	Lead	584		mg/kg dry wt	0.0975	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7439-95-4	Magnesium	1590		mg/kg dry wt	97.5	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7439-96-5	Manganese	404		mg/kg dry wt	1.95	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	7473	7439-97-6	Mercury	0.028	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7439-98-7	Molybdenum	8.31		mg/kg dry wt	0.975	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-02-0	Nickel	2.02		mg/kg dry wt	0.488	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	9/7/7440	Potassium	1560	J-	mg/kg dry wt	244	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7782-49-2	Selenium	1.95	U	mg/kg dry wt	0.975	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-22-4	Silver	2.4		mg/kg dry wt	0.488	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7440-23-5	Sodium	975	U	mg/kg dry wt	244	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7440-24-6	Strontium	15.6		mg/kg dry wt	1.95	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-28-0	Thallium	1.95	U	mg/kg dry wt	0.975	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2 / 200.8	7440-62-2	Vanadium	15.7		mg/kg dry wt	1.95	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4767	RCM-T1-4	EPA 200.2/200.7	7440-66-6	Zinc	75.9	J+	mg/kg dry wt	9.75	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945431	-107.590595	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7429-90-5	Aluminum	9730		mg/kg dry wt	19.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-36-0	Antimony	1	J-	mg/kg dry wt	0.496	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-38-2	Arsenic	43	J-	mg/kg dry wt	0.496	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-39-3	Barium	141		mg/kg dry wt	0.496	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7440-41-7	Beryllium	4.96	U	mg/kg dry wt	0.992	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-43-9	Cadmium	1.15		mg/kg dry wt	0.0992	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7440-70-2	Calcium	1420		mg/kg dry wt	99.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-47-3	Chromium	6.59		mg/kg dry wt	0.992	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-48-4	Cobalt	6.58		mg/kg dry wt	0.0992	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-50-8	Copper	17.8	J-	mg/kg dry wt	0.496	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7439-89-6	Iron	17500		mg/kg dry wt	99.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7439-92-1	Lead	296		mg/kg dry wt	0.0992	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7439-95-4	Magnesium	2270		mg/kg dry wt	99.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7439-96-5	Manganese	3610		mg/kg dry wt	1.98	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	7473	7439-97-6	Mercury	0.103	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7439-98-7	Molybdenum	11		mg/kg dry wt	0.992	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-02-0	Nickel	4.58		mg/kg dry wt	0.496	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	9/7/7440	Potassium	1440	J-	mg/kg dry wt	248	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7782-49-2	Selenium	1.98	U	mg/kg dry wt	0.992	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-22-4	Silver	1.83		mg/kg dry wt	0.496	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7440-23-5	Sodium	992	U	mg/kg dry wt	248	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7440-24-6	Strontium	14		mg/kg dry wt	1.98	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-28-0	Thallium	1.98	U	mg/kg dry wt	0.992	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2 / 200.8	7440-62-2	Vanadium	17.6		mg/kg dry wt	1.98	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4768	RCM-T3-4	EPA 200.2/200.7	7440-66-6	Zinc	219	J+	mg/kg dry wt	9.92	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.946124	-107.590951	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7429-90-5	Aluminum	13100		mg/kg dry wt	20.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-36-0	Antimony	1.54	J-	mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-38-2	Arsenic	8.21	J-	mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-39-3	Barium	51.7		mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7440-41-7	Beryllium	5.02	U	mg/kg dry wt	1	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-43-9	Cadmium	2.63		mg/kg dry wt	0.1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7440-70-2	Calcium	712		mg/kg dry wt	100	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-47-3	Chromium	6.11		mg/kg dry wt	1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-48-4	Cobalt	2.68		mg/kg dry wt	0.1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-50-8	Copper	107	J-	mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7439-89-6	Iron	7540		mg/kg dry wt	100	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7439-92-1	Lead	1750		mg/kg dry wt	0.1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7439-95-4	Magnesium	2000		mg/kg dry wt	100	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7439-96-5	Manganese	294		mg/kg dry wt	2.01	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	7473	7439-97-6	Mercury	0.106	J-	mg/kg dry wt	0.014	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7439-98-7	Molybdenum	1.07		mg/kg dry wt	1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-02-0	Nickel	4.49		mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	9/7/7440	Potassium	1120	J-	mg/kg dry wt	251	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7782-49-2	Selenium	2.01	U	mg/kg dry wt	1	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-22-4	Silver	2.43		mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7440-23-5	Sodium	1000	U	mg/kg dry wt	251	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7440-24-6	Strontium	8.24	J	mg/kg dry wt	2.01	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-28-0	Thallium	2.01	U	mg/kg dry wt	1	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2 / 200.8	7440-62-2	Vanadium	10.9		mg/kg dry wt	2.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4769	RCM-T4-2	EPA 200.2/200.7	7440-66-6	Zinc	450	J+	mg/kg dry wt	10	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945706	-107.591245	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7429-90-5	Aluminum	6560		mg/kg dry wt	19.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-36-0	Antimony	2.23	J-	mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-38-2	Arsenic	28.4		mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-39-3	Barium	136		mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7440-41-7	Beryllium	4.98	U	mg/kg dry wt	0.997	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-43-9	Cadmium	2.64		mg/kg dry wt	0.0997	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7440-70-2	Calcium	1610		mg/kg dry wt	99.7	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-47-3	Chromium	4.31		mg/kg dry wt	0.997	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-48-4	Cobalt	3.39		mg/kg dry wt	0.0997	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-50-8	Copper	19.8		mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7439-89-6	Iron	10800		mg/kg dry wt	99.7	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7439-92-1	Lead	690		mg/kg dry wt	0.0997	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7439-95-4	Magnesium	1130		mg/kg dry wt	99.7	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7439-96-5	Manganese	556		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	7473	7439-97-6	Mercury	0.076	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7439-98-7	Molybdenum	2.84		mg/kg dry wt	0.997	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-02-0	Nickel	2.66		mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	9/7/7440	Potassium	1030		mg/kg dry wt	249	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7782-49-2	Selenium	1.99	U	mg/kg dry wt	0.997	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-22-4	Silver	2.94		mg/kg dry wt	0.498	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7440-23-5	Sodium	997	U	mg/kg dry wt	249	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7440-24-6	Strontium	17.5		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-28-0	Thallium	1.99	U	mg/kg dry wt	0.997	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2 / 200.8	7440-62-2	Vanadium	16.4		mg/kg dry wt	1.99	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4770	RCM-T7-2	EPA 200.2/200.7	7440-66-6	Zinc	377		mg/kg dry wt	9.97	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945289	-107.591184	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7429-90-5	Aluminum	9720		mg/kg dry wt	19.7	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-36-0	Antimony	0.871	J-	mg/kg dry wt	0.493	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-38-2	Arsenic	60.7	J-	mg/kg dry wt	0.493	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-39-3	Barium	93.7		mg/kg dry wt	0.493	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7440-41-7	Beryllium	4.93	U	mg/kg dry wt	0.986	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-43-9	Cadmium	1.72		mg/kg dry wt	0.0986	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7440-70-2	Calcium	664		mg/kg dry wt	98.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-47-3	Chromium	5.13		mg/kg dry wt	0.986	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-48-4	Cobalt	5.57		mg/kg dry wt	0.0986	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-50-8	Copper	45.3	J-	mg/kg dry wt	0.493	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7439-89-6	Iron	21000		mg/kg dry wt	98.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7439-92-1	Lead	460		mg/kg dry wt	0.0986	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7439-95-4	Magnesium	1850		mg/kg dry wt	98.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7439-96-5	Manganese	1230		mg/kg dry wt	1.97	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	7473	7439-97-6	Mercury	0.056	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7439-98-7	Molybdenum	5.03		mg/kg dry wt	0.986	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-02-0	Nickel	2.94		mg/kg dry wt	0.493	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	9/7/7440	Potassium	1770	J-	mg/kg dry wt	247	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7782-49-2	Selenium	1.97	U	mg/kg dry wt	0.986	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-22-4	Silver	2.01		mg/kg dry wt	0.493	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7440-23-5	Sodium	986	U	mg/kg dry wt	247	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7440-24-6	Strontium	16		mg/kg dry wt	1.97	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-28-0	Thallium	1.43	J	mg/kg dry wt	0.986	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
A8M5-4771	RCM-T8-1	EPA 200.2 / 200.8	7440-62-2	Vanadium	17.9		mg/kg dry wt	1.97	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
A8M5-4771	RCM-T8-1	EPA 200.2/200.7	7440-66-6	Zinc	294		mg/kg dry wt	9.86	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2017_AUG_Soil_Bonita Peak_A-165	8/22/2017	T	8/22/2017	37.945669	-107.59036	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7429-90-5	Aluminum	7500		mg/kg dry wt	10.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-36-0	Antimony	1.26	J-	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-38-2	Arsenic	5.79	J-	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-39-3	Barium	39.2	J	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7440-41-7	Beryllium	1.37	J	mg/kg dry wt	0.508	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-43-9	Cadmium	1.06	J	mg/kg dry wt	0.0508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7440-70-2	Calcium	986		mg/kg dry wt	50.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-47-3	Chromium	4.09		mg/kg dry wt	0.508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-48-4	Cobalt	1.41	J	mg/kg dry wt	0.0508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-50-8	Copper	38.9	J	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7439-89-6	Iron	6050		mg/kg dry wt	50.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7439-92-1	Lead	63.1		mg/kg dry wt	0.0508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7439-95-4	Magnesium	1460		mg/kg dry wt	50.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7439-96-5	Manganese	205	J	mg/kg dry wt	1.02	BD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	7473	7439-97-6	Mercury	0.066		mg/kg dry wt	0.012	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-02-0	Nickel	2.7	J-	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	9/7/7440	Potassium	513		mg/kg dry wt	127	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7782-49-2	Selenium	1.02	UJ	mg/kg dry wt	0.508	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-22-4	Silver	0.4	J	mg/kg dry wt	0.254	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7440-23-5	Sodium	508	U	mg/kg dry wt	127	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-28-0	Thallium	1.02	U	mg/kg dry wt	0.508	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2 / 200.8	7440-62-2	Vanadium	8.91		mg/kg dry wt	1.02	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:16_BRC-FP-SOL-307_01_SO	BRC-FP-SOL-307	EPA 200.2/200.7	7440-66-6	Zinc	177	J	mg/kg dry wt	5.08	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746433	-107.582877	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7429-90-5	Aluminum	7760		mg/kg dry wt	10.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-36-0	Antimony	0.931	J-	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-38-2	Arsenic	13.8	J-	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-39-3	Barium	70.2	J	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7440-41-7	Beryllium	0.532	J	mg/kg dry wt	0.508	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-43-9	Cadmium	0.618	J	mg/kg dry wt	0.0508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7440-70-2	Calcium	2190		mg/kg dry wt	50.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-47-3	Chromium	4.59		mg/kg dry wt	0.508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-48-4	Cobalt	2.69	J	mg/kg dry wt	0.0508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-50-8	Copper	11.7	J	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7439-89-6	Iron	12700		mg/kg dry wt	50.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7439-92-1	Lead	139		mg/kg dry wt	0.0508	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7439-95-4	Magnesium	1910		mg/kg dry wt	50.8	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7439-96-5	Manganese	495	J	mg/kg dry wt	1.02	BD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	7473	7439-97-6	Mercury	0.049		mg/kg dry wt	0.012	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-02-0	Nickel	2.66	J-	mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	9/7/7440	Potassium	584		mg/kg dry wt	127	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7782-49-2	Selenium	1.02	UJ	mg/kg dry wt	0.508	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-22-4	Silver	0.78		mg/kg dry wt	0.254	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7440-23-5	Sodium	508	U	mg/kg dry wt	127	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-28-0	Thallium	1.02	U	mg/kg dry wt	0.508	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2 / 200.8	7440-62-2	Vanadium	13.4		mg/kg dry wt	1.02	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_10:22_BRC-FP-SOL-308_01_SO	BRC-FP-SOL-308	EPA 200.2/200.7	7440-66-6	Zinc	188	J	mg/kg dry wt	5.08	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94746383	-107.5828782	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7429-90-5	Aluminum	7340		mg/kg dry wt	10.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-36-0	Antimony	0.698	J-	mg/kg dry wt	0.255	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-38-2	Arsenic	31	J-	mg/kg dry wt	0.255	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-39-3	Barium	72.3	J	mg/kg dry wt	0.255	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7440-41-7	Beryllium	0.931	J	mg/kg dry wt	0.509	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-43-9	Cadmium	0.592	J	mg/kg dry wt	0.0509	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7440-70-2	Calcium	2150		mg/kg dry wt	50.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-47-3	Chromium	4.6		mg/kg dry wt	0.509	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-48-4	Cobalt	4.76	J	mg/kg dry wt	0.0509	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-50-8	Copper	23.3	J	mg/kg dry wt	0.255	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7439-89-6	Iron	15700		mg/kg dry wt	50.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7439-92-1	Lead	130		mg/kg dry wt	0.0509	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7439-95-4	Magnesium	2270		mg/kg dry wt	50.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7439-96-5	Manganese	1450	J	mg/kg dry wt	1.02	BD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	7473	7439-97-6	Mercury	0.038		mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-02-0	Nickel	3.34	J-	mg/kg dry wt	0.255	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	9/7/7440	Potassium	864		mg/kg dry wt	127	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7782-49-2	Selenium	1.02	UJ	mg/kg dry wt	0.509	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-22-4	Silver	0.832		mg/kg dry wt	0.255	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7440-23-5	Sodium	509	U	mg/kg dry wt	127	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-28-0	Thallium	1.02	U	mg/kg dry wt	0.509	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2 / 200.8	7440-62-2	Vanadium	13.5		mg/kg dry wt	1.02	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:29_BRC-FP-SOL-309_01_SO	BRC-FP-SOL-309	EPA 200.2/200.7	7440-66-6	Zinc	92.6	J	mg/kg dry wt	5.09	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.947438	-107.582882	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7429-90-5	Aluminum	7170		mg/kg dry wt	10.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-36-0	Antimony	2.91	J-	mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-38-2	Arsenic	30.8	J-	mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-39-3	Barium	73.3	J	mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7440-41-7	Beryllium	0.688	J	mg/kg dry wt	0.507	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-43-9	Cadmium	8.48	J	mg/kg dry wt	0.0507	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7440-70-2	Calcium	5640		mg/kg dry wt	50.7	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-47-3	Chromium	4.09		mg/kg dry wt	0.507	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-48-4	Cobalt	4.1	J	mg/kg dry wt	0.0507	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-50-8	Copper	60	J	mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7439-89-6	Iron	15200		mg/kg dry wt	50.7	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7439-92-1	Lead	1170		mg/kg dry wt	0.0507	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7439-95-4	Magnesium	2130		mg/kg dry wt	50.7	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7439-96-5	Manganese	946	J	mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	7473	7439-97-6	Mercury	0.096		mg/kg dry wt	0.011	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-02-0	Nickel	3.21	J-	mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	9/7/7440	Potassium	896		mg/kg dry wt	127	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7782-49-2	Selenium	0.589	J-	mg/kg dry wt	0.507	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-22-4	Silver	4.91		mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7440-23-5	Sodium	507	U	mg/kg dry wt	127	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-28-0	Thallium	1.01	U	mg/kg dry wt	0.507	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2 / 200.8	7440-62-2	Vanadium	12.7		mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:43_LON-HA-SOL-017_01_SO	LON-HA-SOL-017	EPA 200.2/200.7	7440-66-6	Zinc	1400	J	mg/kg dry wt	5.07	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94901633	-107.5846643	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7429-90-5	Aluminum	6040		mg/kg dry wt	10	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-36-0	Antimony	17.8	J-	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-38-2	Arsenic	94.2	J-	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-39-3	Barium	62.8	J	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7440-41-7	Beryllium	0.767	J	mg/kg dry wt	0.502	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-43-9	Cadmium	2.79	J	mg/kg dry wt	0.0502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7440-70-2	Calcium	2710		mg/kg dry wt	50.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-47-3	Chromium	3.34		mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-48-4	Cobalt	6	J	mg/kg dry wt	0.0502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-50-8	Copper	256	J	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7439-89-6	Iron	25000		mg/kg dry wt	50.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7439-92-1	Lead	3100		mg/kg dry wt	0.0502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7439-95-4	Magnesium	1680		mg/kg dry wt	50.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7439-96-5	Manganese	691	J	mg/kg dry wt	1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	7473	7439-97-6	Mercury	0.236		mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-02-0	Nickel	2.39	J-	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	9/7/7440	Potassium	899		mg/kg dry wt	125	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7782-49-2	Selenium	0.908	J-	mg/kg dry wt	0.502	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-22-4	Silver	16.7		mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7440-23-5	Sodium	502	U	mg/kg dry wt	125	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-28-0	Thallium	0.803	J	mg/kg dry wt	0.502	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2 / 200.8	7440-62-2	Vanadium	11.2		mg/kg dry wt	1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_11:57_LON-HA-SOL-018_01_SO	LON-HA-SOL-018	EPA 200.2/200.7	7440-66-6	Zinc	549	J	mg/kg dry wt	5.02	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94871567	-107.5850683	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7429-90-5	Aluminum	5370		mg/kg dry wt	9.97	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-36-0	Antimony	1.52	J-	mg/kg dry wt	0.249	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-38-2	Arsenic	29.2	J-	mg/kg dry wt	0.249	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-39-3	Barium	52.4	J	mg/kg dry wt	0.249	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7440-41-7	Beryllium	0.556	J	mg/kg dry wt	0.499	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-43-9	Cadmium	3.55	J	mg/kg dry wt	0.0499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7440-70-2	Calcium	2830		mg/kg dry wt	49.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-47-3	Chromium	3.49		mg/kg dry wt	0.499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-48-4	Cobalt	1.49	J	mg/kg dry wt	0.0499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-50-8	Copper	51.2	J	mg/kg dry wt	0.249	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7439-89-6	Iron	14900		mg/kg dry wt	49.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7439-92-1	Lead	775		mg/kg dry wt	0.0499	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7439-95-4	Magnesium	1390		mg/kg dry wt	49.9	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7439-96-5	Manganese	273	J	mg/kg dry wt	0.997	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	7473	7439-97-6	Mercury	0.099		mg/kg dry wt	0.013	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-02-0	Nickel	2.49	J-	mg/kg dry wt	0.249	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	9/7/7440	Potassium	534		mg/kg dry wt	125	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7782-49-2	Selenium	0.997	UJ	mg/kg dry wt	0.499	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-22-4	Silver	2.62		mg/kg dry wt	0.249	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7440-23-5	Sodium	499	U	mg/kg dry wt	125	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-28-0	Thallium	0.997	U	mg/kg dry wt	0.499	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2 / 200.8	7440-62-2	Vanadium	11.2		mg/kg dry wt	0.997	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:07_LON-HA-SOL-019_01_SO	LON-HA-SOL-019	EPA 200.2/200.7	7440-66-6	Zinc	352	J	mg/kg dry wt	4.99	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94866383	-107.583508	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7429-90-5	Aluminum	5160		mg/kg dry wt	10	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-36-0	Antimony	2.47	J-	mg/kg dry wt	0.25	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-38-2	Arsenic	81.5	J-	mg/kg dry wt	0.25	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-39-3	Barium	34	J	mg/kg dry wt	0.25	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7440-41-7	Beryllium	2.5	U	mg/kg dry wt	0.501	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-43-9	Cadmium	1.19	J	mg/kg dry wt	0.0501	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7440-70-2	Calcium	1330		mg/kg dry wt	50.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-47-3	Chromium	3.86		mg/kg dry wt	0.501	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-48-4	Cobalt	2.27	J	mg/kg dry wt	0.0501	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-50-8	Copper	81.5	J	mg/kg dry wt	0.25	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7439-89-6	Iron	38500		mg/kg dry wt	50.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7439-92-1	Lead	489		mg/kg dry wt	0.0501	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7439-95-4	Magnesium	1560		mg/kg dry wt	50.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7439-96-5	Manganese	539	J	mg/kg dry wt	1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	7473	7439-97-6	Mercury	0.128		mg/kg dry wt	0.012	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-02-0	Nickel	1.8	J-	mg/kg dry wt	0.25	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	9/7/7440	Potassium	499	J	mg/kg dry wt	125	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7782-49-2	Selenium	1	UJ	mg/kg dry wt	0.501	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-22-4	Silver	3.83		mg/kg dry wt	0.25	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7440-23-5	Sodium	501	U	mg/kg dry wt	125	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-28-0	Thallium	0.621	J	mg/kg dry wt	0.501	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2 / 200.8	7440-62-2	Vanadium	16.2		mg/kg dry wt	1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_12:15_LON-HA-SOL-020_01_SO	LON-HA-SOL-020	EPA 200.2/200.7	7440-66-6	Zinc	242	J	mg/kg dry wt	5.01	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.9484815	-107.5835968	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7429-90-5	Aluminum	8180	J-	mg/kg dry wt	10	JD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-36-0	Antimony	1.03	J-	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-38-2	Arsenic	20.1	J-	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-39-3	Barium	36.4	J-	mg/kg dry wt	0.251	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7440-41-7	Beryllium	2.51	U	mg/kg dry wt	0.502	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-43-9	Cadmium	0.79	J	mg/kg dry wt	0.0502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7440-70-2	Calcium	308		mg/kg dry wt	50.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-47-3	Chromium	4.74		mg/kg dry wt	0.502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-48-4	Cobalt	1.45	J	mg/kg dry wt	0.0502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-50-8	Copper	106	J	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7439-89-6	Iron	17700		mg/kg dry wt	50.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7439-92-1	Lead	852		mg/kg dry wt	0.0502	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7439-95-4	Magnesium	1920		mg/kg dry wt	50.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7439-96-5	Manganese	167	J	mg/kg dry wt	1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	7473	7439-97-6	Mercury	0.256		mg/kg dry wt	0.014	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-02-0	Nickel	2.8	J-	mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	9/7/7440	Potassium	923		mg/kg dry wt	125	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7782-49-2	Selenium	0.631	J-	mg/kg dry wt	0.502	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-22-4	Silver	13.8		mg/kg dry wt	0.251	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7440-23-5	Sodium	502	U	mg/kg dry wt	125	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-28-0	Thallium	1	U	mg/kg dry wt	0.502	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2 / 200.8	7440-62-2	Vanadium	9.36		mg/kg dry wt	1	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:46_RCM-HA-SOL-025_01_SO	RCM-HA-SOL-025	EPA 200.2/200.7	7440-66-6	Zinc	285	J	mg/kg dry wt	5.02	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94400314	-107.5914857	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7429-90-5	Aluminum	9060		mg/kg dry wt	10.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-36-0	Antimony	1.89	J-	mg/kg dry wt	0.253	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-38-2	Arsenic	27.7		mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-39-3	Barium	66.3	J+	mg/kg dry wt	0.253	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7440-41-7	Beryllium	2.53	U	mg/kg dry wt	0.506	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-43-9	Cadmium	1.23		mg/kg dry wt	0.0506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7440-70-2	Calcium	465		mg/kg dry wt	50.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-47-3	Chromium	4.74		mg/kg dry wt	0.506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-48-4	Cobalt	2.1		mg/kg dry wt	0.0506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-50-8	Copper	146		mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7439-89-6	Iron	10900		mg/kg dry wt	50.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7439-92-1	Lead	1550		mg/kg dry wt	0.0506	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7439-95-4	Magnesium	1870		mg/kg dry wt	50.6	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7439-96-5	Manganese	268		mg/kg dry wt	1.01	BD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	7473	7439-97-6	Mercury	0.181		mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-02-0	Nickel	2.98	J-	mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	9/7/7440	Potassium	817		mg/kg dry wt	126	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7782-49-2	Selenium	1.01	U	mg/kg dry wt	0.506	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-22-4	Silver	10.2		mg/kg dry wt	0.253	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7440-23-5	Sodium	506	U	mg/kg dry wt	126	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-28-0	Thallium	1.01	U	mg/kg dry wt	0.506	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2 / 200.8	7440-62-2	Vanadium	11.5		mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_09:50_RCM-HA-SOL-026_01_SO	RCM-HA-SOL-026	EPA 200.2/200.7	7440-66-6	Zinc	378	J	mg/kg dry wt	5.06	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94520383	-107.5913492	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7429-90-5	Aluminum	8550		mg/kg dry wt	10.1	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-36-0	Antimony	1.77	J-	mg/kg dry wt	0.252	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-38-2	Arsenic	53.4		mg/kg dry wt	0.252	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-39-3	Barium	438	J+	mg/kg dry wt	0.252	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7440-41-7	Beryllium	2.52	U	mg/kg dry wt	0.503	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-43-9	Cadmium	2.26	J	mg/kg dry wt	0.0503	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7440-70-2	Calcium	637		mg/kg dry wt	50.3	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-47-3	Chromium	4.99		mg/kg dry wt	0.503	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T

Sample #	Location	Analytical_Method	CAS_NO	Analyte	Result	Qualifier	Units	MDL	Lab Qualifier	Lab Matrix	Analysis	Column1	MDL Units	Event	Date_Collected	Total_Or_Dissolved	SampleDate	Latitude	Longitude	Total_Or_Disolved
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-48-4	Cobalt	2.67	J	mg/kg dry wt	0.0503	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-50-8	Copper	32.9	J	mg/kg dry wt	0.252	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7439-89-6	Iron	17700		mg/kg dry wt	50.3	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7439-92-1	Lead	2050		mg/kg dry wt	0.0503	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7439-95-4	Magnesium	2310		mg/kg dry wt	50.3	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7439-96-5	Manganese	436	J	mg/kg dry wt	1.01	BD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	7473	7439-97-6	Mercury	0.723		mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-02-0	Nickel	3.1	J-	mg/kg dry wt	0.252	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	9/7/7440	Potassium	1080		mg/kg dry wt	126	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7782-49-2	Selenium	1.01	U	mg/kg dry wt	0.503	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-22-4	Silver	6.67		mg/kg dry wt	0.252	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7440-23-5	Sodium	503	U	mg/kg dry wt	126	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-28-0	Thallium	1.15		mg/kg dry wt	0.503	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2 / 200.8	7440-62-2	Vanadium	15.3		mg/kg dry wt	1.01	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:00_RCM-HA-SOL-027_01_SO	RCM-HA-SOL-027	EPA 200.2/200.7	7440-66-6	Zinc	498	J	mg/kg dry wt	5.03	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.94536967	-107.5915423	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7429-90-5	Aluminum	8520		mg/kg dry wt	9.83	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-36-0	Antimony	1.82	J-	mg/kg dry wt	0.246	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-38-2	Arsenic	40.3	J-	mg/kg dry wt	0.246	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-39-3	Barium	494	J+	mg/kg dry wt	0.246	JD	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7440-41-7	Beryllium	2.46	U	mg/kg dry wt	0.492	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-43-9	Cadmium	1.76	J	mg/kg dry wt	0.0492	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7440-70-2	Calcium	833		mg/kg dry wt	49.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-47-3	Chromium	4.74		mg/kg dry wt	0.492	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-48-4	Cobalt	4.53	J	mg/kg dry wt	0.0492	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-50-8	Copper	80.1	J	mg/kg dry wt	0.246	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7439-89-6	Iron	15800		mg/kg dry wt	49.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7439-92-1	Lead	1840		mg/kg dry wt	0.0492	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7439-95-4	Magnesium	2170		mg/kg dry wt	49.2	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7439-96-5	Manganese	792	J	mg/kg dry wt	0.983	BD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	7473	7439-97-6	Mercury	0.53	J-	mg/kg dry wt	0.01	D	Soil	TM_Mercury 7473		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-02-0	Nickel	2.97	J-	mg/kg dry wt	0.246	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	9/7/7440	Potassium	856		mg/kg dry wt	123	D	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7782-49-2	Selenium	0.983	UJ	mg/kg dry wt	0.492	U	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-22-4	Silver	8.85		mg/kg dry wt	0.246	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7440-23-5	Sodium	492	U	mg/kg dry wt	123	U	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-28-0	Thallium	1.24		mg/kg dry wt	0.492	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2 / 200.8	7440-62-2	Vanadium	13.8		mg/kg dry wt	0.983	D	Solid (dry wt basis)	ICPMS Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T
20180711_10:05_RCM-HA-SOL-028_01_SO	RCM-HA-SOL-028	EPA 200.2/200.7	7440-66-6	Zinc	415	J	mg/kg dry wt	4.92	JBD	Solid (dry wt basis)	ICPOE Tot. Rec. Metals		mg/kg dry wt	2018_JUL_Soil_Bonita Peak_TERA_A194	7/11/2018	T	7/11/2018	37.945438	-107.5914947	T

Appendix B

Field Documentation

Use or disclosure of data contained on this sheet is restricted.

BLM / Burrows Gulch ESI 7/6/21

0815	On-site
0820	Health and Safety Meeting
0900	Began digging PFM #1
1015	L. and M. Smeins on-site
1100	BLM moved to observe surface water team (Anne Eisemann)
1420	Finished installing PFM #1 + PFM #2. collected photos and GPS readings.
1520	Walked BLM + R. Cowie to PFM location for reference.
1620	Collected SW + Sed samples at Gauge station.
1700	Off-site.

Rite in the Rain

Burrows Gulch Soil Sample 7/7/21

0830 On-site

0840 H+S meeting (see Tailgate form)

Roby sites 77, 86, 97, 99, 101
Conic 92, 80, 72

10 30 BG_SS_77 sampled + SPLP
37.942543
-107.597330

10 35 BG_SS_86
37.941588
-107.595749

10:50 BG_SS_97
37.938770
-107.595566

11 00 BG_SS_99
37.938705
-107.592964

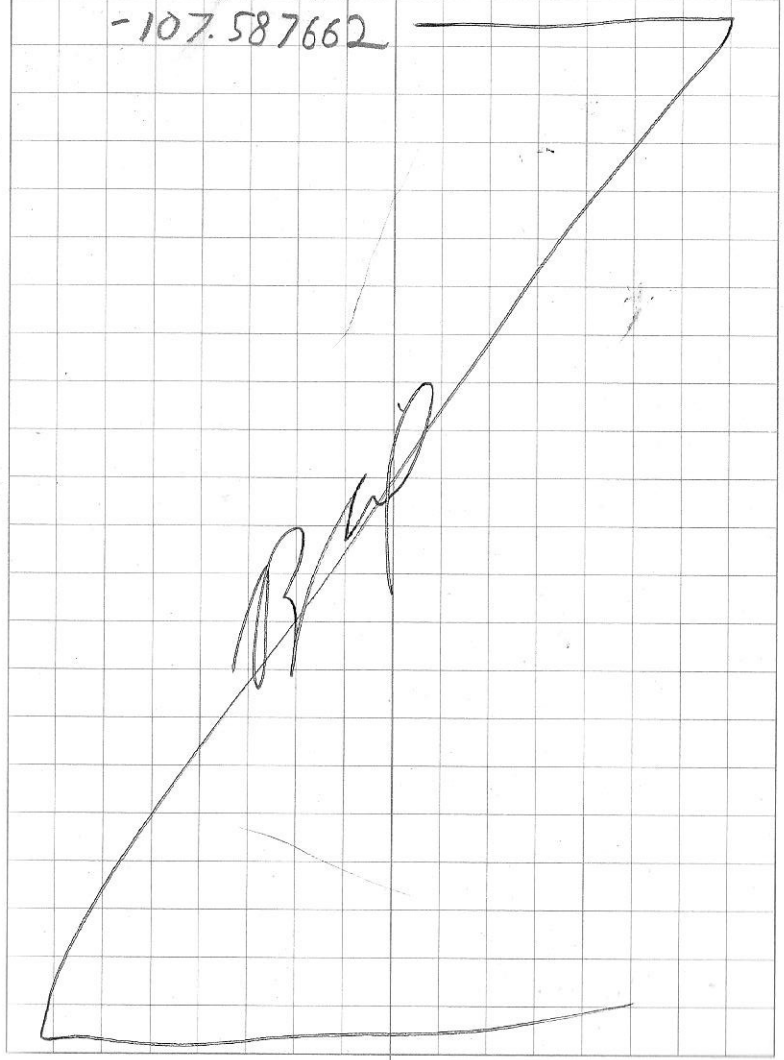
11 10 BG_SS_101
37.939098
-107.590797

11 25 BG_SS_92 12,945 FT + SPLP
37.940178
-107.587921

11 50 BG_SS_72
37.942215, -107.585014

Burrows Gulch 7/7/21
Soil samples Roby area

12:25 BG_SS_80
37.943359
-107.587662



Rite in the Rain

0910 On-site

0916 Held Safety Meeting.
Removed PFM #2 well. Determined it was placed wrong.
Moved approx. 200 ft E of PFM #1.
Completed install of new PFM #2

1150 Began Stream survey

Mid stream water IR Temp 60.1°F

Point	Lat 37.	Long -107.	Note
1	9471	5859	Inflow from S 50 cm estimate
	Photos	274-277	
2	9472	5860	
	Photos	278-279	
3	9471	5862	
	Photos	280-281	
4	Photos	82-84	

Wetland meadow colder than surrounding rock in b/w side drainage
-Seepage into creek at point 3

5	Kettle pond at higher relative elev than stream	9473	5864

Point	Lat	Long
6	Iron in stream channel. but not in wetland	9474, 5868
7	9475	5870.

Upper limit of lower wetland
photos taken

8	photos up to 292	

moss on left bank indicating low near surface, left bank 9478, 5873. 10° cooler than right

9	9476, 5878	-start upper wetland

stream incision increases several feet. Photo 294 shows start of UWL

10	Left bank inflow, possible channel from previous ditch	9476, 5879

surface is saturated but creek water is ~4 ft below. overland flow is coming from south

11	Iron in kettle pond, in upper wetlands. more overland flow from nutrient. Cattis fly larva	
12	surface flow from both sides of Dewitt mine, at sample point by Dewitt	

A0761

Rite in the Rain

Point	LAT	LONG
13 note	Possible that miners attempted to ditch all around Dewitt mine. Cut banks are very tall.	
14	Approx 1 GPM inflow from right bank	9473 5883 Photo 314
15	Less iron staining adjacent to Dewitt upstream	
16	Observed algeal growth, white in color adjacent to Dewitt	
17	end of upper wetland, mostly all channel flow up stream	9472 5891
18	Inflow off ditch, approx 1 GPM. Photo 322	9469 5893
19	Seepage from right bank & wetland outfall from left bank. Gaining from both sides & different chemistry on either bank Photo 342 - left bank	
20	right bank infall for ~100 feet upstream	9466 5907

7/8/21

21	left bank has no wetland plants until right next to water (same GPS as 20)
22	~5 GPM surface inflow from right bank 9439, 5910 at sample A07G
23	right bank inflow 9430, 107. 5921
24	end of bedrock contact 9428, 5929 - goes dry at end of Summer
25	confluence - AI staining starts at confluence + tapers off near 23 inflow. AI continues up Northerly ~~confluence~~ stream
1310	finished upper stream assessment
1338	
26	Inflow 32.0°F Photo 356 .9469, .5861
27	Diffuse outfall on right bank higher elevation than stream 9473, 5851 ~6 m all.

Rite in the Rain

28 Seep on right bank
9473, 5844 ~8m acc.
34.7°F photo 360
approx < 5 GPM
Second seep on other side of rock outcropping
Stream gaining on both sides

29 Iron staining in wetland above stream. Sheen on water possibly indicating bacterial. Near PFM 2

30 Wetland source for flow on right bank
9473, 5830 ~6m acc.
Outflow at .9471, .5827 ~6m acc.
Photo 364
inflow 37°, stream 54°
~50 GPM from multiple inflows

31 Wet land veg on hillside of right bank ~50m down

32 Transition to minimal iron staining in kettle ponds
9477, 5815 ~4m acc.
Iron staining previously upstream also no more red staining from hoffton

32 Hoffton no longer has red rocks coming down

33 End of wetland inflows. Two large inflows
Wetland terminus due to Denver Hill Alluvial fan
.9478, .5804 ~4m acc.

34 Inflow from denver hill gulley
.9479, .5800 ~6m acc

35 Right bank seep
.9472, .5798 ~4m acc.

36 Iron stained inflow on left bank
.9476, .5795 ~4m acc
Near A07 sample point

37 One outfall on Hoffton shoulder down stream

1415 done with stream survey
1500 Off-site

Rite in the Rain

2 7/6/21 Burrows Gulch ESI Ame

0700 Roy Weindorf & Anne Eiseman depart hotels to meet up with Dennis Smith and Rory Cowie.

0715 Team departs R. Cowie's house to site

0815 Team arrives at site near London mine.

0820 R. Weindorf reviewed Work Plan and Health & Safety Plan. Team signed & acknowledged H&S plan & TSM.

0850 R Cowie calibrated equipment.

0900 R Cowie & A Eiseman went to collect SW, sediment, & stream guage. R Weindorf & D Smith went to dig.

1020 B61A sampled
Flow - 0.297 CFS = 133 GPM
pH - 5.35
cond - 61.7 us/cm
temp - 8.5 °C
samples collected:
BG-SW-B61A, 2 containers - one filtered one HNO3
BG-SD-B61A, 1 cont (2 oz - no pics)

AE

7/6/21 Burrows Gulch 3

1100 A07G sampled
Flow 0.387 CFS = 174 GPM
pH 4.83
Cond 61.5 us/cm
temp 9.5°C
samples collected: BG-SW-A07G (x2)
A07E BG-SD-A07G

1145 ~~A07C1~~ sampled
Flow NC 0.857 CFS = 384 GPM
pH 4.06
cond 110
Temp 10.2°C
Samples collected:
BG-SW-~~A07C1~~ A07G (2 cont) - one filtered one HNO_3
BG-SD-~~SD A07C1~~ A07G (1 cont)

1250 A07C1 sampled
Flow 0.187 CFS = 84 GPM
pH 4.23
cond 189
temp 11.6°C
samples collected:
BG-SW-A07C1
BG-SD-A07C1

Ame

Rite in the Rain

7/6/21 Burrows Gulch ESI

1350 BG-SW-A07B collected
Flow ~~1.184 CFS~~ 0.527 cfs
pH 4.36
cond 190
temp 13.2
samples: BG-SW-A07B (x2)
BG-SD-A07B (x1)

1355 ~~BG-SW-A~~ BG-97B
Duplicate of BG-A07B
Flow ~~1.104 CFS~~
pH ~~4.60~~
cond 167
~~temp~~ 12.5
samples: BG-SW-97B (x2)
BG-SD-97B

readings for BG-A07B - this was a dup AE

14:15 BG-SW-A07 collected
Flow 1.104 cfs
pH 4.60
cond 167
temp 12.5
samples: BG-SW-A07
BG-SD-A07

Ame

7/6/21 Burrows Gulch

1620 BG-BG4 collected
Flow 1.402 CFS = 629 GPM
pH 4.67
cond ~~60~~ 158
temp 15.0
samples: BG-SW-BG4 (x2)
BG-SD-BG4 (x1)

1700 off-site

Ame 7/6/21

Rite in the Rain

070721 Burrows Gulch ES1

0700	A Eiseman, D Smith, + R Cowie meet at R Cowie's house + depart for site
0830	Arrive at site
0840	TSM conducted. Prepare for soil sample collection
0930	Soil sample BG-55-32 collected GPS: 37.947105, -107.589874
0940	Soil sample BG_55_56 collected 37.946056 -107.589539 + SPLP sample
1005	Soil sample BG-55-09 collected GPS: 37°56'57"N, 107°35'7" W
1015	Soil sample BG-11 collected SPLP sample collected GPS: 37°56'57"N, 107°35'5" W
1035	Soil sample BG-30 collected GPS: 37°56'58" N, 107°34'53" W
1050	Soil sample BG-39 collected SPLP sample collected GPS: 37°56'57" N, 107°34'51" W

070721 Burrows Gulch

1105	Soil sample BG-50 collected Duplicate BG-950 collected at 1115 GPS: 37°56'51" N, 107°34'50" W
1115	soil sample BG950 collected duplicate of BG-50
1130	Soil sample BG-49 collected GPS: 37°56'51"N, 107°34'52" W
1140	Soil sample BG-62 collected GPS: 37°56'49"N, 107°34'52" W
1145	Soil sample BG-61 collected Duplicate BG-961 GPS: 37°56'49"N, 107°34'53" W
1150	Duplicate BG-961 collected
1155	Soil sample BG-85 collected GPS 37°56'46"N, 107°34'55" W (SPLP)
1200	Soil sample BG-60 collected GPS: 37° 56'48"N, 107°34'55" W
1215	A Eiseman + D Smith take lunch break
1300	A Eiseman + D Smith prepare samples and break for lunch
1400	A Eiseman, R Cowie, + D Smith depart site for day. R Weindorf on site water still.
1500	Arrive in Silverton

7/7/21

Rite in the Rain

070821 Burrows Gulch ESI

0700 A Eiseman, R Weindorf + R Cowie meet at R Cowies house + prepare to leave

0800 Samples dropped at Fedex in Silverton, CO

0910 Arrive at site for SRM + prep

0930 Passive Flux Meter # dropped in to well. North marked on PVC of PFM with Sharpie. PFM hit bottom of well before completely submerged. Water at approx 1 ft. 2 inches down on PFM.

0930 R Weindorf begin hand augering PFM well #2. R Cowie removed original PFM well #2 that was inadvertantly placed on private property.

0945 R Cowie + A Eiseman joined R Weindorf + assisted in digging the well.

PFM 2 Well location coordinates:
37.94755
-107.58388

070821 Burrows Gulch

1120 Well completed and PFM 2 installed
Break for lunch

1150 Begin stream survey. Details of survey located in R Weindorfs log book.

1405 Complete stream survey

1500 Leave site for the day.

1600 Arrive in Silverton.

7/8/21

Rite in the Rain

070921 Burrows Gulch ESI

0900 R. Weindorf & A Eiseman depart Silverton

1000 R. Weindorf dropped A Eiseman in Durango for flight later in the day. R Weindorf driving back to Denver.

~~0~~ 1820 A Eiseman flight departs. End of field event.

Anne Eiseman 7/9/21

Rite in the Rain

Appendix C

Burrows Gulch Stream Gauge Report 2021

Use or disclosure of data contained on this sheet is restricted.

December 20, 2021

Appendix C
Burrows Gulch Stream Gage Report.

Rory Cowie, PhD
Alpine Water Resources LLC

2021 Discharge Summary

The Burrows gulch gage was installed on 5/24/21 and removed on 10/4/21. The gage consisted of an In-Situ Level Troll 500 vented pressure transducer and associated staff gage. The transducer recorded stage height at 10-minute intervals over the study period.
The installation occurred at the time of first access to the site when there was still approximately eight feet of snow covering the stream channel. The steam gage was exposed from the snow and the transducer was installed at this time (see photos). Installation occurred after the start of the rising limb of the hydrograph but was able to capture peak discharge, which had not previously been obtained for Burrows Gulch based on available historic data. The transducer was removed from the stream on 10/4/21 due to end of seasonal site access.

Discharge was measured nine times over the season to capture the full range of the hydrograph. A stage-discharge relationship was established using the manual discharge measurements and the associated stage height on the transducer. The fit of the stage discharge curve (figure 1) had an R^2 value of 0.99.

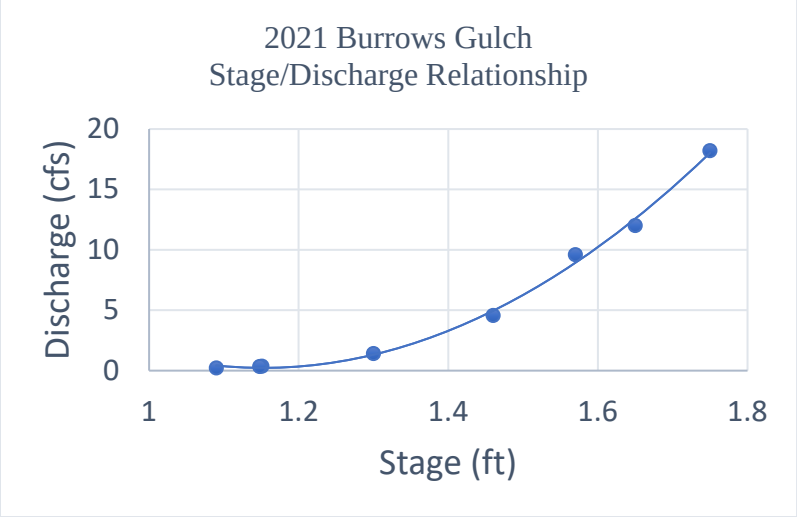


Figure 1: Burrows Gulch stage-discharge relationship, 2021.

Stream discharge is graphed at 10-minute intervals during high runoff period of spring snowmelt (figure 2) and over the entire period of record in 2021 (figure 3). Peak instantaneous discharge was 39 cfs on 6/5/21 at 17:00 (figure 2). Daily peak discharge on high melt days, the week prior to the peak flows, occurred around 17:00 each day, driven by diurnal snowmelt runoff. The exception being on 6/2/21 when daily peak discharge occurred at 22:40, indicating that diurnal freezing may not have occurred on this date and melt continued longer into the evening. The following day, 6/3/21 was the highest mean daily discharge at 23 cfs (figure 4) further indicating that peak runoff was associated with no overnight freezing. There was a strong diurnal melt signal for the first two months of record with up to a 5-fold daily increase in discharge during daily peak flow periods in the first week of June 2021 (see figure 2).

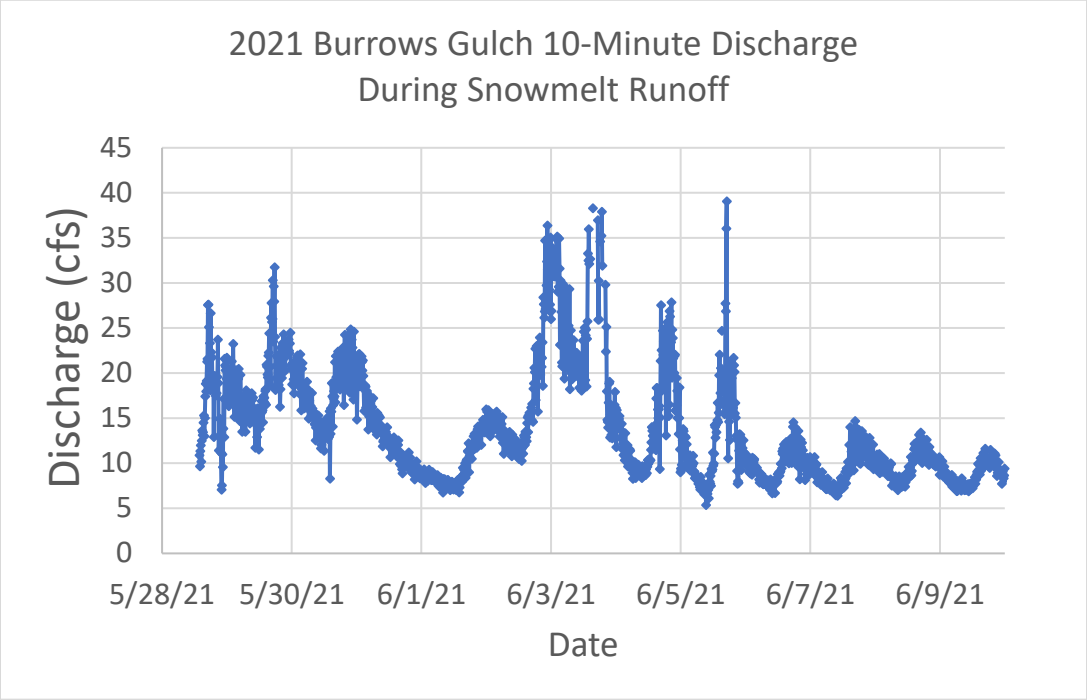


Figure 2: Burrows Gulch stream discharge at 10-minute resolution during high flow (melt runoff) period of 2021.

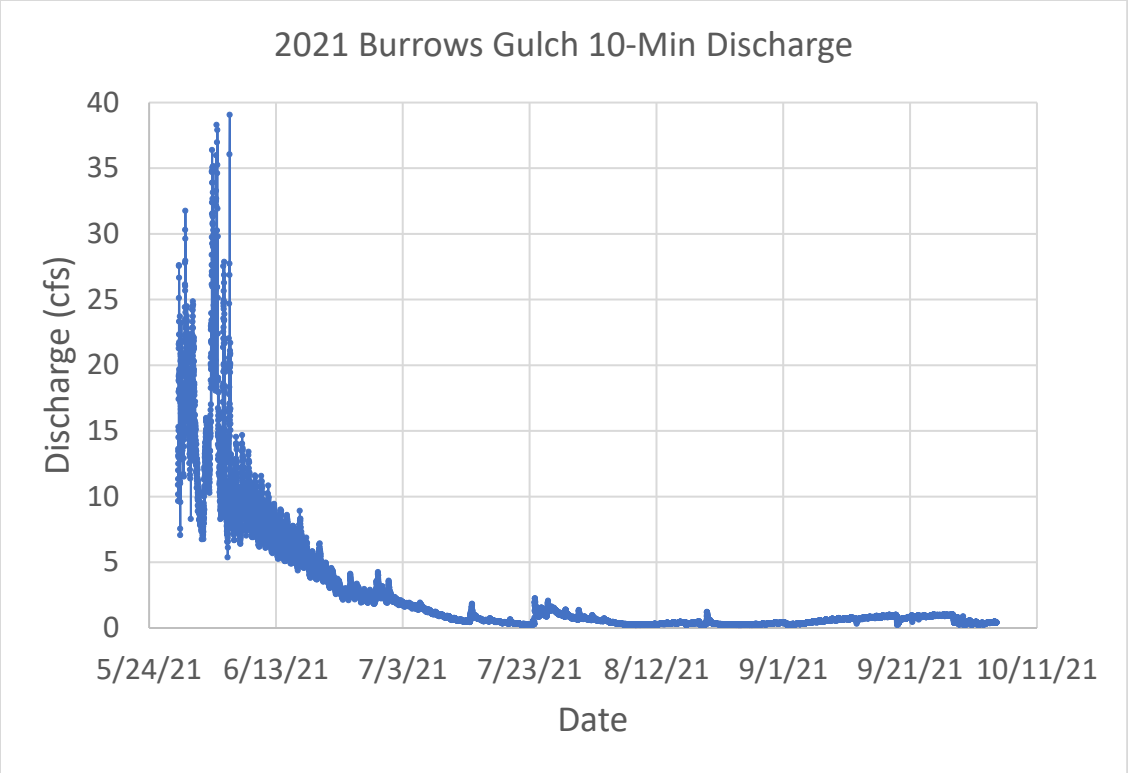


Figure 3: Complete 2021 record of Burrows Gulch stream discharge at 10-min intervals.

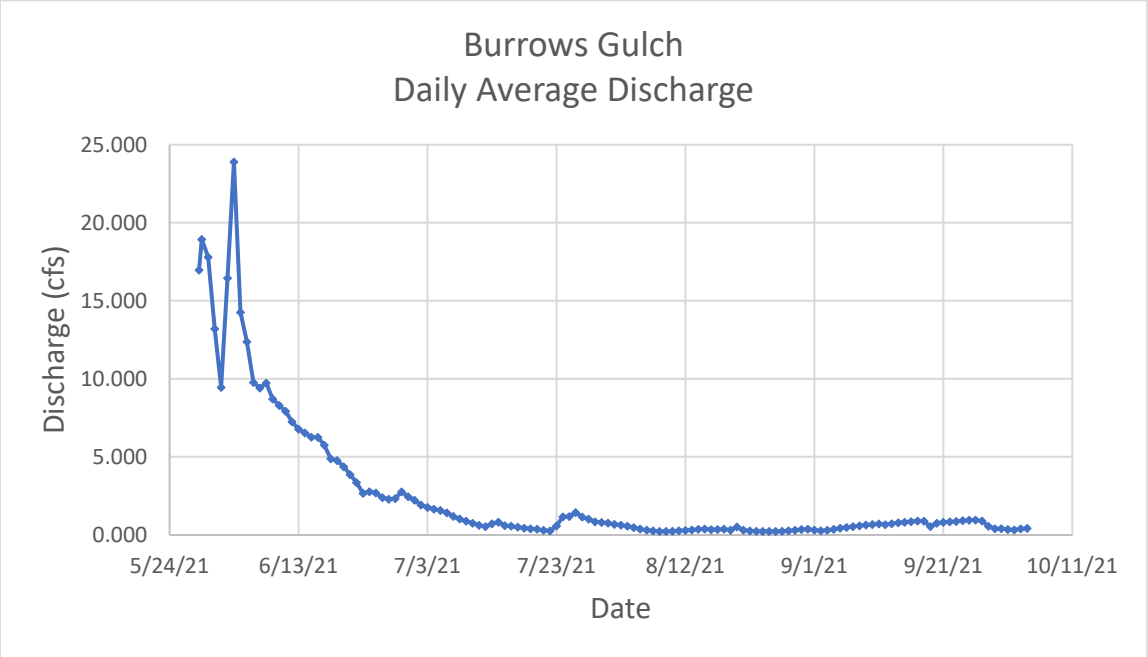


Figure 4: Burrows Gulch mean daily discharge in cubic feet per second (cfs).

To relate the Burrows Gulch discharge to that of the entire Upper Animas basin the Burrows discharge is compared to flows measured at USGS gage # 09358000 located at Silverton, CO. This site is known as sampling point A68 by the US EPA Bonita Peak Mining District Superfund site. The peak discharge at A68 also occurred on 6/5/21 at 20:00 and measured 695 cfs. A comparison of peak discharge values from Burrows Gulch and A68 on 6/5/21 indicate that Burrow Gulch contributes approximately 5.6% of the total discharge at A68 during peak flows. The occurrence of peak flows on the same day in Burrows Gulch and at A68 indicate that the snowmelt driven runoff in alpine catchments play a dominant role in the magnitude and timing of discharge in the Upper Animas watershed. The lowest discharge recorded by the stream gage was 0.226 cfs on 9/29/21 at 11:00. The discharge at A68 was 34.1 cfs indicating that Burrows Gulch contributes only approximately 0.7% of discharge to the Animas River above Silverton during fall low flow conditions. The high-resolution seasonal discharge data improves the understanding of the overall water quantity and quality contributions of Burrows Gulch to the larger Upper Animas Watershed.

2019 and 2020 Historic Burrows Gulch Stream Gage data summary

Prior to the watershed assessment presented in this report, Mountain Studies Institute (MSI) and Alpine Water Resources LLC (AWR) were tasked to initiate stream gage monitoring in the upper Animas Watershed. The BLM, through contract with the State of Colorado DRMS, was initially interested in understanding the relative contributions of streamflow from the different headwater drainages contributing to the Animas River above Animas Forks, CO. MSI and AWR performed an initial site visit on August 6th, 2019, to locate and design the following three stream gauging stations in the Upper Animas Watershed; California Gulch, Burrows Gulch, and the North Fork of the Animas Above California Gulch. After an internal design review, MSI acquired approval from BLM on installation locations and proposed installation materials.

In 2019, MSI purchased stage cards, angle iron, mounting hardware, and time-lapse cameras for the three chosen sites. Coordinates for the chosen locations are listed below in Table 1. Due to the late season installation of the stream gage in September 2019 no instrumentation was installed at the staff gage, but manual measurements were taken in September and October 2019.

A time-lapse game camera was initially installed at the staff gage to attempt to collect daily stage readings over the winter. The State of Colorado DRMS purchased InSitu Level Troll 500 pressure transducers for three gage sites in the Upper Animas that were installed in spring 2020 due to late season access to site locations for installations and subsequent winter inaccessibility.

The Burrows Gulch stream gage and camera were destroyed during the winter of 2019/20 due to snow and avalanche activity at the gaging site. The damage resulted in relocation of the gage to a safer location approximately 200 meters downstream and causing a delay in installation of the pressure transducer in 2020 as the gage had to be rebuilt. The pressure transducer was installed in the new location on 7/30/2020 and removed for the season on 10/14/2020. In 2021, AWR re-installed the stream gage on 5/28/21 by removing snow to access the staff gage and record discharges before peak runoff. The pressure transducer was removed on October 4, 2021, due to seasonal road closures limiting access to the site. Summary of 2021 data provided above.

Table 2 summarizes all field data collected at the Burrows Gulch Stream gage site from 2019 through 2021. The time series of specific conductivity and pH were plotted in figures 4 and 5 respectively. Both field parameters demonstrate a seasonal trend that corresponds to the annual snowmelt. During the high flows of snowmelt (May and June) the specific conductivity is lowered to ~100 us/cm due to dilution from the melt waters which have less contact time with the subsurface. The specific conductivity gradually increases throughout the recession limb of the hydrograph as snowmelt dilution decreases and a greater percentage of streamflow comes from groundwater sources (*e.g.*, seeps and springs). The specific conductivity increases approximately 3-fold by the late fall with the highest recorded values of ~300 us/cm occurring in October each year.

The stream pH also follows a seasonal pattern with higher (>5) pH occurring during spring snowmelt and then decreasing throughout snowmelt to ~4.5. Interestingly, the pH appears to increase again in late fall (October), perhaps due to a shift in source water flow paths. Without winter measurements it is unclear how the pH of the stream changes over the winter months.

Table 1: Stream Gage Locations in Upper Animas Watershed, 2019.

Locations Site ID	Latitude	Longitude
North Fork of the Animas	*37° 55' 53.91" N*	*107° 34' 11.07" W*
Burrows Gulch	*37° 56' 44.44" N*	*107° 34' 30.48" W*
California Gulch	*37° 55' 57.08" N*	*107° 34'20.88" W*

Table 2: Burrows Gulch Stream Gage Field Data, 2019-2021.

DATE	TEMP (C)	pH	Sp Cond (us/cm)	Discharge (cfs)
9/9/19	16	4.34	281	0.111
9/11/19	11.6	4.45	281	0.167
10/2/19	8.5	4.53	278	0.091
10/17/19	3.8	5.07	273	0.060
6/4/20	7.7	4.49	109	5.91
7/30/20	12.3	4.46	147	0.7
10/14/20	8.4	4.3	307	0.065
10/23/20	4.5	5.17	310	0.060
5/28/21	0.5	5.32	79	6.911
6/4/21	0.5	5.38	67	18.2
6/12/21	7.8	4.94	110	9.589
6/18/21	11.3	4.59	128	4.56
8/9/21	16.6	4.76	233	0.355
8/26/21	12.1	4.67	264	0.338
10/4/21	11	4.76	310	0.214

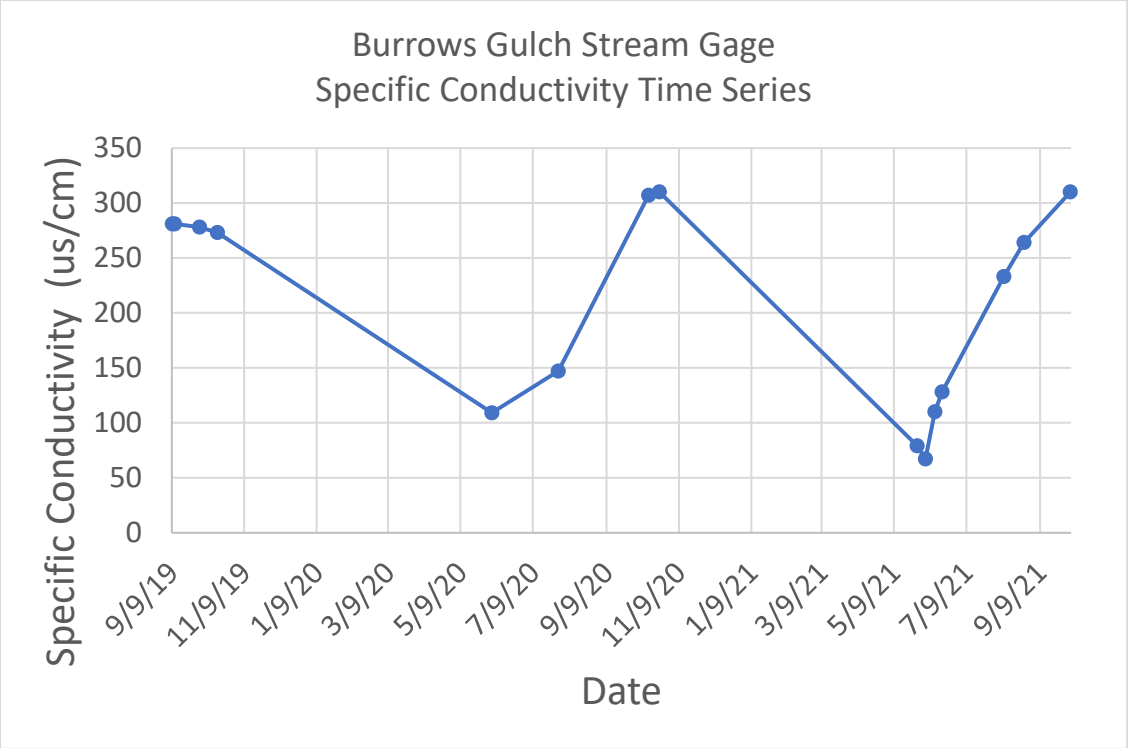


Figure 5: Time series of specific conductivity (us/cm) manually measured at the Burrows Gulch Gage site from 2019-2021.

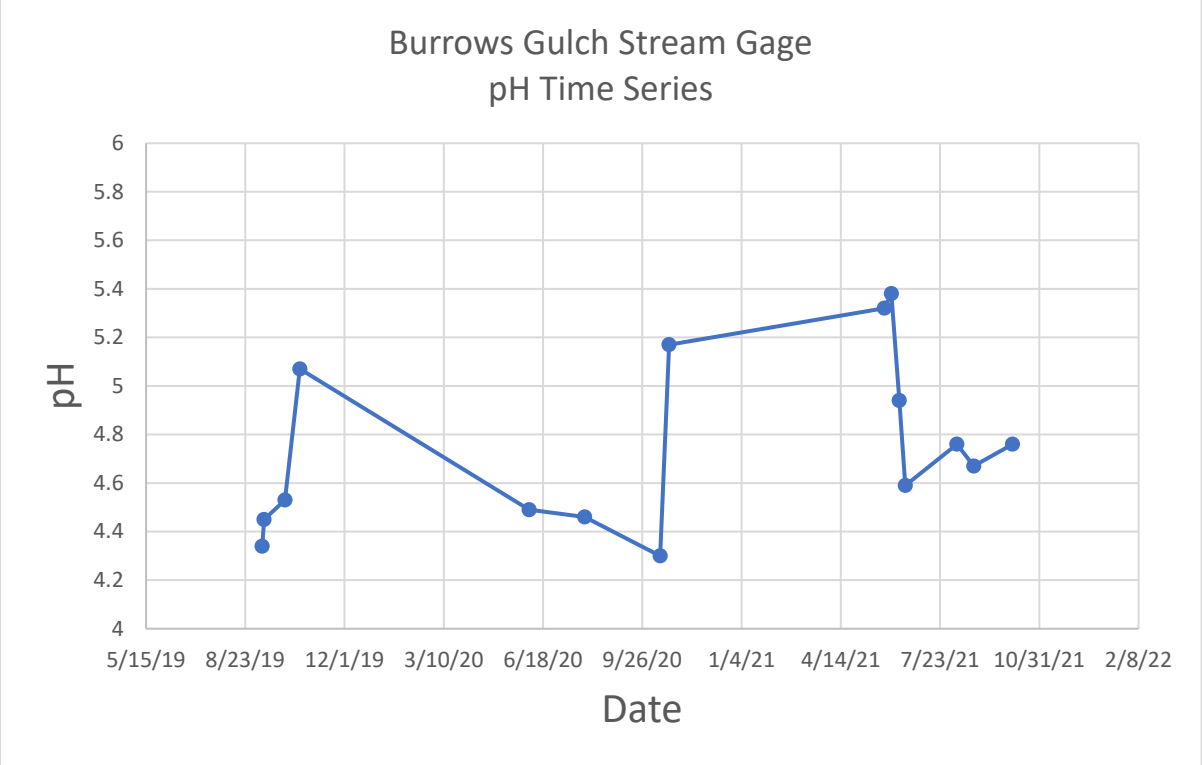


Figure 6: Time series of pH measured at the Burrows Gulch gage site during streamflow measurements from 2019 to 2021.

Stream flow comparison to other locations in Upper Animas

To compare Burrows Gulch discharge to the other gaged catchments in the Upper Animas the 2020 discharge data from the three locations in Table 1 were plotted along with the A68 discharge data (figure 7). Data for the three upper gages was collected by MSI and AWR for the Colorado DRMS and BLM. All three gaging locations in the Upper Animas show a similar discharge hydrograph and trend with A68 location. The stream gage data captures the recession limb of the hydrograph and indicate similar responses across all gages with small by discernable increases occurring during summer rain events.

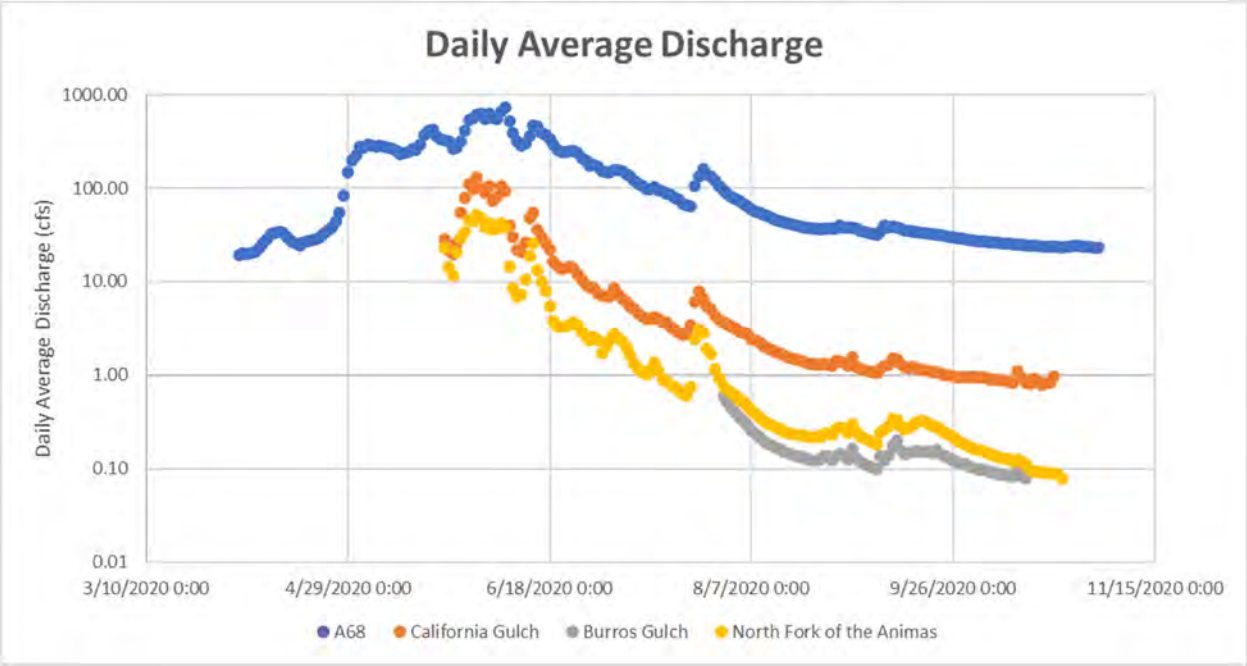


Figure 7: 2020 stream discharge from Upper Animas stream gages and the A68 gaging station on the Animas River at Silverton. Figure borrowed from the 2020 MSI stream gage report to Colorado DRMS and BLM.

Field photos



Photo 1: Initial stream gage installation, September 2019. Theis location was moved in spring of 2020 due to damage to the staff gage from ice or avalanches over the previous winter.



Photo 2: Stream Gage uncovered from seasonal snowpack on 5/24/21. Rising limb of hydrograph had begun at this time. However, the transducer was installed prior to peak discharge which occurred



Photo 3: Stream flow measurement at constrained cross section 100 ft above gage site. This location has good bedrock constraints and was the original location of the staff gage (photo 1) which was moved in spring of 2020.



Photo 4: Burrows Gulch gage site visited on 5/7/21 at first road access. Stream gage was buried under 15-20 ft of snow and not accessible even though melt was underway in the alpine.



Photo 6: Burrows Gulch gage site 5/24/21 after digging out staff gage. Red arrow shows the location of the staff gage. Photo taken from Engineer Pass Road.

Appendix D

Data Validation Reports

Use or disclosure of data contained on this sheet is restricted.

DATA VALIDATION REPORT

BURROWS GULCH WATERSHEAD ASSESSMENT

ACZ ANALYTICAL REPORT L62357

Contents

1.0 Introduction 2
1.1 Field Quality Assurance Sampling 2
1.2 Laboratory Data Review and Validation 2
1.3 Summary 3
2.0 Data Quality Control Review 3
Table 1: Data Quality Control Criteria Review Summary (DQCCRS) 3
Table 3: Analytical Methods 4
Table 4: Data Review Summary 4

1.0 INTRODUCTION

This report summarizes the data quality review and validation associated with watershed assessment sampling conducted on October 14, 2020, at the Burrows Gulch watershed located in the San Juan Mountains in Colorado. This sampling effort included the collection of five surface water samples which were analyzed for total and dissolved Target Analyte List (TAL) metals.

A quality assurance (QA)/quality control (QC) program was followed during the sampling tasks to ensure that analytical results, data usability, and the decisions based on these results are representative of environmental conditions.

A Level II data review and validation was completed and is presented herein. Level II data validation focuses on consistency checks and is intended to identify values in the data that appear atypical.

1.1 Field Quality Assurance Sampling

The following field QA samples were collected during the field sampling effort:

- 1 Field duplicate.

One field duplicate sample was collected to assess the overall precision of sample collection efforts. The field duplicate sample was collected at the same time as the investigative sample and analyzed for total and dissolved TAL heavy metals.

As no volatile organic sampling was conducted, a trip blank was not utilized. As no reusable sampling equipment was employed during the sampling, no equipment blank was collected.

1.2 Laboratory Data Review and Validation

The Level II data review and validation used the analytical data packages supplied by ACZ Laboratories (ACZ). The ACZ laboratory performing the analyses is accredited through numerous federal, state and NELAP accreditation programs for the analyses being performed (the state of Colorado currently does not have an accreditation program for laboratory analysis of non-drinking water environmental samples). A listing of these accreditations is provided in the Laboratory Analytical Package presented in Appendix A.

A standard Level II review tool, the Data QC Criteria Review Summary (DQCCRS) was used to guide the review. Documents reviewed included:

- Case narrative.
- Report of analytical results.
- QC summary that included chains of custody (COCs), method blank results, laboratory control sample (LCS) results, and matrix spike (MS) and matrix spike duplicate (MSD) results.

The DQCCRS parallels processes described in the U.S. Environmental Protection Agency's (EPA's) National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-2017-0012 (U.S. EPA 2017).

1.3 Summary

The Level II data review and validation found that the laboratory analysis had few issues, none that are not common in this type analysis, and no complications that would limit the usability of the analytical results. Field activities, sample handling, and processing were satisfactory and did not introduce variables that would jeopardize data usability. Data qualifiers were applied, as appropriate. The qualifiers do not limit data usability. Overall, the data is determined to be of suitable quality and reliability to be used for assessing the Burrows Gulch watershed.

2.0 Data Quality Control Review

Table 1: Data Quality Control Criteria Review Summary (DQCCRS)

Case Numbers:	HSG Groundwater Sampling	**Project Number:**	NA
Site:	Burrows Gulch, San Juan Mountains, Colorado		
Contractor Lab:	AZC Laboratories, Inc.		
Validator:	Jeffrey Stofferahn	**Validation Date:**	08-27-2021
Sample Matrix:	Surface water		

A list of environmental samples and field QC samples collected during the sampling event is presented in **Table 2** and are summarized below:

- Surface water samples: 7 investigative samples and 1 field duplicate.

Table 2: Sample Summary

Sample ID	Lab ID	Sample Type	Sample Date	Analyses [1]
BG_SW_01_1020-T	L62357-1	Surface Water	10/14/2020	Total TAL Metals
BG_SW_01_1020-D	L62357-2	Surface Water	10/14/2020	Dissolved TAL Metals
BG_SW_02_1020-T	L62357-3	Surface Water	10/14/2020	Total TAL Metals
BG_SW_02_1020-D	L62357-4	Surface Water	10/14/2020	Dissolved TAL Metals
BG_SW_03_1020-T	L62357-5	Surface Water	10/14/2020	Total TAL Metals
BG_SW_03_1020-D	L62357-6	Surface Water	10/14/2020	Dissolved TAL Metals
BG_SW_04_1020-T	L62357-7	Surface Water	10/14/2020	Total TAL Metals
BG_SW_04_1020-D	L62357-8	Surface Water	10/14/2020	Dissolved TAL Metals
BG_SW_05_1020-T	L62357-9	Surface Water	10/14/2020	Total TAL Metals
BG_SW_05_1020-D	L62357-10	Surface Water	10/14/2020	Dissolved TAL Metals

1 – At each location, a sample was collected for analyses of total metals and for dissolved metals; the dissolved metal sample was field filtered with a 0.45-micron filter. Both samples were field preserved with nitric acid.

2 – Sample B6_SW_95 is a field duplicate of sample B6_SW_5.

Table 3: Analytical Methods

Analyte(s)	Method(s)	Laboratory
TAL Metals – Al, Ba, Ca, Cr, Co, Cu, Fe, Mg, Mn, Ni, K, Ag, Na, V, Zn.	USEPA Method M200.7 – Inductively Cooled Plasma – Atomic Emission Spectrometry (ICP-AES)	ACZ – Steamboat Springs, CO
TAL Metals – Sb, As, Be, Cd, Pb, Se, Th,	USEPA Method M200.8 – Inductively Cooled Plasma – Mass Spectroscopy (ICP-MS)	ACZ – Steamboat Springs, CO
TAL Metals - Mercury	USEPA Method M245.1 – Cold Vapor Atomic Absorption Spectrometry (CVAA)	ACZ – Steamboat Springs, CO

The analytical data were reviewed in general accordance with the analytical methods and the U.S. EPA Contract Laboratory Program (CLP) National Functional Guidelines. Table 4 below summarizes the review and identifies any resultant actions.

Table 4: Data Review Summary

X	Included, no problems	O	Not required
#	See validation summary/specific comment below	NA	Not applicable

Level II QC Review Summary	Metals - Total	Metals - Dissolved
Completeness (all Analytical Results)	X	X
Case Narrative	X	X
Chain of Custody (COC) Forms	#1	#1
Holding Times/Shipping	X	X
Method and Lab Reagent Blank Results	X	X
Laboratory Control Sample (LCS) Results	X	X
MS/MSD Results	#2	#3
Initial Calibration Results [1]	X	X
Continuing Calibration Results [1]	X	X
Comparison of Total and Dissolved Results	X	X
Field QC Results [a]	X	X
Other	#4	#4

[1] Validation did not include a review of initial or continuing calibration reports; however, results of continuing calibration blanks and verification standards were included in and Extended Qualifier Report. The Report provided by the laboratory did not identify any issues regarding initial or continuing calibration.

No data quality issues were noted with the analyses of samples. The following subsections provide comments and suggested actions for each data review item listed in Table 4.

2.1 Completeness

The data was complete and in accordance with the Sampling and Analysis Plan (SAP).

2.2 Case Narrative

The ACZ report includes a summary cover letter, but no case narrative per se. An Inorganic Extended Qualifier Report was included that provides .

2.3 Chain of Custody (COC) Forms.

COC forms were completed and returned. It is noted that no sample times were recorded on the COC for samples from the locations identified as SW-02, -03, -04 and -05. Samples were analyzed within method prescribed holding times.

2.4 Preservation / Shipping / Sample Hold Times

Samples to be analyzed for dissolved metals were field filtered with a 0.45-micron filter. All samples were field preserved with nitric acid.

All samples were shipped on ice, and met temperature criteria upon receipt

All samples were analyzed within method-prescribed holding times.

2.5 Method Blank Results.

#1 The laboratory did not analyze any method blanks /prep blanks.

2.6 Laboratory Control Samples (LCS) Results.

Laboratory control samples (identified as Laboratory Fortified Blanks) were reported as within recovery limits.

2.7 Matrix Spikes (MS) and Matrix Spike Duplicates (MSD).

The laboratory reported results for Laboratory Fortified Matrix and Laboratory Fortified Matrix Duplicates (LFM/LFMD) samples for work numbers (i.e., batches) associated with total metals analyses. The laboratory reported post-digestion Analytical Spike and Analytical Spike Duplicates (AS/ASD) samples for work numbers (batches) associated with dissolved metals analyses.

The Inorganic Extended Qualifier Report does cite instances where data has been flagged because:

- M3 - The spike recovery value (SRV) is unusable since the analyte concentration in the sample is disproportionate to the spike level, or
- M2 - The matrix spike recovery was low.

Specifically:

#2 – The SRV for total iron was flagged “M2” for the LFM/LFMD sample associated with work number (batch) WG508357. The original sample concentrations were > 4 times the spike amount; thus % recovery limits do not apply, and the data are not to be flagged. No action is necessary.

#3 – The recoveries for dissolved silver were flagged “M3” for the AS/ASD samples associated with work number (batch) WG508433. The recoveries were 66% and 62%, respectively. **All results for dissolved silver were non-detect. These results will be flagged UJ.**

2.8 Initial and Continuing Calibration Results.

No issues relating to initial or continuing calibration were reported by the analytical laboratory.

2.10 Reporting Limits and Method Detection Limits (MDL).

The analytical laboratory provided conventional SW846 Practical Quantitation Limits (PQLs) and No samples required dilution, and the MDLs are considered acceptable for the intended use of the data. No action is necessary.

2.11 Comparison of Total and Dissolved Results

At all locations total and dissolved surface water samples were collected. Ideally, results from a given location should yield a dissolved result that is equal to or less than the total result. In instances where a dissolved result exceeded the corresponding total result, a calculation of the relative percent difference (RPD) yielded varying results between 0.5 to 88.9% (Attachment B). However, in no instance did the RPD exceed 20% when results were > than 5 times the PQL. This suggests the differences are a result of the inherent precision of the analytical method. No action is necessary.

2.12 Field QC Results

No field QC samples were collected.

2.13 Other

#4 - The laboratory has utilized a data qualifier that is not consistent with nomenclatures utilized the National Functional Guidelines for Inorganic Superfund Methods Data Review, as well as other data reports applicable to the Burrow Gulch assessment. Most notably, they apply a B qualifier when a result is greater than the MDL but less than the PQL, indicating this is an estimated value. In presenting this data, the user should use a “J” qualifier to avoid confusion.

ATTACHMENT B

Calculation of RPD for Samples with Dissolved Values Greater than Total Values

Samples	Analyte	Dissolved Result (mg/L)	Total Result (mg/L)	Relative Percent Difference
BG_SW_01_1020-T and D	Al	0.189 J	0.199 J	5.2
	Ba	0.0305 J	0.0184 J	49.5
	Be	0.000404	0.000248	47.9
	Cd	0.00103	0.000993	3.7
	Cr	0.012 J	0.010	18.2
	Zn	0.227	0.223	1.8
BG_SW_02_1020-T and D	Ba	0.0262 J	0.0140 J	60.7
BG_SW_03_1020-T and D	Be	0.00113	0.00091	21.2
	Cd	0.0126	0.0124	1.6
	Cr	0.011 J	0.010 U	9.5
	Co	0.026 J	0.010 U	88.9
	Cu	0.075 J	0.056	29.0
	Fe	0.077 J	0.060	24.8
	Pb	0.0130	0.0129	0.8
BG_SW_04_1020-T and D	Ba	0.0269 J	0.0134 J	67.0
	Be	0.00238	0.00209	13.0
	Ca	24.6	24.1	2.1
	Cr	0.012 J	0.010 U	18.2
	Co	0.036 J	0.021 J	52.6
	Cu	0.123	0.105	15.8
	Fe	0.242	0.218	10.4
	Ni	0.0212 J	0.0211 J	0.5
BG_SW_05_1020-T and D	Al	7.00	6.94	0.9
	Ba	0.0330 J	0.0193 J	52.4
	Be	0.00313	0.00283	10.1
	Ca	27.1	26.7	1.5
	Co	0.016	*0.010*	46.2
	Cu	0.065	0.052	22.2

DATA VALIDATION REPORT

BURROWS GULCH WATERSHEAD ASSESSMENT

PACE ANALYTICAL REPORT L1367851

Contents

1.0 Introduction 2

1.1 Field Quality Assurance Sampling 2

1.2 Laboratory Data Review and Validation 2

1.3 Summary 2

2.0 Data Quality Control Review 3

Table 1: Data Quality Control Criteria Review Summary (DQCCRS) 3

Table 3: Analytical Methods 4

Table 4: Data Review Summary 4

Table 5: Comparison of Investigative and Field Duplicate Sample 6

APPENDICIES

A Laboratory Report

B Calculation of RPD for Samples with Dissolve Values Greater than Total Values

1.0 INTRODUCTION

This report summarizes the data quality review and validation associated with watershed assessment sampling conducted on June 12, 2021, at the Burrows Gulch watershed located in the San Juan Mountains in Colorado. This sampling effort included the collection of seven surface water samples and one field duplicate which were analyzed for total and dissolved Target Analyte List (TAL) metals.

A quality assurance (QA)/quality control (QC) program was followed during the sampling tasks to ensure that analytical results, data usability, and the decisions based on these results are representative of environmental conditions.

A Level II data review and validation was completed and is presented herein. Level II data validation focuses on consistency checks and is intended to identify values in the data that appear atypical.

1.1 Field Quality Assurance Sampling

The following field QA samples were collected during the field sampling effort:

- 1 Field duplicate.

One field duplicate sample was collected to assess the overall precision of sample collection efforts. The field duplicate sample was collected at the same time as the investigative sample and analyzed for total and dissolved TAL metals.

As no volatile organic sampling was conducted, a trip blank was not utilized. As no reusable sampling equipment was employed during the sampling, no equipment blank was collected.

1.2 Laboratory Data Review and Validation

The Level II data review and validation used the analytical data packages supplied by Pace Analytical (Pace). The Pace laboratory performing the analyses is accredited through numerous federal, state and NELAP accreditation programs for the analyses being performed (the state of Colorado currently does not have an accreditation program for laboratory analysis of non-drinking water environmental samples). A listing of these accreditations is provided in the Laboratory Analytical Package presented in Appendix A.

A standard Level II review tool, the Data QC Criteria Review Summary (DQCCRS) was used to guide the review. Documents reviewed included:

- Case narrative.
- Report of analytical results.
- QC summary that included chains of custody (COCs), method blank results, laboratory control sample (LCS) results, and matrix spike (MS) and matrix spike duplicate (MSD) results.

The DQCCRS parallels processes described in the U.S. Environmental Protection Agency's (EPA's) National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-2017-0012 (U.S. EPA 2017).

1.3 Summary

The Level II data review and validation found that the laboratory analysis had few issues, none that are not common in this type analysis, and no complications that would limit the usability of

the analytical results. Field activities, sample handling, and processing were satisfactory and did not introduce variables that would jeopardize data usability. Data qualifiers were applied, as appropriate. The qualifiers do not limit data usability. Overall, the data is determined to be of suitable quality and reliability to be used for assessing the Burrows Gulch watershed.

2.0 Data Quality Control Review

Table 1: Data Quality Control Criteria Review Summary (DQCCRS)

Site:	Burrows Gulch, San Juan Mountains, Colorado		
Contractor Lab:	Pace Analytical		
Validator:	Jeffrey Stofferahn	**Validation Date:**	08-31-2021
Sample Matrix:	Surface water		

A list of environmental samples and field QC samples collected during the sampling event is presented in **Table 2** and are summarized below:

- Surface water samples: 7 investigative samples and 1 field duplicate.

Table 2 Sample Summary

Sample ID	Lab ID	Sample Type	Sample Date	Analyses [1]
B6_SW_A07_G	L1367851-1	Surface Water	6/12/2021	Total and Dissolved TAL Metals
B6_SW_HT	L1367851-2	Surface Water	6/12/2021	Total and Dissolved TAL Metals
B6_SW_A07_D1	L1367851-3	Surface Water	6/12/2021	Total and Dissolved TAL Metals
B6_SW_A07_C1	L1367851-4	Surface Water	6/12/2021	Total and Dissolved TAL Metals
B6_SW_A07_B	L1367851-5	Surface Water	6/12/2021	Total and Dissolved TAL Metals
B6_SW_A07	L1367851-6	Surface Water	6/12/2021	Total and Dissolved TAL Metals
B6_SW_5	L1367851-7	Surface Water	6/12/2021	Total and Dissolved TAL Metals
B6_SW_95 [2]	L1367851-8	Surface Water	6/12/2021	Total and Dissolved TAL Metals

1 – At each location, a sample was collected for analyses of total metals and for dissolved metals; the dissolved metal sample was field filtered with a 0.45-micron filter. Both samples were field preserved with nitric acid.

2 – Sample B6_SW_95 is a field duplicate of sample B6_SW_5.

Table 3: Analytical Methods

Analyte(s)	Method(s)	Laboratory
TAL Metals (other than mercury)	USEPA Method 6010B – Inductively Cooled Plasma – Atomic Emission Spectrometry (ICP-AES)	Pace Analytical – Mt. Juliet, TN
Mercury	USEPA Method 7470A – Manual Cold-Vapor Technique	Pace Analytical – Mt. Juliet, TN

The analytical data were reviewed in general accordance with the analytical methods and the U.S. EPA Contract Laboratory Program (CLP) National Functional Guidelines. Table 4 below summarizes the review and identifies any resultant actions.

Table 4: Data Review Summary

X	Included, no problems	O	Not required
#	See validation summary/specific comment below	NA	Not applicable

Level II QC Review Summary	Metals - Total	Metals - Dissolved
Completeness (all Analytical Results)	X	X
Case Narrative	X	X
Chain of Custody (COC) Forms	#1	#1
Holding Times/Shipping	X	X
Method and Lab Reagent Blank Results	X	X
Laboratory Control Sample (LCS) Results	X	X
MS/MSD Results	X	X
Initial Calibration Results [1]	X	X
Continuing Calibration Results [1]	X	X
Comparison of Total and Dissolved Results	X	X
Field QC Results [a]	X	X
Other	NA	NA

[1] Validation did not include a review of initial or continuing calibration reports. The case narrative provided by the laboratory did not identify any issues regarding initial or continuing calibration.

No data quality issues were noted with the analyses of samples. The following subsections provide comments and suggested actions for each data review item listed in Table 4.

2.1 Completeness

The data was complete and in accordance with the Sampling and Analysis Plan (SAP).

2.2 Case Narrative

The Pace case narrative provided discussion of the methodologies used and identified analytical issues associated with the analysis. The narrative was satisfactory for a Level II review.

2.3 Chain of Custody (COC) Forms.

COC forms were properly completed and returned, with the following exceptions:

#1 – The matrix indicated on the COC is incorrect, the samples are surface water samples, not groundwater. No action is necessary.

2.4 Preservation / Shipping / Sample Hold Times

All samples were field preserved ; Samples to be analyzed for dissolved metals were field filtered with a 0.45-micron filter. All samples were field preserved with nitric acid. All samples were shipped on ice, and met temperature criteria upon receipt All samples were analyzed within method-prescribed holding times. No action is necessary

2.5 Method Blank Results.

Method blank results did not yield any detectable concentrations of analytes. No action is necessary

2.6 Laboratory Control Samples (LCS) Results.

Laboratory control samples were reported as within recovery limits. No action is necessary

2.7 Matrix Spikes (MS) and Matrix Spike Duplicates (MSD).

The laboratory ran MS/MSD samples for mercury analysis utilizing samples B6_SW_A07_G and B6_SW_A07_D1, and for TAL metals analysis utilizing sample B6_SW_A07_G. MS/MSD results were all with acceptable range. No action is necessary

2.8 Initial and Continuing Calibration Results.

No issues relating to initial or continuing calibration were reported by the analytical laboratory. No action is necessary

2.10 Reporting Limits and Method Detection Limits (MDL).

The analytical laboratory provided conventional SW846 RLs, MDLs were not reported. No samples required dilution, and the RLs are considered acceptable for the intended use of the data. No action is necessary.

2.11 Comparison of Total and Dissolved Results

At all locations total and dissolved surface water samples were collected. Ideally, results from a given location should yield a dissolved result that is equal to or less than the total result. In instances where a dissolved result exceeded the corresponding total result, a calculation of the relative percent difference (RPD) yielded results of 8.5 % or less, and in most instances less than 5.0% (Appendix B). This suggests the differences are primarily due to the inherent precision of the analytical method, and the dissolved and total analyses are measuring the same value. No action is necessary.

2.12 Field QC Results

One field duplicate was submitted for analysis; sample B6_SW_95 is a duplicate of B6_SW-5. A comparison of the reported values from these samples is presented in Table 5. Overall, correlation between the investigative and field duplicate sample was very good with the exception

of the dissolved lead result which yielded a RPD > 20%. The higher value between the investigative and duplicate sample should be utilized for assessment purposes. Otherwise, no action is necessary.

Table 5: Comparison of Investigative and Field Duplicate Sample

Analyte	Investigative Sample Result - B6_SW-5 (mg/L)	Field Duplicate Sample Result - B6_SW-95 (mg/L)	Relative Percent Difference
Al – total	2.88	2.88	0.0
Al - dissolved	2.82	2.83	0.4
Ba – total	0.0162	0.0169	4.2
Ba - dissolved	0.0156	0.0161	3.2
Cd – total	0.0074	0.0075	1.6
Cd - dissolved	0.0074	0.0079	6.0
Ca – total	7.71	7.69	0.3
Ca - dissolved	7.55	7.50	0.7
Cu – total	0.0289	0.0271	6.4
Cu - dissolved	0.0261	0.0266	1.9
Fe – total	0.101	0.111	9.4
Pb – total	0.0117	0.0118	0.9
Pb - dissolved	0.0098	0.0070	33.9
Mg – total	1.20	1.19	0.8
Mg - dissolved	1.15	1.17	1.7
Mn – total	1.37	1.36	0.7
Mn - dissolved	1.37	1.36	0.7
Zn – total	1.12	1.12	0.0
Zn - dissolved	1.14	1.14	0.0

APPENDIX A

Laboratory Analytical Report

APPENDIX B

Calculation of RPD for Samples with Dissolve Values Greater than Total Values

Sample	Analyte	Dissolved Result (mg/L)	Total Result (mg/L)	Relative Percent Difference
B6_SW_HT	Ba	0.00917	0.00842	8.5
	Cd	0.011	0.0109	0.9
	Co	0.0167	0.0164	1.8
	Cu	0.0775	0.0752	3.0
	Ni	0.0107	0.0100	6.8
	Zn	1.37	1.36	0.7
B6_SW_A07_D1	Al	1.90	1.87	1.6
	Ba	0.0108	0.0107	0.9
	Cd	0.0026	0.0026	1.2
	Cu	0.0186	0.0180	3.3
	Zn	0.4160	0.4100	1.5
B6_SW_A07_C1	Al	6.7200	6.6800	0.6
	Ba	0.0215	0.0217	0.9
	Cd	0.0140	0.0135	3.6
	Pb	0.0109	0.0107	1.9
	Mn	2.16	2.15	0.5
	Zn	2.14	2.13	0.5
B6_SW_A07_B	Ba	0.0189	0.0188	0.5
	Cd	0.0138	0.0135	2.2
B6_SW_A07	Cd	0.0086	0.0084	3.2
B6_SW_5	Cd	0.0074	0.0074	0.1
	Zn	1.14	1.12	1.8
B6_SW_95	Cd	0.0079	0.0075	4.6
	Zn	1.14	1.12	1.8

DATA VALIDATION REPORT

BURROWS GULCH WATERSHEAD ASSESSMENT

PACE ANALYTICAL REPORT L1376275

Contents

1.0 Introduction 2

1.1 Field Quality Assurance Sampling 2

1.2 Laboratory Data Review and Validation 2

1.3 Summary 3

2.0 Data Quality Control Review 3

Table 1: Data Quality Control Criteria Review Summary (DQCCRS) 3

Table 3: Analytical Methods 4

Table 4: Data Review Summary 4

Table 5: Comparison of Investigative and Field Duplicate Sample 7

APPENDICIES

A Laboratory Report

B Calculation of RPD for Samples with Dissolve Values Greater than Total Values

1.0 INTRODUCTION

This report summarizes the data quality review and validation associated with watershed assessment sampling conducted on July 6, 2021, at the Burrows Gulch watershed located in the San Juan Mountains in Colorado. This sampling effort included the collection of seven surface water samples and one field duplicate which were analyzed for total and dissolved Target Analyte List (TAL) metals, and seven sediment samples and one field duplicate which were analyzed for TAL metals.

A quality assurance (QA)/quality control (QC) program was followed during the sampling tasks to ensure that analytical results, data usability, and the decisions based on these results are representative of environmental conditions.

A Level II data review and validation was completed and is presented herein. Level II data validation focuses on consistency checks and is intended to identify values in the data that appear atypical.

1.1 Field Quality Assurance Sampling

The following field QA samples were collected during the field sampling effort:

- 2 Field duplicates.

Two field duplicate sample, one from each sample matrix type, were collected to assess the overall precision of sample collection efforts. The field duplicate samples were collected at the same time as the investigative sample and analyzed for total and dissolved TAL metals.

As no volatile organic sampling was conducted, a trip blank was not utilized. As no reusable sampling equipment was employed during the sampling, no equipment blank was collected.

1.2 Laboratory Data Review and Validation

The Level II data review and validation used the analytical data packages supplied by Pace Analytical (Pace). The Pace laboratory performing the analyses is accredited through numerous federal, state and NELAP accreditation programs for the analyses being performed (the state of Colorado currently does not have an accreditation program for laboratory analysis of non-drinking water environmental samples). A listing of these accreditations is provided in the Laboratory Analytical Package presented in Appendix A.

A standard Level II review tool, the Data QC Criteria Review Summary (DQCCRS) was used to guide the review. Documents reviewed included:

- Case narrative.
- Report of analytical results.
- QC summary that included chains of custody (COCs), method blank results, laboratory control sample (LCS) results, and matrix spike (MS) and matrix spike duplicate (MSD) results.

The DQCCRS parallels processes described in the U.S. Environmental Protection Agency's (EPA's) National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-2017-0012 (U.S. EPA 2017).

1.3 Summary

The Level II data review and validation found that the laboratory analysis had few issues, none that are not common in this type analysis, and no complications that would limit the usability of the analytical results. Field activities, sample handling, and processing were satisfactory and did not introduce variables that would jeopardize data usability. Data qualifiers were applied, as appropriate. The qualifiers do not limit data usability. Overall, the data is determined to be of suitable quality and reliability to be used for assessing the Burrows Gulch watershed.

2.0 Data Quality Control Review

Table 1: Data Quality Control Criteria Review Summary (DQCCRS)

Site:	Burrows Gulch, San Juan Mountains, Colorado		
Contractor Lab:	Pace Analytical		
Validator:	Jeffrey Stofferahn	**Validation Date:**	8-31-2021
Sample Matrix:	Surface water and Sediment		

A list of environmental samples and field QC samples collected during the sampling event is presented in **Table 2** and are summarized below:

- Surface water samples: 7 investigative samples and 1 field duplicate.
- Sediment samples: 7 investigative samples and 1 field duplicate.

Table 2 Sample Summary

Sample ID	Lab ID	Sample Type [1]	Sample Date	Analyses [1]
BG-SW-BG1A	L1376275-1 L1376275-2	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-BG1A	L1376275-3	Sediment	7/6/2021	Total TAL Metals
BG-SW-A07G	L1376275-4	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-A07G	L1376275-5	Sediment	7/6/2021	Total TAL Metals
BG-SW-A07C1	L1376275-6	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-A07C1	L1376275-7	Sediment	7/6/2021	Total TAL Metals
BG-SW-A07E	L1376275-8	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-A07E	L1376275-9	Sediment	7/6/2021	Total TAL Metals
BG-SW-A07B	L1376275-10	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-A07B	L1376275-11	Sediment	7/6/2021	Total TAL Metals
BG-SW-97B [2]	L1376275-12	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-97B [2]	L1376275-13	Sediment	7/6/2021	Total TAL Metals
BG-SW-A07	L1376275-14	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-A07	L1376275-15	Sediment	7/6/2021	Total TAL Metals
BG-SW-BG4	L1376275-16	Surface Water	7/6/2021	Total and Dissolved TAL Metals
BG-SD-BG4	L1376275-17	Sediment	7/6/2021	Total TAL Metals

1 – At each surface water sampling location, a surface water sample was collected for analyses of total metals and for dissolved metals; the dissolved metal sample was field filtered with a 0.45-micron filter. Both samples were field preserved with nitric acid.

2 – Sample BG-SW-97B is a duplicate of BG-SW-A07B. Sample BG-SD-97B is a duplicate of BG-SD-A07B

Table 3: Analytical Methods

Analyte(s)	Method(s)	Laboratory
TAL Metals (other than mercury)	USEPA Method 6010B – Inductively Cooled Plasma – Atomic Emission Spectrometry (ICP-AES)	Pace Analytical – Mt. Juliet, TN
Mercury	USEPA Method 7470A – Manual Cold-Vapor Technique	Pace Analytical – Mt. Juliet, TN
Mercury	USEPA Method 7471A – Manual Cold-Vapor Technique in Solid or Semisolid Matrix	Pace Analytical – Mt. Juliet, TN

The analytical data were reviewed in general accordance with the analytical methods and the U.S. EPA Contract Laboratory Program (CLP) National Functional Guidelines. Table 4 below summarizes the review and identifies any resultant actions.

Table 4: Data Review Summary

X	Included, no problems	O	Not required
#	See validation summary/specific comment below	NA	Not applicable

Level II QC Review Summary	Metals - Total	Metals - Dissolved
Completeness (all Analytical Results)	X	X
Case Narrative	X	X
Chain of Custody (COC) Forms	X	X
Holding Times/Shipping	X	X
Method and Lab Reagent Blank Results	X	#1
Laboratory Control Sample (LCS) Results	X	X
MS/MSD Results	#2	X
Initial Calibration Results [1]	X	X
Continuing Calibration Results [1]	X	X
Field QC Results [a]	X	X
Other	X	X

[1] Validation did not include a review of initial or continuing calibration reports. The case narrative provided by the laboratory did not identify any issues regarding initial or continuing calibration.

The following subsections provide comments and suggested actions for each data review item listed in Table 4.

2.1 Completeness

The data was complete and in accordance with the Sampling and Analysis Plan (SAP).

2.2 Case Narrative

The Pace case narrative provided discussion of the methodologies used and identified analytical issues associated with the analysis. The narrative was satisfactory for a Level II review.

2.3 Chain of Custody (COC) Forms.

COC forms were properly completed and returned. No action is necessary.

2.4 Preservation / Shipping / Sample Hold Times

All surface water samples were field preserved ; Samples to be analyzed for dissolved metals were field filtered with a 0.45-micron filter. All samples were field preserved with nitric acid. All samples were shipped on ice and met temperature criteria upon receipt. All samples were analyzed within method-prescribed holding times. No action is necessary

2.5 Method Blank Results.

Method blank results did not yield any detectable concentrations of analytes with the following exception:

#1 – Dissolved barium was found in the method blank sample (MB) R3682527-1 below the reporting limit but above the method detection limit and reported as an estimated concentration of 0.00311 J mg/L . All surface waters samples analyzed for dissolved barium have their results flagged as "B". Detectable dissolved barium was reported in each of the surface water samples at concentrations ranging from 0.0159 to 0.0279 mg/L, nearly an order-of-magnitude over the blank concentration. While the potential influence of the blank concentration on the detected results is likely of little significance, the user should use discretion when using this data.

2.6 Laboratory Control Samples (LCS) Results.

Laboratory control samples were reported as within recovery limits. No action is necessary

2.7 Matrix Spikes (MS) and Matrix Spike Duplicates (MSD).

The laboratory ran MS/MSD samples via Method 7470A (surface water) for total mercury analysis utilizing sample BG-SW-BG4 and for dissolve mercury utilizing sample BG-SW-BG1A and BG-SW-BG4. MS/MSD results were all with acceptable range. No action is necessary

The laboratory ran MS/MSD samples via Method 7471A (sediments) samples for total mercury analysis utilizing sample BG-SD-BG4 and another sample from the analytical batch not associated with the site. MS/MSD results were all with acceptable range. No action is necessary

#2 The laboratory ran MS/MSD samples via Method 6010B utilizing sediment sample BG-SD-BG1A. MS/MSD results were all in acceptable range except for the following:

- The MS and MSD results for aluminum and iron were flagged "V" as the sample concentrations were too high to evaluate accurate sample recoveries. The original sample concentrations were > 4 times the spike amount; thus % recovery limits do not apply, and the data are not to be flagged. It is also noted that the associated laboratory control spike sample reported recoveries for aluminum and iron within acceptable ranges. No action is necessary.
- The MS and MSD recoveries for antimony were flagged "J6" as the sample matrix interfered with the ability to make any accurate determination; spike value is low. The MS

and MSD recoveries are 46.2% and 53.3%. Given the low recoveries in both samples, non-detects in the associated samples will be flagged UJ and detected values will be flagged J.

- The MSD recovery for calcium was flagged "J5" as the sample matrix interfered with the ability to make any accurate determination; spike value is high. The MSD recovery was 130%. The MS recovery was within range, and the RPD between the MS and MSD (3.95%) was within range. Also, the associated LCS recovery for calcium was within acceptable range. The data will not be flagged; however, the user should be aware that the reported calcium results may be biased high.
- The MSD recovery for magnesium was flagged "J5" as the sample matrix interfered with the ability to make any accurate determination; spike value is high. The MSD recovery was 128%. The MS recovery was within range, and the RPD between the MS and MSD (5.88%) was also within range. Also, the associated LCS recovery for calcium was within acceptable range. The data will not be flagged; however, the user should be aware that the reported magnesium results may be biased high.

2.8 Initial and Continuing Calibration Results.

No issues relating to initial or continuing calibration were reported by the analytical laboratory. No action is necessary

2.10 Reporting Limits and Method Detection Limits (MDL).

Pace provided conventional SW846 RLs, MDLs were not reported. No water samples required dilution, and the RLs are considered acceptable for the intended use of the data. Of the eight sediment samples, four required dilution which raised the reporting limits for these samples (B6-SD-BG1A, BG-SD-AO7B, B6-SD-97B and B6-SD-AO7). This will only affect those analytes which are reported as non-detects. The data user should consider these elevated detection limits when assessing these data. No action is necessary.

2.11 Comparison of Total and Dissolved Results

At all locations total and dissolved surface water samples were collected. Ideally, results from a given location should yield a dissolved result that is equal to or less than the total result. In instances where a dissolved result exceeded the corresponding total result, a calculation of the relative percent difference (RPD) yielded results of 9.3 % or less, and in most instances less than 5.0% (Attachment A). This suggests the differences are primarily due to the inherent precision of the analytical method. No action is necessary.

2.12 Field QC Results

Two field duplicates were submitted for analysis; sample BG-SW-97B is a duplicate of BG-SW-A07B, and BG-SD-97B is a duplicate of BG-SD-97B. A comparison of the reported values from these samples are presented in Tables 5 and 6. Overall, correlations between the investigative and field duplicate surface water sample were very good (RPDs generally below 5%); the iron and lead results were slightly higher. The correlation between the investigative and field duplicate sediment sample also showed fairly good correlation for a solid matrix sample, although the RPD for cobalt and lead exceeds 35%. The higher value between the investigative and duplicate sample should be utilized for assessment purposes. Otherwise, no action is necessary.

Table 5: Comparison of Investigative and Field Duplicate Sample – BG-SW-A07B

Analyte	Investigative Sample Result - BG-SW-A07B (mg/L)	Field Duplicate Sample Result – BG-SW-97B (mg/L)	Relative Percent Difference
Al	6.52	6.60	1.2
Al - dissolved	6.69	6.67	0.3
Ba	0.0231	0.0232	0.4
Ba - dissolved	0.0238	0.0240	0.8
Be	0.00280	0.00282	0.7
Be - dissolved	0.00278	0.00278	0.0
Cd	0.0134	0.0134	0.0
Cd - dissolved	0.0138	0.0139	0.7
Ca	12.9	13.0	0.8
Ca - dissolved	13.1	13.1	0.0
Cu	0.0370	0.0375	1.3
Cu - dissolved	0.0364	0.0371	1.9
Fe	0.119	0.113	5.2
Fe - dissolved	0.1130	0.1000 U	12.2
Pb	0.0103	0.0110	6.6
Pb - dissolved	0.0108	0.00960	11.8
Mg	1.77	1.80	1.7
Mg - dissolved	1.72	1.74	1.2
Mn	2.93	2.92	0.3
Mn - dissolved	2.99	3.00	0.3
Zn	2.40	2.42	0.8
Zn - dissolved	2.47	2.48	0.4

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Table 6: Comparison of Investigative and Field Duplicate Sample – BG-SD-A07B

Analyte	**Investigative Sample Result - BG-SD-A07B (mg/Kg)**	**Field Duplicate Sample Result – BG-SD-97B (mg/Kg)**	Relative Percent Difference
Al	13,900	15,900	13.4
As	38.1	33.7	12.3
Ba	40.8	52.3	24.7
Be	*2.00*	2.22	10.4
Cd	6.26	8.73	33.0
Co	28.6	47.4	49.5
Cu	127	168	27.8
Fe	33,400	28,300	16.5
Pb	403	618	42.1
Mg	1,250	1,090	13.7
Mn	12,400	17,200	32.4
K	1,090	1240	12.9
Zn	557	620	10.7

APPENDIX A

Laboratory Analytical Report

APPENDIX B

Calculation of RPD for Samples with Dissolved Values Greater than Total Values

Sample	Analyte	Dissolved Result (mg/L)	Total Result (mg/L)	Relative Percent Difference
BG-SW-BG1A	Ba	0.0176	0.0170	3.5
	Ca	7.64	7.49	2.0
	Zn	0.286	0.277	3.2
BG-SW-A07G	Ba	0.0183 B	0.0174	5.0
	Zn	0.272	0.256	6.1
BG-SW-A07C1	Al	6.88	6.77	1.6
	Ba	0.2790	0.2690	3.6
	Cd	0.0149	0.0144	3.4
	Ca	9.70	9.61	0.9
	Cu	0.0467	0.0466	0.2
	Mn	2.48	2.45	1.2
	Zn	2.44	2.36	3.3
BG-SW-A07E	Al	3.44	3.37	2.1
	Ba	0.0159	0.0152	4.5
	Ca	7.220	7.100	1.7
	Cu	0.0293	0.0290	1.0
	Mn	1.52	1.50	1.3
	Zn	0.75	0.71	4.9
BG-SW-A07B	Al	6.69	6.52	2.6
	Ba	0.0238	0.0231	3.0
	Cd	0.0138	0.0134	2.9
	Ca	13.10	12.90	1.5
	Pb	0.0108	0.0103	4.7
	Mn	2.99	2.93	2.0
	Zn	2.47	2.40	2.9
BG-SW-97B	Al	6.67	6.60	1.1
	Ba	0.0240	0.0232	3.4
	Cd	0.0139	0.0134	3.7
	Ca	13.1	13.0	0.8
	Mn	3.00	2.92	2.7
	Zn	2.48	2.42	2.4
BG-SW-A07	Al	4.59	4.54	1.1
	Ba	0.0192	0.0175	9.3
	Cd	0.0108	0.0107	0.9
	Ca	12.3	12.2	0.8
	Mn	2.79	2.77	0.7
	Zn	1.68	1.62	3.6
BG-SW-BG4	Ba	0.0197	0.0185	6.3
	Be	0.00226	0.00217	4.1
	Cd	0.0106	0.0103	2.9
	Ca	12.5	12.0	4.1
	Cu	0.0499	0.0490	1.8
	Mn	2.62	2.57	1.9
	Zn	1.59	1.54	3.2

DATA VALIDATION REPORT

BURROWS GULCH WATERSHEAD ASSESSMENT

PACE ANALYTICAL REPORT L1376376

Contents

1.0 Introduction 2

1.1 Field Quality Assurance Sampling 2

1.2 Laboratory Data Review and Validation 2

1.3 Summary 2

2.0 Data Quality Control Review 3

Table 1: Data Quality Control Criteria Review Summary (DQCCRS) 3

Table 3: Analytical Methods 3

Table 4: Data Review Summary 4

Table 5: Comparison of Investigative and Field Duplicate Sample 8

APPENDICIES

A Laboratory Report

1.0 INTRODUCTION

This report summarizes the data quality review and validation associated with watershed assessment sampling conducted on July 7, 2021, at the Burrows Gulch watershed located in the San Juan Mountains in Colorado. This sampling effort included the collection and analyses of 22 surface soil samples for total Target Analyte List (TAL) metals. Of these five samples were also analyzed leachable TAL metals after extraction by the Synthetic Precipitation Leaching Procedure (SPLP).

A quality assurance (QA)/quality control (QC) program was followed during the sampling tasks to ensure that analytical results, data usability, and the decisions based on these results are representative of environmental conditions.

A Level II data review and validation was completed and is presented herein. Level II data validation focuses on consistency checks and is intended to identify values in the data that appear atypical.

1.1 Field Quality Assurance Sampling

No field duplicates were collected for this effort. As no volatile organic sampling was conducted, a trip blank was not utilized. As no reusable sampling equipment was employed during the sampling, no equipment blank was collected.

1.2 Laboratory Data Review and Validation

The Level II data review and validation used the analytical data packages supplied by Pace Analytical (Pace). The Pace laboratory performing the analyses is accredited through numerous federal, state and NELAP accreditation programs for the analyses being performed (the state of Colorado currently does not have an accreditation program for laboratory analysis of non-drinking water environmental samples). A listing of these accreditations is provided in the Laboratory Analytical Package presented in Appendix A.

A standard Level II review tool, the Data QC Criteria Review Summary (DQCCRS) was used to guide the review. Documents reviewed included:

- Case narrative.
- Report of analytical results.
- QC summary that included chains of custody (COCs), method blank results, laboratory control sample (LCS) results, and matrix spike (MS) and matrix spike duplicate (MSD) results.

The DQCCRS parallels processes described in the U.S. Environmental Protection Agency's (EPA's) National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-540-R-2017-0012 (U.S. EPA 2017).

1.3 Summary

The Level II data review and validation found that the laboratory analysis had few issues, none that are not common in this type analysis, and no complications that would limit the usability of the analytical results. Field activities, sample handling, and processing were satisfactory and did not introduce variables that would jeopardize data usability. Data qualifiers were applied, as appropriate. The qualifiers do not limit data usability. Overall the data is determined to be of suitable quality and reliability to be used for assessing the Burrows Gulch watershed.

2.0 Data Quality Control Review

Table 1: Data Quality Control Criteria Review Summary (DQCCRS)

Site:	Burrows Gulch, San Juan Mountains, Colorado		
Contractor Lab:	Pace Analytical		
Validator:	Jeffrey Stofferahn	**Validation Date:**	8-31-2021
Sample Matrix:	Surface soil		

A list of environmental samples and field QC samples collected during the sampling event is presented in **Table 2** and are summarized below:

· Surface soil samples: 20 investigative and 2 field duplicates.

Table 2 Sample Summary

Sample ID	Lab ID	Sample Type [1]	Sample Date	Analyses [1]
BG-SS-85	L1376376-1 L1376376-2	Surface soil	7/7/2021	Total and SPLP TAL Metals
BG-SS-77	L1376376-3 L1376376-4	Surface soil	7/7/2021	Total and SPLP TAL Metals
BG-SS-92	L1376376-5 L1376376-6	Surface soil	7/7/2021	Total and SPLP TAL Metals
BG-SS-39	L1376376-7 L1376376-8	Surface soil	7/7/2021	Total and SPLP TAL Metals
BG-SS-11	L1376376-9 L1376376-10	Surface soil	7/7/2021	Total and SPLP TAL Metals
BG-SS-72	L1376376-11	Surface soil	7/7/2021	Total TAL Metals
BG-SS-99	L1376376-12	Surface soil	7/7/2021	Total TAL Metals
BG-SS-97	L1376376-13	Surface soil	7/7/2021	Total TAL Metals
BG-SS-86	L1376376-14	Surface soil	7/7/2021	Total TAL Metals
BG-SS-60	L1376376-15	Surface soil	7/7/2021	Total TAL Metals
BG-SS-101	L1376376-16	Surface soil	7/7/2021	Total TAL Metals
BG-SS-80	L1376376-17	Surface soil	7/7/2021	Total TAL Metals
BG-SS-950 [1]	L1376376-18	Surface soil	7/7/2021	Total TAL Metals
BG-SS-50	L1376376-19	Surface soil	7/7/2021	Total TAL Metals
BG-SS-49	L1376376-20	Surface soil	7/7/2021	Total TAL Metals
BG-SS-62	L1376376-21	Surface soil	7/7/2021	Total TAL Metals
BG-SS-30	L1376376-22	Surface soil	7/7/2021	Total TAL Metals
BG-SS-09	L1376376-23	Surface soil	7/7/2021	Total TAL Metals
BG-SS-32	L1376376-24	Surface soil	7/7/2021	Total TAL Metals
BG-SS-56	L1376376-25	Surface soil	7/7/2021	Total TAL Metals
BG-SS-61	L1376376-26	Surface soil	7/7/2021	Total TAL Metals
BG-SS-961 [1]	L1376376-27	Surface soil	7/7/2021	Total TAL Metals

1 – Sample BG-SS-950 is a field duplicate of sample BG-SS-50; sample BG-SS-961 is a field duplicate of sampleBG-SS-61.

Table 3: Analytical Methods

Analyte(s)	Method(s)	Laboratory
TAL Metals (other than mercury)	USEPA Method 6010B – Inductively Cooled Plasma – Atomic Emission Spectrometry (ICP-AES)	Pace Analytical – Mt. Juliet, TN
Mercury	USEPA Method 7471A – Manual Cold-Vapor Technique	Pace Analytical – Mt. Juliet, TN
Mercury	USEPA Method 7471A – Manual Cold-Vapor Technique in Solid or Semisolid Matrix	Pace Analytical – Mt. Juliet, TN

The analytical data were reviewed in general accordance with the analytical methods and the U.S. EPA Contract Laboratory Program (CLP) National Functional Guidelines. Table 4 below summarizes the review and identifies any resultant actions.

Table 4: Data Review Summary

X	Included, no problems	O	Not required
#	See validation summary/specific comment below	NA	Not applicable

Level II QC Review Summary	Metals - Total	Metals - TCLP
Completeness (all Analytical Results)	X	X
Case Narrative	X	X
Chain of Custody (COC) Forms	X	X
Holding Times/Shipping	X	X
Method and Lab Reagent Blank Results	#1	X
Laboratory Control Sample (LCS) Results	X	X
MS/MSD Results	#2, #3	X
Initial Calibration Results [1]	X	X
Continuing Calibration Results [1]	X	X
Other	NA	NA

[1] Validation did not include a review of initial or continuing calibration reports. The case narrative provided by the laboratory did not identify any issues regarding initial or continuing calibration.

The following subsections provide comments and suggested actions for each data review item listed in Table 4.

2.1 Completeness

The data was complete and in accordance with the Sampling and Analysis Plan (SAP).

2.2 Case Narrative

The Pace case narrative provided discussion of the methodologies used and identified analytical issues associated with the analysis. The narrative was satisfactory for a Level II review.

2.3 Chain of Custody (COC) Forms.

COC forms were properly completed and returned. No action is necessary.

2.4 Preservation / Shipping / Sample Hold Times

No field preservation is required for soil samples undergoing metals analyses. All samples were shipped on ice and met temperature criteria upon receipt. All samples were analyzed within method-prescribed holding times. No action is necessary

2.5 Method Blank Results.

#1 - The method blank associated with the analytical batch for the SPLP analyses detected concentrations of aluminum, manganese, and nickel below the reporting limit but above the method detection limit and reported as estimated concentrations of 0.0760J, 0.0032J and 0.00172J mg/L, respectively. The affected samples are BG-SS-85, BG-SS-77, BG-SS-92, BG-SS-39 and BG-SS-11. Aluminum and manganese were detected in four of these samples above the reporting limit and reported as non-detect in the fifth sample. Nickel was reported as non-detect in all five samples. The concentrations of aluminum and manganese above the RL should be flagged "B". The detected concentrations of aluminum and manganese were in most instances two orders-of magnitude above the estimated blank concentrations. While the potential influence of the blank concentration on the detected results is likely of little significance, the data user should use discretion when using this data. Non-detected results should remain unflagged.

Two method blanks associated with the total TAL metals analyses did not yield any detectable concentrations of analytes. No action is necessary

2.6 Laboratory Control Samples (LCS) Results.

All laboratory control samples were reported as within recovery limits. No action is necessary

2.7 Matrix Spikes (MS) and Matrix Spike Duplicates (MSD).

The laboratory ran MS/MSD samples via Method 7470A for total mercury analysis utilizing sample s BG-SS-85 MS/MSD results were all with acceptable range. No action is necessary

The laboratory ran MS/MSD samples via Method 7471A for total mercury analysis utilizing sample BG-SS-77 and another sample not from this site. MS/MSD results were all with acceptable range. No action is necessary

#2 - The laboratory ran MS/MSD samples via Method 6010B utilizing soil sample BG-SS-85. The associated samples are BG-SS-85, -77, -92, --39, -11, -72, -99, -97, -86, -60, -101, -80, -950, --50, -49, -62, -30, -09, -32, and -56. MS/MSD results were all in acceptable range except for the following:

- The MS and MSD results for aluminum and iron were flagged "V" as the sample concentrations were too high to evaluate accurate sample recoveries. The original sample concentrations were > 4 times the spike amount; thus % recovery limits do not apply, and the data are not to be flagged. It is also noted that the associated laboratory control spike sample reported recoveries for aluminum and iron within acceptable ranges. No action is necessary.
- The MS and MSD recoveries for antimony were flagged "J6" as the sample matrix interfered with the ability to make any accurate determination; spike value is low. The MS and MSD recoveries were 45.9% and 45.2%. respectively. Given the low recoveries

(<50%) in both samples, non-detects in the associated samples will be flagged UJ and detected values will be flagged J.

- The MSD recovery for calcium was flagged "J5" as the sample matrix interfered with the ability to make any accurate determination; spike value is high. The MS and the MSD percent recovery are reported as 117% and 169%, respectively. The %RPD between the MS and MSD is within limits, and the associated LCS is within limits. The associated samples will not be flagged but the user should recognize that the results for calcium may be biased high.
- The MS and MSD recoveries for magnesium are flagged "J5" as the sample matrix interfered with the ability to make any accurate determination; spike value is high. The MS and MSD recoveries are 184% and 172%. Given the elevated percent recoveries (≥ 175%), non-detects in the associated samples will be flagged UJ and detected values will be flagged J.
- The MS and MSD recovery for manganese were flagged "E" , as the analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration, as well as "V", as the sample concentrations were too high to evaluate accurate sample recoveries. The original sample concentration is > 4 times the spike amount; thus % recovery limits do not apply, and the data are not to be flagged. It is also noted that the associated laboratory control spike sample reported recoveries for manganese are within acceptable ranges. No action is necessary.
- The MSD recovery for potassium was flagged "J5" as the sample matrix interfered with the ability to make any accurate determination; spike value is high. The MSD recovery is 136%. The MS recovery was within range, and the RPD between the MS and MSD (6.95%) was also within range. Also, the associated LCS recovery for calcium was within acceptable range. The data will not be flagged; however the user should be aware that the reported potassium results may be biased high. No action is necessary.

#3 - The laboratory ran MS/MSD samples via Method 6010B utilizing a soil sample that was not from this site. The associated samples are BG-SS-61 and -961. The MS and/or MSD results showed numerous analytes flagged as follows:

- Aluminum, calcium, iron, magnesium, and zinc results were flagged "V", as the sample concentrations were too high to evaluate accurate sample recoveries. With the exception of zinc, the original sample concentrations were > 4 times the spike amount; thus % recovery limits do not apply.
- Barium, calcium, copper, iron, lead, magnesium, manganese, and nickel results were flagged as "J3", as the associated batch QC was outside of the established quality control range for precision.
- Barium, copper, lead, manganese, potassium, and sodium results were flagged "J5" as the sample matrix interfered with the ability to make any accurate determination; spike value is high.
- Antimony and manganese results were flagged "J6" as the sample matrix interfered with the ability to make any accurate determination; spike value is low.

These results suggest the sample selected for the MS/MSD analyses was resulting in matrix interference with the quantification of several of the metals, and possibly possessed a high degree of heterogeneity which led to precision issues with the analysis. It is noted that the associated

LCS results for this sample batch are within acceptable range. As this sample was not from the Burrows Gulch site, neither of the associated sample results will be flagged; no action is necessary.

The laboratory ran MS/MSD analyses via Method 6010B utilizing sample BG-SS-92; the associated samples are the TCLP samples BG-SS-85, -77, -92, -39, and -11. MS/MSD results were all with acceptable range. No action is necessary

2.8 Initial and Continuing Calibration Results.

No issues relating to initial or continuing calibration were reported by the analytical laboratory. No action is necessary

2.10 Reporting Limits and Method Detection Limits (MDL).

Pace provided conventional SW846 RLs, MDLs were not reported. A few samples required a 5x dilution for manganese or iron, which raised the reporting limits for these analytes in these samples. In all cases, these analytes were detected above their reporting limits. No action is necessary.

2.11 Field QC Results

Two field duplicates were submitted for analysis; sample BG-SS-950 is a field duplicate of sample BG-SS-50; sample BG-SS-961 is a field duplicate of sampleBG-SS-61. A comparison of the reported values from these samples is presented in Tables 5 and 6.

Overall, results between the investigative and field duplicate samples showed fairly good correlation for solid matrix samples, with the BG-SS-61 set showing better correlation that the BG-SS-50 set. In the former, only the RPD for cadmium exceeded 35%. In the latter, the RPD for arsenic, beryllium, cobalt, lead and manganese exceeded 35%, with the manganese showing an 80.6% RPD.

These differences may be the result of inherent heterogeneity in the soils being sampled, sampling methodology and/or inherent precision issues with the laboratory. The data user should be aware of these potential issues, and the higher value between the investigative and duplicate sample should be utilized for assessment purposes. Otherwise, no action is necessary.

Table 5: Comparison of Investigative and Field Duplicate Sample – BG-SS-50

Analyte	**Investigative Sample Result – BG-SS-50 (mg/Kg)**	**Field Duplicate Sample Result – BG-SS-950 (mg/Kg)**	Relative Percent Difference
Al	5,830	6,280	7.4
As	*2.00*	3.05	41.6
Ba	44.6	55.1	21.1
Be	*0.42*	*0.63*	39.9
Cd	1.46	1.73	16.9
Ca	1,450.0	1,460.0	0.7
Cr	4.16	4.58	9.6
Co	1.99	3.80	62.5
Cu	18.9	19.6	3.6
Fe	5,430	5,990	9.8
Pb	27	44	47.9
Mg	1,400	1,460	4.2
Mn	498	1,170	80.6
Ni	3.60	3.93	8.8
K	1,080	1,100	1.8
Va	8.94	10.10	12.2
Zn	132	133	0.8

Table 6: Comparison of Investigative and Field Duplicate Sample – BG-SS-61

Analyte	**Investigative Sample Result – BG-SS-61 (mg/Kg)**	**Field Duplicate Sample Result – BG-SS-961 (mg/Kg)**	Relative Percent Difference
Al	10,400	11,800	12.6
As	7.48	6.13	19.8
Ba	61.2	58.6	4.3
Be	*0.65*	*0.64*	2.0
Cd	1.08	0.70	42.2
Ca	1,870	1,440	26.0
Cr	7.01	8.13	14.8
Co	5.68	7.34	25.5
Cu	10.8	10.9	0.9
Fe	9,330	10,400	10.8
Pb	29	24	15.5
Mg	2,510	2,860	13.0
Mn	755	860	13.0
Ni	6.15	6.20	0.8
K	1,520	1,670	9.4
Ag	1.00 U	1.00	0.0
Va	16.30	17.60	7.7
Zn	167	155	7.5

Appendix E

Analytical Laboratory Reports

Use or disclosure of data contained on this sheet is restricted.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

November 05, 2020

Report to:
Stephanie Park
Herndon Solutions Group
14143 Denver W Pkwy
Suite 100
Golden, CO 80401

Bill to:
Christine Herndon
Herndon Solutions Group
4001 S. Decatur Blvd., #37-376

Las Vegas, NV 89103

Project ID:
ACZ Project ID: L62357

Stephanie Park:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 21, 2020. This project has been assigned to ACZ's project number, L62357. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L62357. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after December 05, 2020. If the samples are determined to be hazardous, additional charges apply for disposal (typically $11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.

Max Janicek has reviewed and approved this report.

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_01_1020-T

ACZ Sample ID: ***L62357-01***
Date Sampled: *10/14/20 11:30*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS								10/27/20 15:43	bsu
Total Hot Plate Digestion	M200.2 ICP								10/27/20 18:56	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total	M200.7 ICP	1	0.149	B		mg/L	0.05	0.25	10/28/20 17:53	kja
Antimony, total	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/30/20 10:47	mfm
Arsenic, total	M200.8 ICP-MS	1	<0.0002	U		mg/L	0.0002	0.001	10/30/20 10:47	mfm
Barium, total	M200.7 ICP	1	0.0184	B		mg/L	0.007	0.035	10/28/20 17:53	kja
Beryllium, total	M200.8 ICP-MS	1	0.000248	B		mg/L	0.00008	0.00025	10/30/20 10:47	mfm
Cadmium, total	M200.8 ICP-MS	1	0.000993			mg/L	0.00005	0.00025	10/30/20 10:47	mfm
Calcium, total	M200.7 ICP	1	9.81			mg/L	0.1	0.5	10/28/20 17:53	kja
Chromium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/29/20 16:07	kja
Cobalt, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/28/20 17:53	kja
Copper, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/28/20 17:53	kja
Iron, total	M200.7 ICP	1	0.069	B	*	mg/L	0.06	0.15	10/28/20 17:53	kja
Lead, total	M200.8 ICP-MS	1	0.00142			mg/L	0.0001	0.0005	10/30/20 10:47	mfm
Magnesium, total	M200.7 ICP	1	0.76	B		mg/L	0.2	1	10/28/20 17:53	kja
Manganese, total	M200.7 ICP	1	0.037	B		mg/L	0.01	0.05	10/29/20 16:07	kja
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	10/30/20 12:29	aeh
Nickel, total	M200.7 ICP	1	<0.008	U		mg/L	0.008	0.04	10/28/20 17:53	kja
Potassium, total	M200.7 ICP	1	0.37	B		mg/L	0.2	1	10/28/20 17:53	kja
Selenium, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/30/20 10:47	mfm
Silver, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:07	kja
Sodium, total	M200.7 ICP	1	0.42	B		mg/L	0.2	1	10/28/20 17:53	kja
Thallium, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	10/30/20 10:47	mfm
Vanadium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:07	kja
Zinc, total	M200.7 ICP	1	0.223			mg/L	0.02	0.05	10/28/20 17:53	kja

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_01_1020-D

ACZ Sample ID: ***L62357-02***
Date Sampled: *10/14/20 11:30*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1	0.189	B		mg/L	0.05	0.25	10/29/20 20:47	aeh
Antimony, dissolved	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/27/20 21:15	bsu
Arsenic, dissolved	M200.8 ICP-MS	1	<0.0002	U		mg/L	0.0002	0.001	10/27/20 21:15	bsu
Barium, dissolved	M200.7 ICP	1	0.0305	B		mg/L	0.007	0.035	10/29/20 20:47	aeh
Beryllium, dissolved	M200.8 ICP-MS	1	0.000404			mg/L	0.00008	0.00025	10/27/20 21:15	bsu
Cadmium, dissolved	M200.8 ICP-MS	1	0.00103			mg/L	0.00005	0.00025	10/27/20 21:15	bsu
Calcium, dissolved	M200.7 ICP	1	9.40			mg/L	0.1	0.5	10/29/20 20:47	aeh
Chromium, dissolved	M200.7 ICP	1	0.012	B		mg/L	0.01	0.05	10/29/20 20:47	aeh
Cobalt, dissolved	M200.7 ICP	1	0.010	B		mg/L	0.01	0.05	10/29/20 20:47	aeh
Copper, dissolved	M200.7 ICP	1	0.013	B		mg/L	0.01	0.05	10/29/20 20:47	aeh
Iron, dissolved	M200.7 ICP	1	<0.06	U		mg/L	0.06	0.15	10/29/20 20:47	aeh
Lead, dissolved	M200.8 ICP-MS	1	0.00137			mg/L	0.0001	0.0005	10/27/20 21:15	bsu
Magnesium, dissolved	M200.7 ICP	1	0.45	B		mg/L	0.2	1	10/29/20 20:47	aeh
Manganese, dissolved	M200.7 ICP	1	0.023	B		mg/L	0.01	0.05	10/29/20 20:47	aeh
Mercury, dissolved	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	11/04/20 11:58	llr
Nickel, dissolved	M200.7 ICP	1	<0.008	U		mg/L	0.008	0.04	10/29/20 20:47	aeh
Potassium, dissolved	M200.7 ICP	1	<0.2	U		mg/L	0.2	1	10/29/20 20:47	aeh
Selenium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/27/20 21:15	bsu
Silver, dissolved	M200.7 ICP	1	<0.01	U	*	mg/L	0.01	0.025	10/29/20 20:47	aeh
Sodium, dissolved	M200.7 ICP	1	<0.2	U		mg/L	0.2	1	10/29/20 20:47	aeh
Thallium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	10/27/20 21:15	bsu
Vanadium, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 20:47	aeh
Zinc, dissolved	M200.7 ICP	1	0.227			mg/L	0.02	0.05	10/29/20 20:47	aeh

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_02_1020-T

ACZ Sample ID: ***L62357-03***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS								10/27/20 16:06	bsu
Total Hot Plate Digestion	M200.2 ICP								10/27/20 19:09	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total	M200.7 ICP	1	1.12			mg/L	0.05	0.25	10/28/20 18:03	kja
Antimony, total	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/30/20 10:52	mfm
Arsenic, total	M200.8 ICP-MS	1	0.00041	B		mg/L	0.0002	0.001	10/30/20 10:52	mfm
Barium, total	M200.7 ICP	1	0.0140	B		mg/L	0.007	0.035	10/28/20 18:03	kja
Beryllium, total	M200.8 ICP-MS	1	0.000199	B		mg/L	0.00008	0.00025	10/30/20 10:52	mfm
Cadmium, total	M200.8 ICP-MS	1	0.00140			mg/L	0.00005	0.00025	10/30/20 10:52	mfm
Calcium, total	M200.7 ICP	1	9.22			mg/L	0.1	0.5	10/28/20 18:03	kja
Chromium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/29/20 16:10	kja
Cobalt, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/28/20 18:03	kja
Copper, total	M200.7 ICP	1	0.018	B		mg/L	0.01	0.05	10/28/20 18:03	kja
Iron, total	M200.7 ICP	1	0.228		*	mg/L	0.06	0.15	10/28/20 18:03	kja
Lead, total	M200.8 ICP-MS	1	0.119			mg/L	0.0001	0.0005	10/30/20 10:52	mfm
Magnesium, total	M200.7 ICP	1	0.77	B		mg/L	0.2	1	10/28/20 18:03	kja
Manganese, total	M200.7 ICP	1	0.406			mg/L	0.01	0.05	10/29/20 16:10	kja
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	10/30/20 12:31	aeh
Nickel, total	M200.7 ICP	1	<0.008	U		mg/L	0.008	0.04	10/28/20 18:03	kja
Potassium, total	M200.7 ICP	1	0.32	B		mg/L	0.2	1	10/28/20 18:03	kja
Selenium, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/30/20 10:52	mfm
Silver, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:10	kja
Sodium, total	M200.7 ICP	1	0.22	B		mg/L	0.2	1	10/28/20 18:03	kja
Thallium, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	10/30/20 10:52	mfm
Vanadium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:10	kja
Zinc, total	M200.7 ICP	1	0.237			mg/L	0.02	0.05	10/28/20 18:03	kja

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_02_1020-D

ACZ Sample ID: ***L62357-04***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1	0.526			mg/L	0.05	0.25	10/29/20 21:04	aeh
Antimony, dissolved	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/27/20 21:17	bsu
Arsenic, dissolved	M200.8 ICP-MS	1	0.00024	B		mg/L	0.0002	0.001	10/27/20 21:17	bsu
Barium, dissolved	M200.7 ICP	1	0.0262	B		mg/L	0.007	0.035	10/29/20 21:04	aeh
Beryllium, dissolved	M200.8 ICP-MS	1	0.000217	B		mg/L	0.00008	0.00025	10/27/20 21:17	bsu
Cadmium, dissolved	M200.8 ICP-MS	1	0.000995			mg/L	0.00005	0.00025	10/27/20 21:17	bsu
Calcium, dissolved	M200.7 ICP	1	9.17			mg/L	0.1	0.5	10/29/20 21:04	aeh
Chromium, dissolved	M200.7 ICP	1	0.010	B		mg/L	0.01	0.05	10/29/20 21:04	aeh
Cobalt, dissolved	M200.7 ICP	1	0.011	B		mg/L	0.01	0.05	10/29/20 21:04	aeh
Copper, dissolved	M200.7 ICP	1	0.015	B		mg/L	0.01	0.05	10/29/20 21:04	aeh
Iron, dissolved	M200.7 ICP	1	<0.06	U		mg/L	0.06	0.15	10/29/20 21:04	aeh
Lead, dissolved	M200.8 ICP-MS	1	0.00857			mg/L	0.0001	0.0005	10/27/20 21:17	bsu
Magnesium, dissolved	M200.7 ICP	1	0.52	B		mg/L	0.2	1	10/29/20 21:04	aeh
Manganese, dissolved	M200.7 ICP	1	0.059			mg/L	0.01	0.05	10/29/20 21:04	aeh
Mercury, dissolved	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	11/04/20 12:00	llr
Nickel, dissolved	M200.7 ICP	1	<0.008	U		mg/L	0.008	0.04	10/29/20 21:04	aeh
Potassium, dissolved	M200.7 ICP	1	0.24	B		mg/L	0.2	1	10/29/20 21:04	aeh
Selenium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/27/20 21:17	bsu
Silver, dissolved	M200.7 ICP	1	<0.01	U	*	mg/L	0.01	0.025	10/29/20 21:04	aeh
Sodium, dissolved	M200.7 ICP	1	<0.2	U		mg/L	0.2	1	10/29/20 21:04	aeh
Thallium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	10/27/20 21:17	bsu
Vanadium, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 21:04	aeh
Zinc, dissolved	M200.7 ICP	1	0.220			mg/L	0.02	0.05	10/29/20 21:04	aeh

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_03_1020-T

ACZ Sample ID: ***L62357-05***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS								10/27/20 16:28	bsu
Total Hot Plate Digestion	M200.2 ICP								10/27/20 19:23	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total	M200.7 ICP	1	10.4			mg/L	0.05	0.25	10/28/20 18:06	kja
Antimony, total	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/30/20 10:54	mfm
Arsenic, total	M200.8 ICP-MS	1	0.00070	B		mg/L	0.0002	0.001	10/30/20 10:54	mfm
Barium, total	M200.7 ICP	1	0.0103	B		mg/L	0.007	0.035	10/28/20 18:06	kja
Beryllium, total	M200.8 ICP-MS	1	0.000913			mg/L	0.00008	0.00025	10/30/20 10:54	mfm
Cadmium, total	M200.8 ICP-MS	1	0.0124			mg/L	0.00005	0.00025	10/30/20 10:54	mfm
Calcium, total	M200.7 ICP	1	16.4			mg/L	0.1	0.5	10/28/20 18:06	kja
Chromium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/29/20 16:13	kja
Cobalt, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/28/20 18:06	kja
Copper, total	M200.7 ICP	1	0.056			mg/L	0.01	0.05	10/28/20 18:06	kja
Iron, total	M200.7 ICP	1	<0.06	U	*	mg/L	0.06	0.15	10/28/20 18:06	kja
Lead, total	M200.8 ICP-MS	1	0.0129			mg/L	0.0001	0.0005	10/30/20 10:54	mfm
Magnesium, total	M200.7 ICP	1	2.86			mg/L	0.2	1	10/28/20 18:06	kja
Manganese, total	M200.7 ICP	1	6.43			mg/L	0.01	0.05	10/29/20 16:13	kja
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	10/30/20 12:32	aeh
Nickel, total	M200.7 ICP	1	0.0088	B		mg/L	0.008	0.04	10/28/20 18:06	kja
Potassium, total	M200.7 ICP	1	0.72	B		mg/L	0.2	1	10/28/20 18:06	kja
Selenium, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/30/20 10:54	mfm
Silver, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:13	kja
Sodium, total	M200.7 ICP	1	0.34	B		mg/L	0.2	1	10/28/20 18:06	kja
Thallium, total	M200.8 ICP-MS	1	0.00011	B		mg/L	0.0001	0.0005	10/30/20 10:54	mfm
Vanadium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:13	kja
Zinc, total	M200.7 ICP	1	2.02			mg/L	0.02	0.05	10/28/20 18:06	kja

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_03_1020-D

ACZ Sample ID: ***L62357-06***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1	10.2			mg/L	0.05	0.25	10/29/20 21:07	aeh
Antimony, dissolved	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/27/20 21:23	bsu
Arsenic, dissolved	M200.8 ICP-MS	1	0.00031	B		mg/L	0.0002	0.001	10/27/20 21:23	bsu
Barium, dissolved	M200.7 ICP	1	0.0236	B		mg/L	0.007	0.035	10/29/20 21:07	aeh
Beryllium, dissolved	M200.8 ICP-MS	1	0.00113			mg/L	0.00008	0.00025	10/27/20 21:23	bsu
Cadmium, dissolved	M200.8 ICP-MS	1	0.0126			mg/L	0.00005	0.00025	10/27/20 21:23	bsu
Calcium, dissolved	M200.7 ICP	1	16.4			mg/L	0.1	0.5	10/29/20 21:07	aeh
Chromium, dissolved	M200.7 ICP	1	0.011	B		mg/L	0.01	0.05	10/29/20 21:07	aeh
Cobalt, dissolved	M200.7 ICP	1	0.026	B		mg/L	0.01	0.05	10/29/20 21:07	aeh
Copper, dissolved	M200.7 ICP	1	0.075			mg/L	0.01	0.05	10/29/20 21:07	aeh
Iron, dissolved	M200.7 ICP	1	0.077	B		mg/L	0.06	0.15	10/29/20 21:07	aeh
Lead, dissolved	M200.8 ICP-MS	1	0.0130			mg/L	0.0001	0.0005	10/27/20 21:23	bsu
Magnesium, dissolved	M200.7 ICP	1	2.57			mg/L	0.2	1	10/29/20 21:07	aeh
Manganese, dissolved	M200.7 ICP	1	5.90			mg/L	0.01	0.05	10/29/20 21:07	aeh
Mercury, dissolved	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	11/04/20 12:01	llr
Nickel, dissolved	M200.7 ICP	1	0.0096	B		mg/L	0.008	0.04	10/29/20 21:07	aeh
Potassium, dissolved	M200.7 ICP	1	0.65	B		mg/L	0.2	1	10/29/20 21:07	aeh
Selenium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/27/20 21:23	bsu
Silver, dissolved	M200.7 ICP	1	<0.01	U	*	mg/L	0.01	0.025	10/29/20 21:07	aeh
Sodium, dissolved	M200.7 ICP	1	0.28	B		mg/L	0.2	1	10/29/20 21:07	aeh
Thallium, dissolved	M200.8 ICP-MS	1	0.00012	B		mg/L	0.0001	0.0005	10/27/20 21:23	bsu
Vanadium, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 21:07	aeh
Zinc, dissolved	M200.7 ICP	1	1.98			mg/L	0.02	0.05	10/29/20 21:07	aeh

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_04_1020-T

ACZ Sample ID: ***L62357-07***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS								10/27/20 17:37	bsu
Total Hot Plate Digestion	M200.2 ICP								10/27/20 19:36	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total	M200.7 ICP	1	22.0			mg/L	0.05	0.25	10/28/20 18:09	kja
Antimony, total	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/30/20 10:59	mfm
Arsenic, total	M200.8 ICP-MS	1	0.00211			mg/L	0.0002	0.001	10/30/20 10:59	mfm
Barium, total	M200.7 ICP	1	0.0134	B		mg/L	0.007	0.035	10/28/20 18:09	kja
Beryllium, total	M200.8 ICP-MS	1	0.00209			mg/L	0.00008	0.00025	10/30/20 10:59	mfm
Cadmium, total	M200.8 ICP-MS	1	0.0227			mg/L	0.00005	0.00025	10/30/20 10:59	mfm
Calcium, total	M200.7 ICP	1	24.1			mg/L	0.1	0.5	10/28/20 18:09	kja
Chromium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/29/20 16:16	kja
Cobalt, total	M200.7 ICP	1	0.021	B		mg/L	0.01	0.05	10/28/20 18:09	kja
Copper, total	M200.7 ICP	1	0.105			mg/L	0.01	0.05	10/28/20 18:09	kja
Iron, total	M200.7 ICP	1	0.218		*	mg/L	0.06	0.15	10/28/20 18:09	kja
Lead, total	M200.8 ICP-MS	1	0.0393			mg/L	0.0001	0.0005	10/30/20 10:59	mfm
Magnesium, total	M200.7 ICP	1	4.78			mg/L	0.2	1	10/28/20 18:09	kja
Manganese, total	M200.7 ICP	1	11.4			mg/L	0.01	0.05	10/29/20 16:16	kja
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	10/30/20 12:33	aeh
Nickel, total	M200.7 ICP	1	0.0211	B		mg/L	0.008	0.04	10/28/20 18:09	kja
Potassium, total	M200.7 ICP	1	0.66	B		mg/L	0.2	1	10/28/20 18:09	kja
Selenium, total	M200.8 ICP-MS	1	0.00032			mg/L	0.0001	0.00025	10/30/20 10:59	mfm
Silver, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:16	kja
Sodium, total	M200.7 ICP	1	0.40	B		mg/L	0.2	1	10/28/20 18:09	kja
Thallium, total	M200.8 ICP-MS	1	0.00016	B		mg/L	0.0001	0.0005	10/30/20 10:59	mfm
Vanadium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:16	kja
Zinc, total	M200.7 ICP	1	3.44			mg/L	0.02	0.05	10/28/20 18:09	kja

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_04_1020-D

ACZ Sample ID: ***L62357-08***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1	22.0			mg/L	0.05	0.25	10/29/20 21:10	aeh
Antimony, dissolved	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/27/20 21:24	bsu
Arsenic, dissolved	M200.8 ICP-MS	1	0.00050	B		mg/L	0.0002	0.001	10/27/20 21:24	bsu
Barium, dissolved	M200.7 ICP	1	0.0269	B		mg/L	0.007	0.035	10/29/20 21:10	aeh
Beryllium, dissolved	M200.8 ICP-MS	1	0.00238			mg/L	0.00008	0.00025	10/27/20 21:24	bsu
Cadmium, dissolved	M200.8 ICP-MS	1	0.0226			mg/L	0.00005	0.00025	10/27/20 21:24	bsu
Calcium, dissolved	M200.7 ICP	1	24.6			mg/L	0.1	0.5	10/29/20 21:10	aeh
Chromium, dissolved	M200.7 ICP	1	0.012	B		mg/L	0.01	0.05	10/29/20 21:10	aeh
Cobalt, dissolved	M200.7 ICP	1	0.036	B		mg/L	0.01	0.05	10/29/20 21:10	aeh
Copper, dissolved	M200.7 ICP	1	0.123			mg/L	0.01	0.05	10/29/20 21:10	aeh
Iron, dissolved	M200.7 ICP	1	0.242			mg/L	0.06	0.15	10/29/20 21:10	aeh
Lead, dissolved	M200.8 ICP-MS	1	0.0388			mg/L	0.0001	0.0005	10/27/20 21:24	bsu
Magnesium, dissolved	M200.7 ICP	1	4.57			mg/L	0.2	1	10/29/20 21:10	aeh
Manganese, dissolved	M200.7 ICP	1	10.6			mg/L	0.01	0.05	10/29/20 21:10	aeh
Mercury, dissolved	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	11/04/20 12:04	llr
Nickel, dissolved	M200.7 ICP	1	0.0212	B		mg/L	0.008	0.04	10/29/20 21:10	aeh
Potassium, dissolved	M200.7 ICP	1	0.62	B		mg/L	0.2	1	10/29/20 21:10	aeh
Selenium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/27/20 21:24	bsu
Silver, dissolved	M200.7 ICP	1	<0.01	U	*	mg/L	0.01	0.025	10/29/20 21:10	aeh
Sodium, dissolved	M200.7 ICP	1	0.36	B		mg/L	0.2	1	10/29/20 21:10	aeh
Thallium, dissolved	M200.8 ICP-MS	1	0.00011	B		mg/L	0.0001	0.0005	10/27/20 21:24	bsu
Vanadium, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 21:10	aeh
Zinc, dissolved	M200.7 ICP	1	3.43			mg/L	0.02	0.05	10/29/20 21:10	aeh

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_05_1020-T

ACZ Sample ID: ***L62357-09***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP-MS								10/27/20 18:00	bsu
Total Hot Plate Digestion	M200.2 ICP								10/27/20 19:50	kja

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, total	M200.7 ICP	1	6.94			mg/L	0.05	0.25	10/28/20 18:12	kja
Antimony, total	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/30/20 11:01	mfm
Arsenic, total	M200.8 ICP-MS	1	0.00093	B		mg/L	0.0002	0.001	10/30/20 11:01	mfm
Barium, total	M200.7 ICP	1	0.0193	B		mg/L	0.007	0.035	10/28/20 18:12	kja
Beryllium, total	M200.8 ICP-MS	1	0.00283			mg/L	0.00008	0.00025	10/30/20 11:01	mfm
Cadmium, total	M200.8 ICP-MS	1	0.0160			mg/L	0.00005	0.00025	10/30/20 11:01	mfm
Calcium, total	M200.7 ICP	1	26.7			mg/L	0.1	0.5	10/28/20 18:12	kja
Chromium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/29/20 16:20	kja
Cobalt, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/28/20 18:12	kja
Copper, total	M200.7 ICP	1	0.052			mg/L	0.01	0.05	10/28/20 18:12	kja
Iron, total	M200.7 ICP	1	<0.06	U	*	mg/L	0.06	0.15	10/28/20 18:12	kja
Lead, total	M200.8 ICP-MS	1	0.00611			mg/L	0.0001	0.0005	10/30/20 11:01	mfm
Magnesium, total	M200.7 ICP	1	4.36			mg/L	0.2	1	10/28/20 18:12	kja
Manganese, total	M200.7 ICP	1	4.78			mg/L	0.01	0.05	10/29/20 16:20	kja
Mercury, total	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	10/30/20 12:36	aeh
Nickel, total	M200.7 ICP	1	0.0140	B		mg/L	0.008	0.04	10/28/20 18:12	kja
Potassium, total	M200.7 ICP	1	1.07			mg/L	0.2	1	10/28/20 18:12	kja
Selenium, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/30/20 11:01	mfm
Silver, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:20	kja
Sodium, total	M200.7 ICP	1	1.61			mg/L	0.2	1	10/28/20 18:12	kja
Thallium, total	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	10/30/20 11:01	mfm
Vanadium, total	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 16:20	kja
Zinc, total	M200.7 ICP	1	2.35			mg/L	0.02	0.05	10/28/20 18:12	kja

Herndon Solutions Group
Project ID:
Sample ID: BG_SW_05_1020-D

ACZ Sample ID: ***L62357-10***
Date Sampled: *10/14/20 00:00*
Date Received: *10/21/20*
Sample Matrix: *Surface Water*

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Aluminum, dissolved	M200.7 ICP	1	7.00			mg/L	0.05	0.25	10/29/20 21:13	aeh
Antimony, dissolved	M200.8 ICP-MS	1	<0.0004	U		mg/L	0.0004	0.002	10/27/20 21:26	bsu
Arsenic, dissolved	M200.8 ICP-MS	1	0.00030	B		mg/L	0.0002	0.001	10/27/20 21:26	bsu
Barium, dissolved	M200.7 ICP	1	0.0330	B		mg/L	0.007	0.035	10/29/20 21:13	aeh
Beryllium, dissolved	M200.8 ICP-MS	1	0.00313			mg/L	0.00008	0.00025	10/27/20 21:26	bsu
Cadmium, dissolved	M200.8 ICP-MS	1	0.0159			mg/L	0.00005	0.00025	10/27/20 21:26	bsu
Calcium, dissolved	M200.7 ICP	1	27.1			mg/L	0.1	0.5	10/29/20 21:13	aeh
Chromium, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.05	10/29/20 21:13	aeh
Cobalt, dissolved	M200.7 ICP	1	0.016	B		mg/L	0.01	0.05	10/29/20 21:13	aeh
Copper, dissolved	M200.7 ICP	1	0.065			mg/L	0.01	0.05	10/29/20 21:13	aeh
Iron, dissolved	M200.7 ICP	1	<0.06	U		mg/L	0.06	0.15	10/29/20 21:13	aeh
Lead, dissolved	M200.8 ICP-MS	1	0.00601			mg/L	0.0001	0.0005	10/27/20 21:26	bsu
Magnesium, dissolved	M200.7 ICP	1	4.20			mg/L	0.2	1	10/29/20 21:13	aeh
Manganese, dissolved	M200.7 ICP	1	4.48			mg/L	0.01	0.05	10/29/20 21:13	aeh
Mercury, dissolved	M245.1 CVAA	1	<0.0002	U		mg/L	0.0002	0.001	11/04/20 12:05	llr
Nickel, dissolved	M200.7 ICP	1	0.0133	B		mg/L	0.008	0.04	10/29/20 21:13	aeh
Potassium, dissolved	M200.7 ICP	1	1.02			mg/L	0.2	1	10/29/20 21:13	aeh
Selenium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.00025	10/27/20 21:26	bsu
Silver, dissolved	M200.7 ICP	1	<0.01	U	*	mg/L	0.01	0.025	10/29/20 21:13	aeh
Sodium, dissolved	M200.7 ICP	1	1.60			mg/L	0.2	1	10/29/20 21:13	aeh
Thallium, dissolved	M200.8 ICP-MS	1	<0.0001	U		mg/L	0.0001	0.0005	10/27/20 21:26	bsu
Vanadium, dissolved	M200.7 ICP	1	<0.01	U		mg/L	0.01	0.025	10/29/20 21:13	aeh
Zinc, dissolved	M200.7 ICP	1	2.33			mg/L	0.02	0.05	10/29/20 21:13	aeh

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calibration Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4) EPA SW-846. Test Methods for Evaluating Solid Waste.
(5) Standard Methods for the Examination of Water and Wastewater.

Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4) An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5) If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:
https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf

REP001.03.15.02

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Aluminum, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		2.007	mg/L	100	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.15	0.15			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.250325		.258	mg/L	103	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	200.510325		202.9	mg/L	101	1	200			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	1.0012		1.053	mg/L	105	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		1.035	mg/L	104	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.15	0.15			
L62357-02AS	AS	10/29/20 20:51	II201027-3	1.0012	.189	1.205	mg/L	101	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		1.018	mg/L	102	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.15	0.15			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	1.0012	.189	1.204	mg/L	101	85	115	0	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		1.024	mg/L	102	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.15	0.15			

Aluminum, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	2		1.925	mg/L	96	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.15	0.15			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.250325		.208	mg/L	83	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	200.510325		211.4	mg/L	105	1	200			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.11	0.11			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	1.0012		.979	mg/L	98	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	1.0012	24.8	25.98	mg/L	118	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	1.0012	24.8	25.99	mg/L	119	70	130	0	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	1		.91	mg/L	91	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.15	0.15			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	1		.912	mg/L	91	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.15	0.15			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	1		.9	mg/L	90	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.15	0.15			

Antimony, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508300													
WG508300ICV	ICV	10/27/20 20:38	MS201021-2	.02004		.01962	mg/L	98	90	110			
WG508300ICB	ICB	10/27/20 20:40				U	mg/L		-0.00088	0.00088			
WG508300LFB	LFB	10/27/20 20:42	MS201020-4	.01		.00851	mg/L	85	85	115			
WG508300CCV1	CCV	10/27/20 20:57	MS201022-2	.0125		.01258	mg/L	101	90	110			
WG508300CCB1	CCB	10/27/20 20:59				U	mg/L		-0.0012	0.0012			
WG508300CCV2	CCV	10/27/20 21:19	MS201022-2	.0125		.01269	mg/L	102	90	110			
WG508300CCB2	CCB	10/27/20 21:21				U	mg/L		-0.0012	0.0012			
L62359-02AS	AS	10/27/20 21:32	MS201020-4	.01	U	.00891	mg/L	89	70	130			
L62359-02ASD	ASD	10/27/20 21:34	MS201020-4	.01	U	.00881	mg/L	88	70	130	1	20	
WG508300CCV3	CCV	10/27/20 21:35	MS201022-2	.0125		.01268	mg/L	101	90	110			
WG508300CCB3	CCB	10/27/20 21:37				U	mg/L		-0.0012	0.0012			

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Antimony, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508538													
WG508538ICV	ICV	10/30/20 10:06	MS201021-2	.02004		.01961	mg/L	98	90	110			
WG508538ICB	ICB	10/30/20 10:08				U	mg/L		-0.0012	0.0012			
WG508193LRB	LRB	10/30/20 10:09				U	mg/L		-0.00088	0.00088			
WG508193LFB	LFB	10/30/20 10:11	MS201020-4	.01		.0099	mg/L	99	85	115			
WG508538CCV1	CCV	10/30/20 10:27	MS201022-2	.0125		.012	mg/L	96	90	110			
WG508538CCB1	CCB	10/30/20 10:29				U	mg/L		-0.0012	0.0012			
WG508538CCV2	CCV	10/30/20 10:49	MS201022-2	.0125		.01218	mg/L	97	90	110			
WG508538CCB2	CCB	10/30/20 10:50				U	mg/L		-0.0012	0.0012			
L62357-05LFM	LFM	10/30/20 10:56	MS201020-4	.01	U	.00997	mg/L	100	70	130			
L62357-05LFMD	LFMD	10/30/20 10:57	MS201020-4	.01	U	.0099	mg/L	99	70	130	1	20	
WG508538CCV3	CCV	10/30/20 11:03	MS201022-2	.0125		.01208	mg/L	97	90	110			
WG508538CCB3	CCB	10/30/20 11:05				U	mg/L		-0.0012	0.0012			

Arsenic, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508300													
WG508300ICV	ICV	10/27/20 20:38	MS201021-2	.05		.04942	mg/L	99	90	110			
WG508300ICB	ICB	10/27/20 20:40				U	mg/L		-0.00044	0.00044			
WG508300LFB	LFB	10/27/20 20:42	MS201020-4	.05005		.04824	mg/L	96	85	115			
WG508300CCV1	CCV	10/27/20 20:57	MS201022-2	.1001		.09758	mg/L	97	90	110			
WG508300CCB1	CCB	10/27/20 20:59				U	mg/L		-0.0006	0.0006			
WG508300CCV2	CCV	10/27/20 21:19	MS201022-2	.1001		.09808	mg/L	98	90	110			
WG508300CCB2	CCB	10/27/20 21:21				U	mg/L		-0.0006	0.0006			
L62359-02AS	AS	10/27/20 21:32	MS201020-4	.05005	U	.05071	mg/L	101	70	130			
L62359-02ASD	ASD	10/27/20 21:34	MS201020-4	.05005	U	.04956	mg/L	99	70	130	2	20	
WG508300CCV3	CCV	10/27/20 21:35	MS201022-2	.1001		.09909	mg/L	99	90	110			
WG508300CCB3	CCB	10/27/20 21:37				U	mg/L		-0.0006	0.0006			

Arsenic, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508538													
WG508538ICV	ICV	10/30/20 10:06	MS201021-2	.05		.04757	mg/L	95	90	110			
WG508538ICB	ICB	10/30/20 10:08				U	mg/L		-0.0006	0.0006			
WG508193LRB	LRB	10/30/20 10:09				U	mg/L		-0.00044	0.00044			
WG508193LFB	LFB	10/30/20 10:11	MS201020-4	.05005		.04767	mg/L	95	85	115			
WG508538CCV1	CCV	10/30/20 10:27	MS201022-2	.1001		.09972	mg/L	100	90	110			
WG508538CCB1	CCB	10/30/20 10:29				U	mg/L		-0.0006	0.0006			
WG508538CCV2	CCV	10/30/20 10:49	MS201022-2	.1001		.10052	mg/L	100	90	110			
WG508538CCB2	CCB	10/30/20 10:50				U	mg/L		-0.0006	0.0006			
L62357-05LFM	LFM	10/30/20 10:56	MS201020-4	.05005	.0007	.04923	mg/L	97	70	130			
L62357-05LFMD	LFMD	10/30/20 10:57	MS201020-4	.05005	.0007	.0494	mg/L	97	70	130	0	20	
WG508538CCV3	CCV	10/30/20 11:03	MS201022-2	.1001		.10092	mg/L	101	90	110			
WG508538CCB3	CCB	10/30/20 11:05				U	mg/L		-0.0006	0.0006			

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Barium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.9775	mg/L	99	95	105			
WG508433ICB	ICB	10/29/20 19:29				.0088	mg/L		-0.021	0.021			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.035		.0425	mg/L	121	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.100065		.1062	mg/L	106	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.5005		.5092	mg/L	102	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		1.006	mg/L	101	90	110			
WG508433CCB1	CCB	10/29/20 20:18				.0084	mg/L		-0.021	0.021			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.5005	.0305	.5374	mg/L	101	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.9953	mg/L	100	90	110			
WG508433CCB2	CCB	10/29/20 20:57				.0084	mg/L		-0.021	0.021			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.5005	.0305	.5294	mg/L	100	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.9939	mg/L	99	90	110			
WG508433CCB3	CCB	10/29/20 21:20				.0083	mg/L		-0.021	0.021			

Barium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	2		1.94	mg/L	97	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.021	0.021			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.035		.0289	mg/L	83	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	.100065		.0961	mg/L	96	80	120			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.0154	0.0154			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	.5005		.4768	mg/L	95	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	.5005	.0173	.4992	mg/L	96	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	.5005	.0173	.5041	mg/L	97	70	130	1	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	1		.9392	mg/L	94	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.021	0.021			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	1		.9386	mg/L	94	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.021	0.021			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	1		.9297	mg/L	93	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.021	0.021			

Beryllium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508300													
WG508300ICV	ICV	10/27/20 20:38	MS201021-2	.05		.04759	mg/L	95	90	110			
WG508300ICB	ICB	10/27/20 20:40				U	mg/L		-0.000176	0.000176			
WG508300LFB	LFB	10/27/20 20:42	MS201020-4	.05005		.048668	mg/L	97	85	115			
WG508300CCV1	CCV	10/27/20 20:57	MS201022-2	.1001		.107731	mg/L	108	90	110			
WG508300CCB1	CCB	10/27/20 20:59				U	mg/L		-0.00024	0.00024			
WG508300CCV2	CCV	10/27/20 21:19	MS201022-2	.1001		.110068	mg/L	110	90	110			
WG508300CCB2	CCB	10/27/20 21:21				U	mg/L		-0.00024	0.00024			
L62359-02AS	AS	10/27/20 21:32	MS201020-4	.05005	U	.053827	mg/L	108	70	130			
L62359-02ASD	ASD	10/27/20 21:34	MS201020-4	.05005	U	.054424	mg/L	109	70	130	1	20	
WG508300CCV3	CCV	10/27/20 21:35	MS201022-2	.1001		.105959	mg/L	106	90	110			
WG508300CCB3	CCB	10/27/20 21:37				U	mg/L		-0.00024	0.00024			

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Beryllium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508538													
WG508538ICV	ICV	10/30/20 10:06	MS201021-2	.05		.04692	mg/L	94	90	110			
WG508538ICB	ICB	10/30/20 10:08				U	mg/L		-0.00024	0.00024			
WG508193LRB	LRB	10/30/20 10:09				U	mg/L		-0.000176	0.000176			
WG508193LFB	LFB	10/30/20 10:11	MS201020-4	.05005		.047807	mg/L	96	85	115			
WG508538CCV1	CCV	10/30/20 10:27	MS201022-2	.1001		.098288	mg/L	98	90	110			
WG508538CCB1	CCB	10/30/20 10:29				U	mg/L		-0.00024	0.00024			
WG508538CCV2	CCV	10/30/20 10:49	MS201022-2	.1001		.096713	mg/L	97	90	110			
WG508538CCB2	CCB	10/30/20 10:50				U	mg/L		-0.00024	0.00024			
L62357-05LFM	LFM	10/30/20 10:56	MS201020-4	.05005	.000913	.046471	mg/L	91	70	130			
L62357-05LFMD	LFMD	10/30/20 10:57	MS201020-4	.05005	.000913	.046262	mg/L	91	70	130	0	20	
WG508538CCV3	CCV	10/30/20 11:03	MS201022-2	.1001		.096846	mg/L	97	90	110			
WG508538CCB3	CCB	10/30/20 11:05				U	mg/L		-0.00024	0.00024			

Cadmium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508300													
WG508300ICV	ICV	10/27/20 20:38	MS201021-2	.05		.048814	mg/L	98	90	110			
WG508300ICB	ICB	10/27/20 20:40				U	mg/L		-0.00011	0.00011			
WG508300LFB	LFB	10/27/20 20:42	MS201020-4	.05005		.047849	mg/L	96	85	115			
WG508300CCV1	CCV	10/27/20 20:57	MS201022-2	.1001		.10087	mg/L	101	90	110			
WG508300CCB1	CCB	10/27/20 20:59				U	mg/L		-0.00015	0.00015			
WG508300CCV2	CCV	10/27/20 21:19	MS201022-2	.1001		.101002	mg/L	101	90	110			
WG508300CCB2	CCB	10/27/20 21:21				U	mg/L		-0.00015	0.00015			
L62359-02AS	AS	10/27/20 21:32	MS201020-4	.05005	U	.05025	mg/L	100	70	130			
L62359-02ASD	ASD	10/27/20 21:34	MS201020-4	.05005	U	.050728	mg/L	101	70	130	1	20	
WG508300CCV3	CCV	10/27/20 21:35	MS201022-2	.1001		.101146	mg/L	101	90	110			
WG508300CCB3	CCB	10/27/20 21:37				U	mg/L		-0.00015	0.00015			

Cadmium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508538													
WG508538ICV	ICV	10/30/20 10:06	MS201021-2	.05		.049201	mg/L	98	90	110			
WG508538ICB	ICB	10/30/20 10:08				U	mg/L		-0.00015	0.00015			
WG508193LRB	LRB	10/30/20 10:09				U	mg/L		-0.00011	0.00011			
WG508193LFB	LFB	10/30/20 10:11	MS201020-4	.05005		.047199	mg/L	94	85	115			
WG508538CCV1	CCV	10/30/20 10:27	MS201022-2	.1001		.097327	mg/L	97	90	110			
WG508538CCB1	CCB	10/30/20 10:29				U	mg/L		-0.00015	0.00015			
WG508538CCV2	CCV	10/30/20 10:49	MS201022-2	.1001		.099069	mg/L	99	90	110			
WG508538CCB2	CCB	10/30/20 10:50				U	mg/L		-0.00015	0.00015			
L62357-05LFM	LFM	10/30/20 10:56	MS201020-4	.05005	.0124	.060826	mg/L	97	70	130			
L62357-05LFMD	LFMD	10/30/20 10:57	MS201020-4	.05005	.0124	.059858	mg/L	95	70	130	2	20	
WG508538CCV3	CCV	10/30/20 11:03	MS201022-2	.1001		.097795	mg/L	98	90	110			
WG508538CCB3	CCB	10/30/20 11:05				U	mg/L		-0.00015	0.00015			

Herndon Solutions Group

ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	100		98.37	mg/L	98	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.3	0.3			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.5006		.44	mg/L	88	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	200.7406		196.2	mg/L	98	1	200			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	67.99353		68.76	mg/L	101	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	50		50.34	mg/L	101	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.3	0.3			
L62357-02AS	AS	10/29/20 20:51	II201027-3	67.99353	9.4	77.29	mg/L	100	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	50		50.05	mg/L	100	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.3	0.3			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	67.99353	9.4	76.62	mg/L	99	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	50		49.73	mg/L	99	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.3	0.3			

Calcium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	100		96.83	mg/L	97	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.3	0.3			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.5006		.48	mg/L	96	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	200.7406		205.9	mg/L	103	1	200			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.22	0.22			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	67.99353		68.02	mg/L	100	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	67.99353	388	442.6	mg/L	80	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	67.99353	388	442.3	mg/L	80	70	130	0	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	50		47.02	mg/L	94	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.3	0.3			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	50		47.21	mg/L	94	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.3	0.3			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	50		46.66	mg/L	93	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.3	0.3			

Chromium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.946	mg/L	97	95	105			
WG508433ICB	ICB	10/29/20 19:29				.012	mg/L		-0.03	0.03			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.05015		.06	mg/L	120	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.1003		.1	mg/L	100	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.5015		.521	mg/L	104	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		1.002	mg/L	100	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.03	0.03			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.5015	.012	.526	mg/L	102	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.987	mg/L	99	90	110			
WG508433CCB2	CCB	10/29/20 20:57				.012	mg/L		-0.03	0.03			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.5015	.012	.519	mg/L	101	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.995	mg/L	100	90	110			
WG508433CCB3	CCB	10/29/20 21:20				.014	mg/L		-0.03	0.03			

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Chromium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508469													
WG508469ICV	ICV	10/29/20 15:41	II201023-2	2		1.999	mg/L	100	95	105			
WG508469ICB	ICB	10/29/20 15:47				U	mg/L		-0.03	0.03			
WG508469PQV	PQV	10/29/20 15:51	II201008-3	.05015		.049	mg/L	98	70	130			
WG508469SIC	SIC	10/29/20 15:54	II201008-4	.1003		.093	mg/L	93	80	120			
WG508276LRB	LRB	10/29/20 16:00				U	mg/L		-0.022	0.022			
WG508276LFB	LFB	10/29/20 16:03	II201027-3	.5015		.523	mg/L	104	85	115			
WG508469CCV1	CCV	10/29/20 16:33	II201029-1	1		1.011	mg/L	101	90	110			
WG508469CCB1	CCB	10/29/20 16:36				U	mg/L		-0.03	0.03			
L62372-01LFM	LFM	10/29/20 16:39	II201027-3	.5015	U	.513	mg/L	102	70	130			
L62372-01LFMD	LFMD	10/29/20 16:43	II201027-3	.5015	U	.51	mg/L	102	70	130	1	20	
WG508469CCV2	CCV	10/29/20 16:49	II201029-1	1		1.016	mg/L	102	90	110			
WG508469CCB2	CCB	10/29/20 16:52				U	mg/L		-0.03	0.03			

Cobalt, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2.004		1.917	mg/L	96	95	105			
WG508433ICB	ICB	10/29/20 19:29				.011	mg/L		-0.03	0.03			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.05		.06	mg/L	120	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.1		.1	mg/L	100	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.5		.505	mg/L	101	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1.002		.994	mg/L	99	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.03	0.03			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.5	.01	.512	mg/L	100	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1.002		.997	mg/L	100	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.03	0.03			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.5	.01	.501	mg/L	98	85	115	2	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1.002		.981	mg/L	98	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.03	0.03			

Cobalt, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	2.004		1.97	mg/L	98	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.03	0.03			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.05		.04	mg/L	80	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	.1		.092	mg/L	92	80	120			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.022	0.022			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	.5		.466	mg/L	93	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	.5	.081	.551	mg/L	94	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	.5	.081	.553	mg/L	94	70	130	0	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	1.002		.961	mg/L	96	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.03	0.03			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	1.002		.978	mg/L	98	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.03	0.03			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	1.002		.969	mg/L	97	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.03	0.03			

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ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Copper, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.918	mg/L	96	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.03	0.03			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.0501		.06	mg/L	120	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.1002		.111	mg/L	111	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.501		.515	mg/L	103	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		.976	mg/L	98	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.03	0.03			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.501	.013	.514	mg/L	100	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.97	mg/L	97	90	110			
WG508433CCB2	CCB	10/29/20 20:57				.012	mg/L		-0.03	0.03			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.501	.013	.51	mg/L	99	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.964	mg/L	96	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.03	0.03			

Copper, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	2		1.91	mg/L	96	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.03	0.03			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.0501		.045	mg/L	90	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	.1002		.092	mg/L	92	80	120			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.022	0.022			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	.501		.481	mg/L	96	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	.501	U	.489	mg/L	98	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	.501	U	.494	mg/L	99	70	130	1	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	1		.923	mg/L	92	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.03	0.03			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	1		.93	mg/L	93	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.03	0.03			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	1		.918	mg/L	92	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.03	0.03			

Iron, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.933	mg/L	97	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.18	0.18			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.15027		.158	mg/L	105	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	200.51027		186.5	mg/L	93	1	200			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	1.0018		1.045	mg/L	104	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		.994	mg/L	99	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.18	0.18			
L62357-02AS	AS	10/29/20 20:51	II201027-3	1.0018	U	1.049	mg/L	105	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.991	mg/L	99	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.18	0.18			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	1.0018	U	1.034	mg/L	103	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.984	mg/L	98	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.18	0.18			

Herndon Solutions Group

ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Iron, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	2		1.901	mg/L	95	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.18	0.18			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.15027		.136	mg/L	91	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	200.51027		199.6	mg/L	100	1	200			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.132	0.132			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	1.0018		.982	mg/L	98	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	1.0018	210	206.1	mg/L	10	70	130			M3
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	1.0018	210	206.4	mg/L	40	70	130	0	20	M3
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	1		.929	mg/L	93	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.18	0.18			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	1		.927	mg/L	93	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.18	0.18			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	1		.919	mg/L	92	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.18	0.18			

Lead, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508300													
WG508300ICV	ICV	10/27/20 20:38	MS201021-2	.05		.05016	mg/L	100	90	110			
WG508300ICB	ICB	10/27/20 20:40				U	mg/L		-0.00022	0.00022			
WG508300LFB	LFB	10/27/20 20:42	MS201020-4	.05005		.04861	mg/L	97	85	115			
WG508300CCV1	CCV	10/27/20 20:57	MS201022-2	.25025		.25618	mg/L	102	90	110			
WG508300CCB1	CCB	10/27/20 20:59				U	mg/L		-0.0003	0.0003			
WG508300CCV2	CCV	10/27/20 21:19	MS201022-2	.25025		.25641	mg/L	102	90	110			
WG508300CCB2	CCB	10/27/20 21:21				U	mg/L		-0.0003	0.0003			
L62359-02AS	AS	10/27/20 21:32	MS201020-4	.05005	U	.05125	mg/L	102	70	130			
L62359-02ASD	ASD	10/27/20 21:34	MS201020-4	.05005	U	.05202	mg/L	104	70	130	1	20	
WG508300CCV3	CCV	10/27/20 21:35	MS201022-2	.25025		.25544	mg/L	102	90	110			
WG508300CCB3	CCB	10/27/20 21:37				U	mg/L		-0.0003	0.0003			

Lead, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508538													
WG508538ICV	ICV	10/30/20 10:06	MS201021-2	.05		.04978	mg/L	100	90	110			
WG508538ICB	ICB	10/30/20 10:08				U	mg/L		-0.0003	0.0003			
WG508193LRB	LRB	10/30/20 10:09				U	mg/L		-0.00022	0.00022			
WG508193LFB	LFB	10/30/20 10:11	MS201020-4	.05005		.04802	mg/L	96	85	115			
WG508538CCV1	CCV	10/30/20 10:27	MS201022-2	.25025		.24903	mg/L	100	90	110			
WG508538CCB1	CCB	10/30/20 10:29				U	mg/L		-0.0003	0.0003			
WG508538CCV2	CCV	10/30/20 10:49	MS201022-2	.25025		.24903	mg/L	100	90	110			
WG508538CCB2	CCB	10/30/20 10:50				U	mg/L		-0.0003	0.0003			
L62357-05LFM	LFM	10/30/20 10:56	MS201020-4	.05005	.0129	.06198	mg/L	98	70	130			
L62357-05LFMD	LFMD	10/30/20 10:57	MS201020-4	.05005	.0129	.06172	mg/L	98	70	130	0	20	
WG508538CCV3	CCV	10/30/20 11:03	MS201022-2	.25025		.24515	mg/L	98	90	110			
WG508538CCB3	CCB	10/30/20 11:05				U	mg/L		-0.0003	0.0003			

Herndon Solutions Group

ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	100		99.55	mg/L	100	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.6	0.6			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	1		.71	mg/L	71	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	201.02		204.1	mg/L	102	1	200			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	49.99922		50.03	mg/L	100	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	50		50.27	mg/L	101	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.6	0.6			
L62357-02AS	AS	10/29/20 20:51	II201027-3	49.99922	.45	50.4	mg/L	100	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	50		50.17	mg/L	100	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.6	0.6			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	49.99922	.45	50.21	mg/L	100	85	115	0	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	50		49.83	mg/L	100	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.6	0.6			

Magnesium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	100		96.85	mg/L	97	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.6	0.6			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	1		.99	mg/L	99	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	201.02		211.1	mg/L	105	1	200			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.44	0.44			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	49.99922		49.51	mg/L	99	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	49.99922	37.3	85.15	mg/L	96	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	49.99922	37.3	85.91	mg/L	97	70	130	1	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	50		47.12	mg/L	94	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.6	0.6			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	50		47.33	mg/L	95	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.6	0.6			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	50		46.81	mg/L	94	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.6	0.6			

Manganese, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.925	mg/L	96	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.03	0.03			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.0501		.056	mg/L	112	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	50.1001		46.22	mg/L	92	1	200			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.5005		.515	mg/L	103	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		.998	mg/L	100	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.03	0.03			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.5005	.023	.533	mg/L	102	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.99	mg/L	99	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.03	0.03			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.5005	.023	.528	mg/L	101	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.986	mg/L	99	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.03	0.03			

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ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Manganese, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508469													
WG508469ICV	ICV	10/29/20 15:41	II201023-2	2		1.957	mg/L	98	95	105			
WG508469ICB	ICB	10/29/20 15:47				U	mg/L		-0.03	0.03			
WG508469PQV	PQV	10/29/20 15:51	II201008-3	.0501		.047	mg/L	94	70	130			
WG508469SIC	SIC	10/29/20 15:54	II201008-4	50.1001		48.67	mg/L	97	1	200			
WG508276LRB	LRB	10/29/20 16:00				U	mg/L		-0.022	0.022			
WG508276LFB	LFB	10/29/20 16:03	II201027-3	.5005		.519	mg/L	104	85	115			
WG508469CCV1	CCV	10/29/20 16:33	II201029-1	1		.987	mg/L	99	90	110			
WG508469CCB1	CCB	10/29/20 16:36				U	mg/L		-0.03	0.03			
L62372-01LFM	LFM	10/29/20 16:39	II201027-3	.5005	.148	.669	mg/L	104	70	130			
L62372-01LFMD	LFMD	10/29/20 16:43	II201027-3	.5005	.148	.663	mg/L	103	70	130	1	20	
WG508469CCV2	CCV	10/29/20 16:49	II201029-1	1		.993	mg/L	99	90	110			
WG508469CCB2	CCB	10/29/20 16:52				U	mg/L		-0.03	0.03			

Mercury, dissolved M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508793													
WG508793ICV	ICV	11/04/20 11:35	HG200810-2	.005		.00492	mg/L	98	95	105			
WG508793ICB	ICB	11/04/20 11:36				U	mg/L		-0.0002	0.0002			
WG508793PQV	PQV	11/04/20 11:37	HG201027-3	.001001		.0009	mg/L	90	70	130			
WG508793LRB	LRB	11/04/20 11:38				U	mg/L		-0.00044	0.00044			
WG508793LFB	LFB	11/04/20 11:39	HG201027-4	.002002		.00187	mg/L	93	85	115			
WG508793CCV1	CCV	11/04/20 11:47	HG200810-2	.005		.005	mg/L	100	90	110			
WG508793CCB1	CCB	11/04/20 11:48				U	mg/L		-0.0002	0.0002			
WG508793CCV2	CCV	11/04/20 11:58	HG200810-2	.005		.00488	mg/L	98	90	110			
WG508793CCB2	CCB	11/04/20 11:59				U	mg/L		-0.0002	0.0002			
L62357-06LFM	LFM	11/04/20 12:02	HG201027-4	.002002	U	.00179	mg/L	89	85	115			
L62357-06LFMD	LFMD	11/04/20 12:03	HG201027-4	.002002	U	.00185	mg/L	92	85	115	3	20	
WG508793CCV3	CCV	11/04/20 12:07	HG200810-2	.005		.00473	mg/L	95	90	110			
WG508793CCB3	CCB	11/04/20 12:08				U	mg/L		-0.0002	0.0002			
WG508793CCV4	CCV	11/04/20 13:54	HG200810-2	.005		.00464	mg/L	93	90	110			
WG508793CCB4	CCB	11/04/20 13:55				U	mg/L		-0.0002	0.0002			
WG508793CCV5	CCV	11/04/20 14:00	HG200810-2	.005		.00476	mg/L	95	90	110			
WG508793CCB5	CCB	11/04/20 14:01				U	mg/L		-0.0002	0.0002			
WG508793CCV6	CCV	11/04/20 14:36	HG200810-2	.005		.00485	mg/L	97	90	110			
WG508793CCB6	CCB	11/04/20 14:37				U	mg/L		-0.0002	0.0002			
WG508793CCV7	CCV	11/04/20 14:39	HG200810-2	.005		.00484	mg/L	97	90	110			
WG508793CCB7	CCB	11/04/20 14:40				U	mg/L		-0.0002	0.0002			

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ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Mercury, total M245.1 CVAA

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508495													
WG508495ICV1	ICV	10/30/20 11:00	HG200810-2	.005		.00474	mg/L	95	90	110			
WG508495ICB	ICB	10/30/20 11:01				U	mg/L		-0.0006	0.0006			
WG508493													
WG508493CCV1	CCV	10/30/20 12:07	HG200810-2	.005		.00469	mg/L	94	90	110			
WG508493CCB1	CCB	10/30/20 12:08				U	mg/L		-0.0002	0.0002			
WG508493PQV	PQV	10/30/20 12:09	HG201027-3	.001001		.00093	mg/L	93	70	130			
WG508493LRB	LRB	10/30/20 12:10				U	mg/L		-0.00044	0.00044			
WG508493LFB	LFB	10/30/20 12:11	HG201027-4	.002002		.00182	mg/L	91	85	115			
WG508493CCV2	CCV	10/30/20 12:18	HG200810-2	.005		.00458	mg/L	92	90	110			
WG508493CCB2	CCB	10/30/20 12:19				U	mg/L		-0.0002	0.0002			
WG508493CCV3	CCV	10/30/20 12:29	HG200810-2	.005		.00462	mg/L	92	90	110			
WG508493CCB3	CCB	10/30/20 12:30				U	mg/L		-0.0002	0.0002			
L62357-07LFM	LFM	10/30/20 12:34	HG201027-4	.002002	U	.0018	mg/L	90	85	115			
L62357-07LFMD	LFMD	10/30/20 12:35	HG201027-4	.002002	U	.00184	mg/L	92	85	115	2	20	
WG508493CCV4	CCV	10/30/20 12:38	HG200810-2	.005		.0046	mg/L	92	90	110			
WG508493CCB4	CCB	10/30/20 12:39				U	mg/L		-0.0002	0.0002			

Nickel, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.9262	mg/L	96	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.024	0.024			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.04008		.039	mg/L	97	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.1002		.0918	mg/L	92	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.501		.509	mg/L	102	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		.9961	mg/L	100	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.024	0.024			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.501	U	.5141	mg/L	103	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.9903	mg/L	99	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.024	0.024			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.501	U	.5097	mg/L	102	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.9845	mg/L	98	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.024	0.024			

Herndon Solutions Group

ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Nickel, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	2		1.9768	mg/L	99	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.024	0.024			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.04008		.0444	mg/L	111	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	.1002		.1037	mg/L	103	80	120			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.0176	0.0176			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	.501		.4899	mg/L	98	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	.501	.0378	.5216	mg/L	97	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	.501	.0378	.5189	mg/L	96	70	130	1	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	1		.9782	mg/L	98	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.024	0.024			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	1		.9815	mg/L	98	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.024	0.024			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	1		.9679	mg/L	97	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.024	0.024			

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	20		19.72	mg/L	99	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.6	0.6			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	1		.92	mg/L	92	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	1		.91	mg/L	91	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	99.96637		99.71	mg/L	100	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	10		9.98	mg/L	100	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.6	0.6			
L62357-02AS	AS	10/29/20 20:51	II201027-3	99.96637	U	99.82	mg/L	100	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	10		9.95	mg/L	100	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.6	0.6			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	99.96637	U	99.07	mg/L	99	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	10		9.84	mg/L	98	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.6	0.6			

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Potassium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	20		19.3	mg/L	97	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.6	0.6			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	1		.95	mg/L	95	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	1		.97	mg/L	97	80	120			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.44	0.44			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	99.96637		98.96	mg/L	99	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	99.96637	207	308.4	mg/L	101	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	99.96637	207	309.7	mg/L	103	70	130	0	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	10		9.42	mg/L	94	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.6	0.6			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	10		9.45	mg/L	95	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.6	0.6			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	10		9.36	mg/L	94	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.6	0.6			

Selenium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508300													
WG508300ICV	ICV	10/27/20 20:38	MS201021-2	.05		.04857	mg/L	97	90	110			
WG508300ICB	ICB	10/27/20 20:40				U	mg/L		-0.00022	0.00022			
WG508300LFB	LFB	10/27/20 20:42	MS201020-4	.05		.04581	mg/L	92	85	115			
WG508300CCV1	CCV	10/27/20 20:57	MS201022-2	.25		.24508	mg/L	98	90	110			
WG508300CCB1	CCB	10/27/20 20:59				U	mg/L		-0.0003	0.0003			
WG508300CCV2	CCV	10/27/20 21:19	MS201022-2	.25		.24481	mg/L	98	90	110			
WG508300CCB2	CCB	10/27/20 21:21				U	mg/L		-0.0003	0.0003			
L62359-02AS	AS	10/27/20 21:32	MS201020-4	.05	.00011	.04996	mg/L	100	70	130			
L62359-02ASD	ASD	10/27/20 21:34	MS201020-4	.05	.00011	.05006	mg/L	100	70	130	0	20	
WG508300CCV3	CCV	10/27/20 21:35	MS201022-2	.25		.24746	mg/L	99	90	110			
WG508300CCB3	CCB	10/27/20 21:37				U	mg/L		-0.0003	0.0003			

Selenium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508538													
WG508538ICV	ICV	10/30/20 10:06	MS201021-2	.05		.04829	mg/L	97	90	110			
WG508538ICB	ICB	10/30/20 10:08				U	mg/L		-0.0003	0.0003			
WG508193LRB	LRB	10/30/20 10:09				U	mg/L		-0.00022	0.00022			
WG508193LFB	LFB	10/30/20 10:11	MS201020-4	.05		.04903	mg/L	98	85	115			
WG508538CCV1	CCV	10/30/20 10:27	MS201022-2	.25		.25498	mg/L	102	90	110			
WG508538CCB1	CCB	10/30/20 10:29				U	mg/L		-0.0003	0.0003			
WG508538CCV2	CCV	10/30/20 10:49	MS201022-2	.25		.25448	mg/L	102	90	110			
WG508538CCB2	CCB	10/30/20 10:50				U	mg/L		-0.0003	0.0003			
L62357-05LFM	LFM	10/30/20 10:56	MS201020-4	.05	U	.04893	mg/L	98	70	130			
L62357-05LFMD	LFMD	10/30/20 10:57	MS201020-4	.05	U	.04741	mg/L	95	70	130	3	20	
WG508538CCV3	CCV	10/30/20 11:03	MS201022-2	.25		.24805	mg/L	99	90	110			
WG508538CCB3	CCB	10/30/20 11:05				U	mg/L		-0.0003	0.0003			

Herndon Solutions Group

ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Silver, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	1		.962	mg/L	96	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.03	0.03			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.025		.028	mg/L	112	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.1		.101	mg/L	101	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.5		.535	mg/L	107	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	.5		.493	mg/L	99	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.03	0.03			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.5	U	.332	mg/L	66	85	115			M2 ZA
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	.5		.495	mg/L	99	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.03	0.03			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.5	U	.309	mg/L	62	85	115	7	20	M2 ZA
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	.5		.488	mg/L	98	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.03	0.03			

Silver, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508469													
WG508469ICV	ICV	10/29/20 15:41	II201023-2	1		1.028	mg/L	103	95	105			
WG508469ICB	ICB	10/29/20 15:47				U	mg/L		-0.03	0.03			
WG508469PQV	PQV	10/29/20 15:51	II201008-3	.025		.022	mg/L	88	70	130			
WG508469SIC	SIC	10/29/20 15:54	II201008-4	.1		.094	mg/L	94	80	120			
WG508276LRB	LRB	10/29/20 16:00				U	mg/L		-0.022	0.022			
WG508276LFB	LFB	10/29/20 16:03	II201027-3	.5		.505	mg/L	101	85	115			
WG508469CCV1	CCV	10/29/20 16:33	II201029-1	.5		.503	mg/L	101	90	110			
WG508469CCB1	CCB	10/29/20 16:36				U	mg/L		-0.03	0.03			
L62372-01LFM	LFM	10/29/20 16:39	II201027-3	.5	U	.514	mg/L	103	70	130			
L62372-01LFMD	LFMD	10/29/20 16:43	II201027-3	.5	U	.505	mg/L	101	70	130	2	20	
WG508469CCV2	CCV	10/29/20 16:49	II201029-1	.5		.509	mg/L	102	90	110			
WG508469CCB2	CCB	10/29/20 16:52				U	mg/L		-0.03	0.03			

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	100		99.07	mg/L	99	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.6	0.6			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.999		.97	mg/L	97	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.999		1.04	mg/L	104	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	100.0125		99.29	mg/L	99	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	50		50.17	mg/L	100	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.6	0.6			
L62357-02AS	AS	10/29/20 20:51	II201027-3	100.0125	U	99.53	mg/L	100	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	50		49.71	mg/L	99	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.6	0.6			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	100.0125	U	98.9	mg/L	99	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	50		49.5	mg/L	99	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.6	0.6			

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Sodium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	100		96.14	mg/L	96	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.6	0.6			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.999		.99	mg/L	99	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	.999		1.05	mg/L	105	80	120			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.44	0.44			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	100.0125		96.66	mg/L	97	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	100.0125	510	607.1	mg/L	97	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	100.0125	510	612.2	mg/L	102	70	130	1	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	50		46.58	mg/L	93	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.6	0.6			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	50		46.67	mg/L	93	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.6	0.6			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	50		46.27	mg/L	93	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.6	0.6			

Thallium, dissolved M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508300													
WG508300ICV	ICV	10/27/20 20:38	MS201021-2	.05		.05024	mg/L	100	90	110			
WG508300ICB	ICB	10/27/20 20:40				U	mg/L		-0.00022	0.00022			
WG508300LFB	LFB	10/27/20 20:42	MS201020-4	.0501		.04933	mg/L	98	85	115			
WG508300CCV1	CCV	10/27/20 20:57	MS201022-2	.1002		.10313	mg/L	103	90	110			
WG508300CCB1	CCB	10/27/20 20:59				U	mg/L		-0.0003	0.0003			
WG508300CCV2	CCV	10/27/20 21:19	MS201022-2	.1002		.10193	mg/L	102	90	110			
WG508300CCB2	CCB	10/27/20 21:21				U	mg/L		-0.0003	0.0003			
L62359-02AS	AS	10/27/20 21:32	MS201020-4	.0501	U	.05182	mg/L	103	70	130			
L62359-02ASD	ASD	10/27/20 21:34	MS201020-4	.0501	U	.05278	mg/L	105	70	130	2	20	
WG508300CCV3	CCV	10/27/20 21:35	MS201022-2	.1002		.10221	mg/L	102	90	110			
WG508300CCB3	CCB	10/27/20 21:37				U	mg/L		-0.0003	0.0003			

Thallium, total M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508538													
WG508538ICV	ICV	10/30/20 10:06	MS201021-2	.05		.04953	mg/L	99	90	110			
WG508538ICB	ICB	10/30/20 10:08				U	mg/L		-0.0003	0.0003			
WG508193LRB	LRB	10/30/20 10:09				U	mg/L		-0.00022	0.00022			
WG508193LFB	LFB	10/30/20 10:11	MS201020-4	.0501		.04814	mg/L	96	85	115			
WG508538CCV1	CCV	10/30/20 10:27	MS201022-2	.1002		.10139	mg/L	101	90	110			
WG508538CCB1	CCB	10/30/20 10:29				U	mg/L		-0.0003	0.0003			
WG508538CCV2	CCV	10/30/20 10:49	MS201022-2	.1002		.10056	mg/L	100	90	110			
WG508538CCB2	CCB	10/30/20 10:50				U	mg/L		-0.0003	0.0003			
L62357-05LFM	LFM	10/30/20 10:56	MS201020-4	.0501	.00011	.04852	mg/L	97	70	130			
L62357-05LFMD	LFMD	10/30/20 10:57	MS201020-4	.0501	.00011	.04924	mg/L	98	70	130	1	20	
WG508538CCV3	CCV	10/30/20 11:03	MS201022-2	.1002		.09925	mg/L	99	90	110			
WG508538CCB3	CCB	10/30/20 11:05				U	mg/L		-0.0003	0.0003			

Herndon Solutions Group ACZ Project ID: ***L62357***

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Vanadium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.954	mg/L	98	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.015	0.015			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.024975		.029	mg/L	116	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.0999		.103	mg/L	103	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.4995		.5067	mg/L	101	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		.997	mg/L	100	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.03	0.03			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.4995	U	.5019	mg/L	100	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.99	mg/L	99	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.03	0.03			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.4995	U	.498	mg/L	100	85	115	1	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.986	mg/L	99	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.03	0.03			

Vanadium, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508469													
WG508469ICV	ICV	10/29/20 15:41	II201023-2	2		1.999	mg/L	100	95	105			
WG508469ICB	ICB	10/29/20 15:47				U	mg/L		-0.015	0.015			
WG508469PQV	PQV	10/29/20 15:51	II201008-3	.024975		.025	mg/L	100	70	130			
WG508469SIC	SIC	10/29/20 15:54	II201008-4	.0999		.105	mg/L	105	80	120			
WG508276LRB	LRB	10/29/20 16:00				U	mg/L		-0.022	0.022			
WG508276LFB	LFB	10/29/20 16:03	II201027-3	.4995		.5334	mg/L	107	85	115			
WG508469CCV1	CCV	10/29/20 16:33	II201029-1	1		.996	mg/L	100	90	110			
WG508469CCB1	CCB	10/29/20 16:36				U	mg/L		-0.03	0.03			
L62372-01LFM	LFM	10/29/20 16:39	II201027-3	.4995	U	.5358	mg/L	107	70	130			
L62372-01LFMD	LFMD	10/29/20 16:43	II201027-3	.4995	U	.527	mg/L	106	70	130	2	20	
WG508469CCV2	CCV	10/29/20 16:49	II201029-1	1		1.002	mg/L	100	90	110			
WG508469CCB2	CCB	10/29/20 16:52				U	mg/L		-0.03	0.03			

Zinc, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508433													
WG508433ICV	ICV	10/29/20 19:23	II201022-1	2		1.93	mg/L	97	95	105			
WG508433ICB	ICB	10/29/20 19:29				U	mg/L		-0.06	0.06			
WG508433PQV	PQV	10/29/20 19:32	II201008-3	.0502		.057	mg/L	114	70	130			
WG508433SIC	SIC	10/29/20 19:35	II201007-3	.1004		.105	mg/L	105	80	120			
WG508433LFB	LFB	10/29/20 19:42	II201027-3	.50075		.516	mg/L	103	85	115			
WG508433CCV1	CCV	10/29/20 20:15	II201022-2	1		.982	mg/L	98	90	110			
WG508433CCB1	CCB	10/29/20 20:18				U	mg/L		-0.06	0.06			
L62357-02AS	AS	10/29/20 20:51	II201027-3	.50075	.227	.753	mg/L	105	85	115			
WG508433CCV2	CCV	10/29/20 20:54	II201022-2	1		.984	mg/L	98	90	110			
WG508433CCB2	CCB	10/29/20 20:57				U	mg/L		-0.06	0.06			
L62357-02ASD	ASD	10/29/20 21:00	II201027-3	.50075	.227	.715	mg/L	97	85	115	5	20	
WG508433CCV3	CCV	10/29/20 21:17	II201022-2	1		.972	mg/L	97	90	110			
WG508433CCB3	CCB	10/29/20 21:20				U	mg/L		-0.06	0.06			

Herndon Solutions Group

ACZ Project ID: ***L62357***

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Zinc, total M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG508357													
WG508357ICV	ICV	10/28/20 17:06	II201023-2	2		1.935	mg/L	97	95	105			
WG508357ICB	ICB	10/28/20 17:12				U	mg/L		-0.06	0.06			
WG508357PQV	PQV	10/28/20 17:15	II201008-3	.0502		.045	mg/L	90	70	130			
WG508357SIC	SIC	10/28/20 17:18	II201008-4	.1004		.103	mg/L	103	80	120			
WG508276LRB	LRB	10/28/20 17:24				U	mg/L		-0.044	0.044			
WG508276LFB	LFB	10/28/20 17:27	II201027-3	.50075		.501	mg/L	100	85	115			
L62351-05LFM	LFM	10/28/20 17:47	II201027-3	.50075	7.28	7.754	mg/L	95	70	130			
L62351-05LFMD	LFMD	10/28/20 17:50	II201027-3	.50075	7.28	7.674	mg/L	79	70	130	1	20	
WG508357CCV1	CCV	10/28/20 17:56	II201016-1	1		.937	mg/L	94	90	110			
WG508357CCB1	CCB	10/28/20 17:59				U	mg/L		-0.06	0.06			
WG508357CCV2	CCV	10/28/20 18:33	II201016-1	1		.951	mg/L	95	90	110			
WG508357CCB2	CCB	10/28/20 18:36				U	mg/L		-0.06	0.06			
WG508357CCV3	CCV	10/28/20 18:59	II201016-1	1		.945	mg/L	95	90	110			
WG508357CCB3	CCB	10/28/20 19:02				U	mg/L		-0.06	0.06			

Herndon Solutions Group ACZ Project ID: ***L62357***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L62357-01	WG508357	Iron, total	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
L62357-02	WG508433	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
L62357-03	WG508357	Iron, total	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
L62357-04	WG508433	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
L62357-05	WG508357	Iron, total	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
L62357-06	WG508433	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
L62357-07	WG508357	Iron, total	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
L62357-08	WG508433	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.
L62357-09	WG508357	Iron, total	M200.7 ICP	M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The recovery of the associated control sample (LCS or LFB) was acceptable.
L62357-10	WG508433	Silver, dissolved	M200.7 ICP	M2	Matrix spike recovery was low, the recovery of the associated control sample (LCS or LFB) was acceptable.
			M200.7 ICP	ZA	Poor recovery for Silver quality control is accepted due to low Silver solubility in samples, digestates, or extracts that do not contain sufficient Hydrochloric acid.

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Herndon Solutions Group

ACZ Project ID: L62357
Date Received: 10/21/2020 10:43
Received By:
Date Printed: 10/22/2020

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?			X
2) Is the Chain of Custody form or other directive shipping papers present?	X		
3) Does this project require special handling procedures such as CLP protocol?		X	
4) Are any samples NRC licensable material?			X
5) If samples are received past hold time, proceed with requested short hold time analyses?	X		
6) Is the Chain of Custody form complete and accurate?	X		
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?		X	

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	X		
9) Are all labels on containers and are they intact and legible?	X		
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	X		
11) For preserved bottle types, was the pH checked and within limits? [1]	X		
12) Is there sufficient sample volume to perform all requested work?	X		
13) Is the custody seal intact on all containers?			X
14) Are samples that require zero headspace acceptable?			X
15) Are all sample containers appropriate for analytical requirements?	X		
16) Is there an Hg-1631 trip blank present?			X
17) Is there a VOA trip blank present?			X
18) Were all samples received within hold time?	X		

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

Cooler Id	Temp(°C)	Temp Criteria(°C)	Rad(µR/Hr)	Custody Seal Intact?
4861	16.9	NA	15	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s) but was thawed by receipt at ACZ.

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Herndon Solutions Group

ACZ Project ID:	L62357
Date Received:	10/21/2020 10:43
Received By:	
Date Printed:	10/22/2020

[1] The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na2S2O3 preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).

ACZ Laboratories, Inc. L62357

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Stephanie (Sid) Park
Company: HSG LLC
E-mail: stephanie.park@herndon-group.com
Address: 14143 Denver W Pkwy Suite 100
Golden, CO 80401
Telephone: 334-728-0478

Copy of Report to:

Name: Stephanie (Sid) Park
Company: HSG LLC
E-mail: blmpm@herndon-group.com
Telephone: 334-728-0478

Invoice to:

Name: Christine Herndon
Company: HSG LLC
E-mail: invoices@herndon-group.com
Address: 4001 S Decatur Blvd. #37-376
Las Vegas, NV 89103
Telephone:

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified

Are samples for SDWA Compliance Monitoring? Yes [ ] No [X]

If yes, please include state forms. Results will be reported to PQL for Colorado.

Sampler's Name: Rory Cowie **Sampler's Site Information** **State** CO **Zip code** 81433 **Time Zone** MST

***Sampler's Signature:** [signature]

*I attest to the authenticity and validity of this sample. I understand that intentionally mislabeling the time/date/location or tampering with the sample in anyway, is considered fraud and punishable by State Law.

PROJECT INFORMATION

Quote #: TAL-SW-T-D
PO#:
Reporting state for compliance testing:
Check box if samples include NRC licensed material? [ ]

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	TAL Metals (total)	TAL Metals (dissolved)						
BG_SW_01_1020-T	10/14/20:11:30	SW	1	X							
BG_SW_01_1020-D	10/14/20:11:30	SW	1		X						
BG_SW_02_1020-T	10/14/20:	SW	1	X							
BG_SW_02_1020-D	10/14/20:	SW	1		X						
BG_SW_03_1020-T	10/14/20:	SW	1	X							
BG_SW_03_1020-D	10/14/20:	SW	1		X						
BG_SW_04_1020-T	10/14/20:	SW	1	X							
BG_SW_04_1020-D	10/14/20:	SW	1		X						
BG_SW_05_1020-T	10/14/20:	SW	1	X							
BG_SW_05_1020-D	10/14/20:	SW	1		X						

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

All Field acidified (HNO3), dissolved metals field filtered (0.45um)

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	10/19/20	[signature] 10/21/20	10:43

FRMAD050.06.14.14 White - Return with sample. Yellow - Retain for your records.

L62357 Chain of Custod

ANALYTICAL REPORT

July 06, 2021

Herndon-Group

Sample Delivery Group:	L1367851
Samples Received:	06/17/2021
Project Number:	
Description:	Burrows

Report To: Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 5

Sr: Sample Results 6

B6_SW_A07_G L1367851-01 6

B6_SW_HT L1367851-02 7

B6_SW_A07_D1 L1367851-03 8

B6_SW_A07_C1 L1367851-04 9

B6_SW_A07_B L1367851-05 10

B6_SW_A07 L1367851-06 11

B6_SW_5 L1367851-07 12

B6_SW_95 L1367851-08 13

Qc: Quality Control Summary 14

Mercury by Method 7470A 14

Metals (ICP) by Method 6010B 16

Gl: Glossary of Terms 24

Al: Accreditations & Locations 25

Sc: Sample Chain of Custody 26

B6_SW_A07_G L1367851-01 GW

Collected by: R. Cowie | Collected date/time: 06/12/21 13:00 | Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:14	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 14:49	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1695583	1	06/26/21 21:14	06/27/21 16:49	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1695583	1	06/26/21 21:14	06/28/21 09:52	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:07	KMG	Mt. Juliet, TN

B6_SW_HT L1367851-02 GW

Collected by: R. Cowie | Collected date/time: 06/12/21 14:00 | Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:21	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 14:51	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696581	1	06/28/21 16:21	06/29/21 09:42	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:10	KMG	Mt. Juliet, TN

B6_SW_A07_D1 L1367851-03 GW

Collected by: R. Cowie | Collected date/time: 06/12/21 14:15 | Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:23	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 14:54	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696581	1	06/28/21 16:21	06/29/21 09:45	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:13	KMG	Mt. Juliet, TN

B6_SW_A07_C1 L1367851-04 GW

Collected by: R. Cowie | Collected date/time: 06/12/21 14:45 | Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:25	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 14:56	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696581	1	06/28/21 16:21	06/29/21 09:48	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:21	KMG	Mt. Juliet, TN

B6_SW_A07_B L1367851-05 GW

Collected by: R. Cowie | Collected date/time: 06/12/21 16:00 | Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:28	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 14:58	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696581	1	06/28/21 16:21	06/29/21 09:50	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:23	KMG	Mt. Juliet, TN

B6_SW_A07 L1367851-06 GW

Collected by: R. Cowie | Collected date/time: 06/12/21 16:30 | Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:35	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 15:01	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696581	1	06/28/21 16:21	06/29/21 09:58	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:26	KMG	Mt. Juliet, TN

B6_SW_5 L1367851-07 GW

Collected by: R. Cowie
Collected date/time: 06/12/21 17:00
Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:37	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 15:03	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696581	1	06/28/21 16:21	06/29/21 10:01	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:29	KMG	Mt. Juliet, TN

B6_SW_95 L1367851-08 GW

Collected by: R. Cowie
Collected date/time: 06/12/21 17:00
Received date/time: 06/17/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1693520	1	06/23/21 10:34	06/23/21 18:39	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1693522	1	06/23/21 15:48	06/24/21 15:13	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696581	1	06/28/21 16:21	06/29/21 10:03	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1696773	1	07/02/21 13:57	07/02/21 19:31	KMG	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward
Project Manager

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/23/2021 18:14	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 14:49	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	0.642		0.200	1	07/02/2021 19:07	WG1696773
Aluminum,Dissolved	0.628		0.200	1	06/27/2021 16:49	WG1695583
Antimony	ND		0.0100	1	07/02/2021 19:07	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Arsenic	ND		0.0100	1	07/02/2021 19:07	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Barium	0.0133		0.00500	1	07/02/2021 19:07	WG1696773
Barium,Dissolved	0.0133		0.00500	1	06/28/2021 09:52	WG1695583
Beryllium	ND		0.00200	1	07/02/2021 19:07	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/27/2021 16:49	WG1695583
Cadmium	ND		0.00200	1	07/02/2021 19:07	WG1696773
Cadmium,Dissolved	ND		0.00200	1	06/27/2021 16:49	WG1695583
Calcium	5.16		1.00	1	07/02/2021 19:07	WG1696773
Calcium,Dissolved	5.15		1.00	1	06/27/2021 16:49	WG1695583
Chromium	ND		0.0100	1	07/02/2021 19:07	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Cobalt	ND		0.0100	1	07/02/2021 19:07	WG1696773
Cobalt,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Copper	0.0115		0.0100	1	07/02/2021 19:07	WG1696773
Copper,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Iron	0.277		0.100	1	07/02/2021 19:07	WG1696773
Iron,Dissolved	ND		0.100	1	06/27/2021 16:49	WG1695583
Lead	0.00778		0.00600	1	07/02/2021 19:07	WG1696773
Lead,Dissolved	0.00666		0.00600	1	06/27/2021 16:49	WG1695583
Magnesium	ND		1.00	1	07/02/2021 19:07	WG1696773
Magnesium,Dissolved	ND		1.00	1	06/27/2021 16:49	WG1695583
Manganese	0.524		0.0100	1	07/02/2021 19:07	WG1696773
Manganese,Dissolved	0.522		0.0100	1	06/27/2021 16:49	WG1695583
Nickel	ND		0.0100	1	07/02/2021 19:07	WG1696773
Nickel,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Potassium	ND		2.00	1	07/02/2021 19:07	WG1696773
Potassium,Dissolved	ND		2.00	1	06/27/2021 16:49	WG1695583
Selenium	ND		0.0100	1	07/02/2021 19:07	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Silver	ND		0.00500	1	07/02/2021 19:07	WG1696773
Silver,Dissolved	ND		0.00500	1	06/27/2021 16:49	WG1695583
Sodium	ND		3.00	1	07/02/2021 19:07	WG1696773
Sodium,Dissolved	ND		3.00	1	06/27/2021 16:49	WG1695583
Thallium	ND		0.0100	1	07/02/2021 19:07	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/27/2021 16:49	WG1695583
Vanadium	ND		0.0200	1	07/02/2021 19:07	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/27/2021 16:49	WG1695583
Zinc	0.238		0.0500	1	07/02/2021 19:07	WG1696773
Zinc,Dissolved	0.217		0.0500	1	06/27/2021 16:49	WG1695583

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/23/2021 18:21	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 14:51	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	10.4		0.200	1	07/02/2021 19:10	WG1696773
Aluminum,Dissolved	10.4		0.200	1	06/29/2021 09:42	WG1696581
Antimony	ND		0.0100	1	07/02/2021 19:10	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/29/2021 09:42	WG1696581
Arsenic	ND		0.0100	1	07/02/2021 19:10	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/29/2021 09:42	WG1696581
Barium	0.00842		0.00500	1	07/02/2021 19:10	WG1696773
Barium,Dissolved	0.00917		0.00500	1	06/29/2021 09:42	WG1696581
Beryllium	ND		0.00200	1	07/02/2021 19:10	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/29/2021 09:42	WG1696581
Cadmium	0.0109		0.00200	1	07/02/2021 19:10	WG1696773
Cadmium,Dissolved	0.0110		0.00200	1	06/29/2021 09:42	WG1696581
Calcium	7.79		1.00	1	07/02/2021 19:10	WG1696773
Calcium,Dissolved	7.86		1.00	1	06/29/2021 09:42	WG1696581
Chromium	ND		0.0100	1	07/02/2021 19:10	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/29/2021 09:42	WG1696581
Cobalt	0.0164		0.0100	1	07/02/2021 19:10	WG1696773
Cobalt,Dissolved	0.0167		0.0100	1	06/29/2021 09:42	WG1696581
Copper	0.0752		0.0100	1	07/02/2021 19:10	WG1696773
Copper,Dissolved	0.0775		0.0100	1	06/29/2021 09:42	WG1696581
Iron	0.703		0.100	1	07/02/2021 19:10	WG1696773
Iron,Dissolved	0.666		0.100	1	06/29/2021 09:42	WG1696581
Lead	0.00894		0.00600	1	07/02/2021 19:10	WG1696773
Lead,Dissolved	0.00701		0.00600	1	06/29/2021 09:42	WG1696581
Magnesium	1.64		1.00	1	07/02/2021 19:10	WG1696773
Magnesium,Dissolved	1.62		1.00	1	06/29/2021 09:42	WG1696581
Manganese	3.80		0.0100	1	07/02/2021 19:10	WG1696773
Manganese,Dissolved	3.79		0.0100	1	06/29/2021 09:42	WG1696581
Nickel	ND		0.0100	1	07/02/2021 19:10	WG1696773
Nickel,Dissolved	0.0107		0.0100	1	06/29/2021 09:42	WG1696581
Potassium	ND		2.00	1	07/02/2021 19:10	WG1696773
Potassium,Dissolved	ND		2.00	1	06/29/2021 09:42	WG1696581
Selenium	ND		0.0100	1	07/02/2021 19:10	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/29/2021 09:42	WG1696581
Silver	ND		0.00500	1	07/02/2021 19:10	WG1696773
Silver,Dissolved	ND		0.00500	1	06/29/2021 09:42	WG1696581
Sodium	ND		3.00	1	07/02/2021 19:10	WG1696773
Sodium,Dissolved	ND		3.00	1	06/29/2021 09:42	WG1696581
Thallium	ND		0.0100	1	07/02/2021 19:10	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/29/2021 09:42	WG1696581
Vanadium	ND		0.0200	1	07/02/2021 19:10	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/29/2021 09:42	WG1696581
Zinc	1.36		0.0500	1	07/02/2021 19:10	WG1696773
Zinc,Dissolved	1.37		0.0500	1	06/29/2021 09:42	WG1696581

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/23/2021 18:23	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 14:54	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	1.87		0.200	1	07/02/2021 19:13	WG1696773
Aluminum,Dissolved	1.90		0.200	1	06/29/2021 09:45	WG1696581
Antimony	ND		0.0100	1	07/02/2021 19:13	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/29/2021 09:45	WG1696581
Arsenic	ND		0.0100	1	07/02/2021 19:13	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/29/2021 09:45	WG1696581
Barium	0.0107		0.00500	1	07/02/2021 19:13	WG1696773
Barium,Dissolved	0.0108		0.00500	1	06/29/2021 09:45	WG1696581
Beryllium	ND		0.00200	1	07/02/2021 19:13	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/29/2021 09:45	WG1696581
Cadmium	0.00255		0.00200	1	07/02/2021 19:13	WG1696773
Cadmium,Dissolved	0.00258		0.00200	1	06/29/2021 09:45	WG1696581
Calcium	4.69		1.00	1	07/02/2021 19:13	WG1696773
Calcium,Dissolved	4.60		1.00	1	06/29/2021 09:45	WG1696581
Chromium	ND		0.0100	1	07/02/2021 19:13	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/29/2021 09:45	WG1696581
Cobalt	ND		0.0100	1	07/02/2021 19:13	WG1696773
Cobalt,Dissolved	ND		0.0100	1	06/29/2021 09:45	WG1696581
Copper	0.0180		0.0100	1	07/02/2021 19:13	WG1696773
Copper,Dissolved	0.0186		0.0100	1	06/29/2021 09:45	WG1696581
Iron	0.107		0.100	1	07/02/2021 19:13	WG1696773
Iron,Dissolved	ND		0.100	1	06/29/2021 09:45	WG1696581
Lead	0.00638		0.00600	1	07/02/2021 19:13	WG1696773
Lead,Dissolved	ND		0.00600	1	06/29/2021 09:45	WG1696581
Magnesium	ND		1.00	1	07/02/2021 19:13	WG1696773
Magnesium,Dissolved	ND		1.00	1	06/29/2021 09:45	WG1696581
Manganese	0.866		0.0100	1	07/02/2021 19:13	WG1696773
Manganese,Dissolved	0.864		0.0100	1	06/29/2021 09:45	WG1696581
Nickel	ND		0.0100	1	07/02/2021 19:13	WG1696773
Nickel,Dissolved	ND		0.0100	1	06/29/2021 09:45	WG1696581
Potassium	ND		2.00	1	07/02/2021 19:13	WG1696773
Potassium,Dissolved	ND		2.00	1	06/29/2021 09:45	WG1696581
Selenium	ND		0.0100	1	07/02/2021 19:13	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/29/2021 09:45	WG1696581
Silver	ND		0.00500	1	07/02/2021 19:13	WG1696773
Silver,Dissolved	ND		0.00500	1	06/29/2021 09:45	WG1696581
Sodium	ND		3.00	1	07/02/2021 19:13	WG1696773
Sodium,Dissolved	ND		3.00	1	06/29/2021 09:45	WG1696581
Thallium	ND		0.0100	1	07/02/2021 19:13	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/29/2021 09:45	WG1696581
Vanadium	ND		0.0200	1	07/02/2021 19:13	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/29/2021 09:45	WG1696581
Zinc	0.410		0.0500	1	07/02/2021 19:13	WG1696773
Zinc,Dissolved	0.416		0.0500	1	06/29/2021 09:45	WG1696581

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/23/2021 18:25	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 14:56	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	6.68		0.200	1	07/02/2021 19:21	WG1696773
Aluminum,Dissolved	6.72		0.200	1	06/29/2021 09:48	WG1696581
Antimony	ND		0.0100	1	07/02/2021 19:21	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/29/2021 09:48	WG1696581
Arsenic	ND		0.0100	1	07/02/2021 19:21	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/29/2021 09:48	WG1696581
Barium	0.0215		0.00500	1	07/02/2021 19:21	WG1696773
Barium,Dissolved	0.0217		0.00500	1	06/29/2021 09:48	WG1696581
Beryllium	ND		0.00200	1	07/02/2021 19:21	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/29/2021 09:48	WG1696581
Cadmium	0.0135		0.00200	1	07/02/2021 19:21	WG1696773
Cadmium,Dissolved	0.0140		0.00200	1	06/29/2021 09:48	WG1696581
Calcium	8.27		1.00	1	07/02/2021 19:21	WG1696773
Calcium,Dissolved	8.16		1.00	1	06/29/2021 09:48	WG1696581
Chromium	ND		0.0100	1	07/02/2021 19:21	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/29/2021 09:48	WG1696581
Cobalt	ND		0.0100	1	07/02/2021 19:21	WG1696773
Cobalt,Dissolved	ND		0.0100	1	06/29/2021 09:48	WG1696581
Copper	0.0285		0.0100	1	07/02/2021 19:21	WG1696773
Copper,Dissolved	0.0291		0.0100	1	06/29/2021 09:48	WG1696581
Iron	ND		0.100	1	07/02/2021 19:21	WG1696773
Iron,Dissolved	ND		0.100	1	06/29/2021 09:48	WG1696581
Lead	0.0107		0.00600	1	07/02/2021 19:21	WG1696773
Lead,Dissolved	0.0109		0.00600	1	06/29/2021 09:48	WG1696581
Magnesium	1.23		1.00	1	07/02/2021 19:21	WG1696773
Magnesium,Dissolved	1.19		1.00	1	06/29/2021 09:48	WG1696581
Manganese	2.15		0.0100	1	07/02/2021 19:21	WG1696773
Manganese,Dissolved	2.16		0.0100	1	06/29/2021 09:48	WG1696581
Nickel	ND		0.0100	1	07/02/2021 19:21	WG1696773
Nickel,Dissolved	ND		0.0100	1	06/29/2021 09:48	WG1696581
Potassium	ND		2.00	1	07/02/2021 19:21	WG1696773
Potassium,Dissolved	ND		2.00	1	06/29/2021 09:48	WG1696581
Selenium	ND		0.0100	1	07/02/2021 19:21	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/29/2021 09:48	WG1696581
Silver	ND		0.00500	1	07/02/2021 19:21	WG1696773
Silver,Dissolved	ND		0.00500	1	06/29/2021 09:48	WG1696581
Sodium	ND		3.00	1	07/02/2021 19:21	WG1696773
Sodium,Dissolved	ND		3.00	1	06/29/2021 09:48	WG1696581
Thallium	ND		0.0100	1	07/02/2021 19:21	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/29/2021 09:48	WG1696581
Vanadium	ND		0.0200	1	07/02/2021 19:21	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/29/2021 09:48	WG1696581
Zinc	2.13		0.0500	1	07/02/2021 19:21	WG1696773
Zinc,Dissolved	2.14		0.0500	1	06/29/2021 09:48	WG1696581

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/23/2021 18:28	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 14:58	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	5.17		0.200	1	07/02/2021 19:23	WG1696773
Aluminum,Dissolved	5.10		0.200	1	06/29/2021 09:50	WG1696581
Antimony	ND		0.0100	1	07/02/2021 19:23	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/29/2021 09:50	WG1696581
Arsenic	ND		0.0100	1	07/02/2021 19:23	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/29/2021 09:50	WG1696581
Barium	0.0188		0.00500	1	07/02/2021 19:23	WG1696773
Barium,Dissolved	0.0189		0.00500	1	06/29/2021 09:50	WG1696581
Beryllium	ND		0.00200	1	07/02/2021 19:23	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/29/2021 09:50	WG1696581
Cadmium	0.0135		0.00200	1	07/02/2021 19:23	WG1696773
Cadmium,Dissolved	0.0138		0.00200	1	06/29/2021 09:50	WG1696581
Calcium	9.71		1.00	1	07/02/2021 19:23	WG1696773
Calcium,Dissolved	9.47		1.00	1	06/29/2021 09:50	WG1696581
Chromium	ND		0.0100	1	07/02/2021 19:23	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/29/2021 09:50	WG1696581
Cobalt	ND		0.0100	1	07/02/2021 19:23	WG1696773
Cobalt,Dissolved	ND		0.0100	1	06/29/2021 09:50	WG1696581
Copper	0.0262		0.0100	1	07/02/2021 19:23	WG1696773
Copper,Dissolved	0.0253		0.0100	1	06/29/2021 09:50	WG1696581
Iron	0.129		0.100	1	07/02/2021 19:23	WG1696773
Iron,Dissolved	ND		0.100	1	06/29/2021 09:50	WG1696581
Lead	0.00754		0.00600	1	07/02/2021 19:23	WG1696773
Lead,Dissolved	0.00634		0.00600	1	06/29/2021 09:50	WG1696581
Magnesium	1.22		1.00	1	07/02/2021 19:23	WG1696773
Magnesium,Dissolved	1.17		1.00	1	06/29/2021 09:50	WG1696581
Manganese	2.16		0.0100	1	07/02/2021 19:23	WG1696773
Manganese,Dissolved	2.13		0.0100	1	06/29/2021 09:50	WG1696581
Nickel	ND		0.0100	1	07/02/2021 19:23	WG1696773
Nickel,Dissolved	ND		0.0100	1	06/29/2021 09:50	WG1696581
Potassium	ND		2.00	1	07/02/2021 19:23	WG1696773
Potassium,Dissolved	ND		2.00	1	06/29/2021 09:50	WG1696581
Selenium	ND		0.0100	1	07/02/2021 19:23	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/29/2021 09:50	WG1696581
Silver	ND		0.00500	1	07/02/2021 19:23	WG1696773
Silver,Dissolved	ND		0.00500	1	06/29/2021 09:50	WG1696581
Sodium	ND		3.00	1	07/02/2021 19:23	WG1696773
Sodium,Dissolved	ND		3.00	1	06/29/2021 09:50	WG1696581
Thallium	ND		0.0100	1	07/02/2021 19:23	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/29/2021 09:50	WG1696581
Vanadium	ND		0.0200	1	07/02/2021 19:23	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/29/2021 09:50	WG1696581
Zinc	2.13		0.0500	1	07/02/2021 19:23	WG1696773
Zinc,Dissolved	2.12		0.0500	1	06/29/2021 09:50	WG1696581

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/23/2021 18:35	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 15:01	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	3.24		0.200	1	07/02/2021 19:26	WG1696773
Aluminum,Dissolved	3.13		0.200	1	06/29/2021 09:58	WG1696581
Antimony	ND		0.0100	1	07/02/2021 19:26	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/29/2021 09:58	WG1696581
Arsenic	ND		0.0100	1	07/02/2021 19:26	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/29/2021 09:58	WG1696581
Barium	0.0156		0.00500	1	07/02/2021 19:26	WG1696773
Barium,Dissolved	0.0156		0.00500	1	06/29/2021 09:58	WG1696581
Beryllium	ND		0.00200	1	07/02/2021 19:26	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/29/2021 09:58	WG1696581
Cadmium	0.00837		0.00200	1	07/02/2021 19:26	WG1696773
Cadmium,Dissolved	0.00864		0.00200	1	06/29/2021 09:58	WG1696581
Calcium	8.25		1.00	1	07/02/2021 19:26	WG1696773
Calcium,Dissolved	8.09		1.00	1	06/29/2021 09:58	WG1696581
Chromium	ND		0.0100	1	07/02/2021 19:26	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/29/2021 09:58	WG1696581
Cobalt	ND		0.0100	1	07/02/2021 19:26	WG1696773
Cobalt,Dissolved	ND		0.0100	1	06/29/2021 09:58	WG1696581
Copper	0.0309		0.0100	1	07/02/2021 19:26	WG1696773
Copper,Dissolved	0.0297		0.0100	1	06/29/2021 09:58	WG1696581
Iron	0.121		0.100	1	07/02/2021 19:26	WG1696773
Iron,Dissolved	ND		0.100	1	06/29/2021 09:58	WG1696581
Lead	0.0115		0.00600	1	07/02/2021 19:26	WG1696773
Lead,Dissolved	0.00906		0.00600	1	06/29/2021 09:58	WG1696581
Magnesium	1.28		1.00	1	07/02/2021 19:26	WG1696773
Magnesium,Dissolved	1.25		1.00	1	06/29/2021 09:58	WG1696581
Manganese	1.57		0.0100	1	07/02/2021 19:26	WG1696773
Manganese,Dissolved	1.56		0.0100	1	06/29/2021 09:58	WG1696581
Nickel	ND		0.0100	1	07/02/2021 19:26	WG1696773
Nickel,Dissolved	ND		0.0100	1	06/29/2021 09:58	WG1696581
Potassium	ND		2.00	1	07/02/2021 19:26	WG1696773
Potassium,Dissolved	ND		2.00	1	06/29/2021 09:58	WG1696581
Selenium	ND		0.0100	1	07/02/2021 19:26	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/29/2021 09:58	WG1696581
Silver	ND		0.00500	1	07/02/2021 19:26	WG1696773
Silver,Dissolved	ND		0.00500	1	06/29/2021 09:58	WG1696581
Sodium	ND		3.00	1	07/02/2021 19:26	WG1696773
Sodium,Dissolved	ND		3.00	1	06/29/2021 09:58	WG1696581
Thallium	ND		0.0100	1	07/02/2021 19:26	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/29/2021 09:58	WG1696581
Vanadium	ND		0.0200	1	07/02/2021 19:26	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/29/2021 09:58	WG1696581
Zinc	1.25		0.0500	1	07/02/2021 19:26	WG1696773
Zinc,Dissolved	1.25		0.0500	1	06/29/2021 09:58	WG1696581

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	06/23/2021 18:37	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 15:03	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	2.88		0.200	1	07/02/2021 19:29	WG1696773
Aluminum,Dissolved	2.82		0.200	1	06/29/2021 10:01	WG1696581
Antimony	ND		0.0100	1	07/02/2021 19:29	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/29/2021 10:01	WG1696581
Arsenic	ND		0.0100	1	07/02/2021 19:29	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/29/2021 10:01	WG1696581
Barium	0.0162		0.00500	1	07/02/2021 19:29	WG1696773
Barium,Dissolved	0.0156		0.00500	1	06/29/2021 10:01	WG1696581
Beryllium	ND		0.00200	1	07/02/2021 19:29	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/29/2021 10:01	WG1696581
Cadmium	0.00739		0.00200	1	07/02/2021 19:29	WG1696773
Cadmium,Dissolved	0.00740		0.00200	1	06/29/2021 10:01	WG1696581
Calcium	7.71		1.00	1	07/02/2021 19:29	WG1696773
Calcium,Dissolved	7.55		1.00	1	06/29/2021 10:01	WG1696581
Chromium	ND		0.0100	1	07/02/2021 19:29	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/29/2021 10:01	WG1696581
Cobalt	ND		0.0100	1	07/02/2021 19:29	WG1696773
Cobalt,Dissolved	ND		0.0100	1	06/29/2021 10:01	WG1696581
Copper	0.0289		0.0100	1	07/02/2021 19:29	WG1696773
Copper,Dissolved	0.0261		0.0100	1	06/29/2021 10:01	WG1696581
Iron	0.101		0.100	1	07/02/2021 19:29	WG1696773
Iron,Dissolved	ND		0.100	1	06/29/2021 10:01	WG1696581
Lead	0.0117		0.00600	1	07/02/2021 19:29	WG1696773
Lead,Dissolved	0.00980		0.00600	1	06/29/2021 10:01	WG1696581
Magnesium	1.20		1.00	1	07/02/2021 19:29	WG1696773
Magnesium,Dissolved	1.15		1.00	1	06/29/2021 10:01	WG1696581
Manganese	1.37		0.0100	1	07/02/2021 19:29	WG1696773
Manganese,Dissolved	1.37		0.0100	1	06/29/2021 10:01	WG1696581
Nickel	ND		0.0100	1	07/02/2021 19:29	WG1696773
Nickel,Dissolved	ND		0.0100	1	06/29/2021 10:01	WG1696581
Potassium	ND		2.00	1	07/02/2021 19:29	WG1696773
Potassium,Dissolved	ND		2.00	1	06/29/2021 10:01	WG1696581
Selenium	ND		0.0100	1	07/02/2021 19:29	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/29/2021 10:01	WG1696581
Silver	ND		0.00500	1	07/02/2021 19:29	WG1696773
Silver,Dissolved	ND		0.00500	1	06/29/2021 10:01	WG1696581
Sodium	ND		3.00	1	07/02/2021 19:29	WG1696773
Sodium,Dissolved	ND		3.00	1	06/29/2021 10:01	WG1696581
Thallium	ND		0.0100	1	07/02/2021 19:29	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/29/2021 10:01	WG1696581
Vanadium	ND		0.0200	1	07/02/2021 19:29	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/29/2021 10:01	WG1696581
Zinc	1.12		0.0500	1	07/02/2021 19:29	WG1696773
Zinc,Dissolved	1.14		0.0500	1	06/29/2021 10:01	WG1696581

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	06/23/2021 18:39	WG1693520
Mercury,Dissolved	ND		0.000200	1	06/24/2021 15:13	WG1693522

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Aluminum	2.88		0.200	1	07/02/2021 19:31	WG1696773
Aluminum,Dissolved	2.83		0.200	1	06/29/2021 10:03	WG1696581
Antimony	ND		0.0100	1	07/02/2021 19:31	WG1696773
Antimony,Dissolved	ND		0.0100	1	06/29/2021 10:03	WG1696581
Arsenic	ND		0.0100	1	07/02/2021 19:31	WG1696773
Arsenic,Dissolved	ND		0.0100	1	06/29/2021 10:03	WG1696581
Barium	0.0169		0.00500	1	07/02/2021 19:31	WG1696773
Barium,Dissolved	0.0161		0.00500	1	06/29/2021 10:03	WG1696581
Beryllium	ND		0.00200	1	07/02/2021 19:31	WG1696773
Beryllium,Dissolved	ND		0.00200	1	06/29/2021 10:03	WG1696581
Cadmium	0.00751		0.00200	1	07/02/2021 19:31	WG1696773
Cadmium,Dissolved	0.00786		0.00200	1	06/29/2021 10:03	WG1696581
Calcium	7.69		1.00	1	07/02/2021 19:31	WG1696773
Calcium,Dissolved	7.50		1.00	1	06/29/2021 10:03	WG1696581
Chromium	ND		0.0100	1	07/02/2021 19:31	WG1696773
Chromium,Dissolved	ND		0.0100	1	06/29/2021 10:03	WG1696581
Cobalt	ND		0.0100	1	07/02/2021 19:31	WG1696773
Cobalt,Dissolved	ND		0.0100	1	06/29/2021 10:03	WG1696581
Copper	0.0271		0.0100	1	07/02/2021 19:31	WG1696773
Copper,Dissolved	0.0266		0.0100	1	06/29/2021 10:03	WG1696581
Iron	0.111		0.100	1	07/02/2021 19:31	WG1696773
Iron,Dissolved	ND		0.100	1	06/29/2021 10:03	WG1696581
Lead	0.0118		0.00600	1	07/02/2021 19:31	WG1696773
Lead,Dissolved	0.00696		0.00600	1	06/29/2021 10:03	WG1696581
Magnesium	1.19		1.00	1	07/02/2021 19:31	WG1696773
Magnesium,Dissolved	1.17		1.00	1	06/29/2021 10:03	WG1696581
Manganese	1.36		0.0100	1	07/02/2021 19:31	WG1696773
Manganese,Dissolved	1.36		0.0100	1	06/29/2021 10:03	WG1696581
Nickel	ND		0.0100	1	07/02/2021 19:31	WG1696773
Nickel,Dissolved	ND		0.0100	1	06/29/2021 10:03	WG1696581
Potassium	ND		2.00	1	07/02/2021 19:31	WG1696773
Potassium,Dissolved	ND		2.00	1	06/29/2021 10:03	WG1696581
Selenium	ND		0.0100	1	07/02/2021 19:31	WG1696773
Selenium,Dissolved	ND		0.0100	1	06/29/2021 10:03	WG1696581
Silver	ND		0.00500	1	07/02/2021 19:31	WG1696773
Silver,Dissolved	ND		0.00500	1	06/29/2021 10:03	WG1696581
Sodium	ND		3.00	1	07/02/2021 19:31	WG1696773
Sodium,Dissolved	ND		3.00	1	06/29/2021 10:03	WG1696581
Thallium	ND		0.0100	1	07/02/2021 19:31	WG1696773
Thallium,Dissolved	ND		0.0100	1	06/29/2021 10:03	WG1696581
Vanadium	ND		0.0200	1	07/02/2021 19:31	WG1696773
Vanadium,Dissolved	ND		0.0200	1	06/29/2021 10:03	WG1696581
Zinc	1.12		0.0500	1	07/02/2021 19:31	WG1696773
Zinc,Dissolved	1.14		0.0500	1	06/29/2021 10:03	WG1696581

Method Blank (MB)

(MB) R3671116-1 06/23/21 18:09

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3671116-2 06/23/21 18:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00262	87.3	80.0-120	

L1367851-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1367851-01 06/23/21 18:14 • (MS) R3671116-3 06/23/21 18:16 • (MSD) R3671116-4 06/23/21 18:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00282	0.00277	94.2	92.2	1	75.0-125			2.09	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3671672-1 06/24/21 14:06

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury,Dissolved	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3671672-2 06/24/21 14:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury,Dissolved	0.00300	0.00333	111	80.0-120	

L1367418-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1367418-03 06/24/21 14:15 • (MS) R3671672-3 06/24/21 14:18 • (MSD) R3671672-4 06/24/21 14:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	ND	0.00303	0.00299	101	99.7	1	75.0-125			1.33	20

Method Blank (MB)

(MB) R3672695-1 06/27/21 16:05

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum,Dissolved	U		0.0561	0.200
Antimony,Dissolved	U		0.00430	0.0100
Arsenic,Dissolved	U		0.00440	0.0100
Barium,Dissolved	U		0.000736	0.00500
Beryllium,Dissolved	U		0.000330	0.00200
Cadmium,Dissolved	U		0.000479	0.00200
Calcium,Dissolved	U		0.0793	1.00
Chromium,Dissolved	U		0.00140	0.0100
Cobalt,Dissolved	U		0.000840	0.0100
Copper,Dissolved	U		0.00368	0.0100
Iron,Dissolved	U		0.0180	0.100
Lead,Dissolved	U		0.00299	0.00600
Magnesium,Dissolved	U		0.0853	1.00
Manganese,Dissolved	U		0.000934	0.0100
Nickel,Dissolved	U		0.00161	0.0100
Potassium,Dissolved	U		0.261	2.00
Selenium,Dissolved	U		0.00735	0.0100
Silver,Dissolved	U		0.00154	0.00500
Sodium,Dissolved	U		0.504	3.00
Thallium,Dissolved	U		0.00431	0.0100
Vanadium,Dissolved	U		0.00499	0.0200
Zinc,Dissolved	U		0.00652	0.0500

Method Blank (MB)

(MB) R3672863-1 06/28/21 09:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Barium,Dissolved	U		0.000736	0.00500

Laboratory Control Sample (LCS)

(LCS) R3672695-2 06/27/21 16:08

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum,Dissolved	10.0	9.08	90.8	80.0-120	
Antimony,Dissolved	1.00	0.942	94.2	80.0-120	
Arsenic,Dissolved	1.00	0.911	91.1	80.0-120	
Barium,Dissolved	1.00	0.973	97.3	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3672695-2 06/27/21 16:08

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Beryllium,Dissolved	1.00	0.934	93.4	80.0-120	
Cadmium,Dissolved	1.00	0.922	92.2	80.0-120	
Calcium,Dissolved	10.0	9.19	91.9	80.0-120	
Chromium,Dissolved	1.00	0.905	90.5	80.0-120	
Cobalt,Dissolved	1.00	0.933	93.3	80.0-120	
Copper,Dissolved	1.00	0.914	91.4	80.0-120	
Iron,Dissolved	10.0	9.22	92.2	80.0-120	
Lead,Dissolved	1.00	0.919	91.9	80.0-120	
Magnesium,Dissolved	10.0	9.10	91.0	80.0-120	
Manganese,Dissolved	1.00	0.922	92.2	80.0-120	
Nickel,Dissolved	1.00	0.930	93.0	80.0-120	
Potassium,Dissolved	10.0	9.02	90.2	80.0-120	
Selenium,Dissolved	1.00	0.946	94.6	80.0-120	
Silver,Dissolved	0.200	0.164	82.0	80.0-120	
Sodium,Dissolved	10.0	9.06	90.6	80.0-120	
Thallium,Dissolved	1.00	0.917	91.7	80.0-120	
Vanadium,Dissolved	1.00	0.931	93.1	80.0-120	
Zinc,Dissolved	1.00	0.923	92.3	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3672863-2 06/28/21 09:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium,Dissolved	1.00	0.954	95.4	80.0-120	

L1368196-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1368196-01 06/27/21 16:11 • (MS) R3672695-4 06/27/21 16:16 • (MSD) R3672695-5 06/27/21 16:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum,Dissolved	10.0	ND	9.10	9.04	91.0	90.4	1	75.0-125			0.649	20
Antimony,Dissolved	1.00	ND	1.00	1.01	100	101	1	75.0-125			0.465	20
Arsenic,Dissolved	1.00	0.0241	1.01	1.01	98.8	99.1	1	75.0-125			0.209	20
Barium,Dissolved	1.00	0.0930	1.05	1.05	95.6	95.3	1	75.0-125			0.266	20
Beryllium,Dissolved	1.00	ND	0.946	0.945	94.6	94.5	1	75.0-125			0.177	20
Cadmium,Dissolved	1.00	ND	0.987	0.982	98.7	98.2	1	75.0-125			0.535	20
Calcium,Dissolved	10.0	145	152	151	73.3	61.8	1	75.0-125	V	V	0.756	20
Chromium,Dissolved	1.00	ND	0.900	0.892	89.7	88.9	1	75.0-125			0.885	20

L1368196-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1368196-01 06/27/21 16:11 • (MS) R3672695-4 06/27/21 16:16 • (MSD) R3672695-5 06/27/21 16:19

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cobalt,Dissolved	1.00	ND	0.987	0.981	98.7	98.1	1	75.0-125			0.584	20
Copper,Dissolved	1.00	ND	0.948	0.944	94.2	93.8	1	75.0-125			0.380	20
Iron,Dissolved	10.0	9.53	18.4	18.4	88.9	88.4	1	75.0-125			0.234	20
Lead,Dissolved	1.00	ND	0.961	0.953	95.7	94.9	1	75.0-125			0.853	20
Magnesium,Dissolved	10.0	70.1	77.7	77.3	76.0	72.0	1	75.0-125		V	0.512	20
Manganese,Dissolved	1.00	4.68	5.49	5.47	81.3	79.4	1	75.0-125			0.346	20
Nickel,Dissolved	1.00	ND	0.979	0.975	97.7	97.2	1	75.0-125			0.423	20
Potassium,Dissolved	10.0	7.80	16.9	16.9	91.3	90.9	1	75.0-125			0.252	20
Selenium,Dissolved	1.00	ND	1.03	1.03	102	102	1	75.0-125			0.555	20
Silver,Dissolved	0.200	ND	0.182	0.182	91.2	90.9	1	75.0-125			0.292	20
Sodium,Dissolved	10.0	632	631	628	0.000	0.000	1	75.0-125	V	V	0.446	20
Thallium,Dissolved	1.00	ND	0.902	0.885	90.2	88.5	1	75.0-125			1.86	20
Vanadium,Dissolved	1.00	ND	0.935	0.925	93.5	92.5	1	75.0-125			1.02	20
Zinc,Dissolved	1.00	ND	0.938	0.932	93.8	93.2	1	75.0-125			0.701	20

L1368196-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1368196-01 06/28/21 09:13 • (MS) R3672863-4 06/28/21 09:19 • (MSD) R3672863-5 06/28/21 09:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium,Dissolved	1.00	0.0913	1.01	1.01	92.2	92.1	1	75.0-125			0.119	20

Method Blank (MB)

(MB) R3673376-1 06/29/21 09:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum,Dissolved	U		0.0561	0.200
Antimony,Dissolved	U		0.00430	0.0100
Arsenic,Dissolved	U		0.00440	0.0100
Barium,Dissolved	U		0.000736	0.00500
Beryllium,Dissolved	U		0.000330	0.00200
Cadmium,Dissolved	U		0.000479	0.00200
Calcium,Dissolved	U		0.0793	1.00
Chromium,Dissolved	U		0.00140	0.0100
Cobalt,Dissolved	U		0.000840	0.0100
Copper,Dissolved	U		0.00368	0.0100
Iron,Dissolved	U		0.0180	0.100
Lead,Dissolved	U		0.00299	0.00600
Magnesium,Dissolved	U		0.0853	1.00
Manganese,Dissolved	U		0.000934	0.0100
Nickel,Dissolved	U		0.00161	0.0100
Potassium,Dissolved	U		0.261	2.00
Selenium,Dissolved	U		0.00735	0.0100
Silver,Dissolved	U		0.00154	0.00500
Sodium,Dissolved	U		0.504	3.00
Thallium,Dissolved	U		0.00431	0.0100
Vanadium,Dissolved	U		0.00499	0.0200
Zinc,Dissolved	U		0.00652	0.0500

Method Blank (MB)

(MB) R3673737-1 06/30/21 03:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Lead,Dissolved	U		0.00299	0.00600
Selenium,Dissolved	U		0.00735	0.0100

Laboratory Control Sample (LCS)

(LCS) R3673376-2 06/29/21 09:28

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum,Dissolved	10.0	9.14	91.4	80.0-120	
Antimony,Dissolved	1.00	0.906	90.6	80.0-120	
Arsenic,Dissolved	1.00	0.888	88.8	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3673376-2 06/29/21 09:28

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium,Dissolved	1.00	0.953	95.3	80.0-120	
Beryllium,Dissolved	1.00	0.911	91.1	80.0-120	
Cadmium,Dissolved	1.00	0.912	91.2	80.0-120	
Calcium,Dissolved	10.0	9.10	91.0	80.0-120	
Chromium,Dissolved	1.00	0.875	87.5	80.0-120	
Cobalt,Dissolved	1.00	0.918	91.8	80.0-120	
Copper,Dissolved	1.00	0.902	90.2	80.0-120	
Iron,Dissolved	10.0	8.97	89.7	80.0-120	
Lead,Dissolved	1.00	0.894	89.4	80.0-120	
Magnesium,Dissolved	10.0	9.08	90.8	80.0-120	
Manganese,Dissolved	1.00	0.898	89.8	80.0-120	
Nickel,Dissolved	1.00	0.914	91.4	80.0-120	
Potassium,Dissolved	10.0	9.25	92.5	80.0-120	
Selenium,Dissolved	1.00	0.923	92.3	80.0-120	
Silver,Dissolved	0.200	0.170	84.9	80.0-120	
Sodium,Dissolved	10.0	9.16	91.6	80.0-120	
Thallium,Dissolved	1.00	0.907	90.7	80.0-120	
Vanadium,Dissolved	1.00	0.930	93.0	80.0-120	
Zinc,Dissolved	1.00	0.899	89.9	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3673737-2 06/30/21 03:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	1.00	0.952	95.2	80.0-120	
Selenium,Dissolved	1.00	0.949	94.9	80.0-120	

L1369622-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1369622-01 06/29/21 09:31 • (MS) R3673376-4 06/29/21 09:37 • (MSD) R3673376-5 06/29/21 09:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum,Dissolved	10.0	ND	9.31	9.27	93.1	92.7	1	75.0-125			0.485	20
Antimony,Dissolved	1.00	ND	0.961	0.974	96.1	97.4	1	75.0-125			1.33	20
Arsenic,Dissolved	1.00	ND	0.981	0.978	97.3	97.1	1	75.0-125			0.274	20
Barium,Dissolved	1.00	0.0159	0.939	0.935	92.3	91.9	1	75.0-125			0.352	20
Beryllium,Dissolved	1.00	ND	0.904	0.900	90.4	90.0	1	75.0-125			0.425	20
Cadmium,Dissolved	1.00	ND	0.981	0.981	98.1	98.1	1	75.0-125			0.0609	20

L1369622-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1369622-01 06/29/21 09:31 • (MS) R3673376-4 06/29/21 09:37 • (MSD) R3673376-5 06/29/21 09:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium,Dissolved	10.0	272	276	275	36.5	28.5	1	75.0-125	V	V	0.293	20
Chromium,Dissolved	1.00	ND	0.857	0.849	85.7	84.9	1	75.0-125			0.913	20
Cobalt,Dissolved	1.00	ND	0.978	0.973	97.7	97.2	1	75.0-125			0.428	20
Copper,Dissolved	1.00	ND	0.944	0.936	94.0	93.2	1	75.0-125			0.867	20
Iron,Dissolved	10.0	ND	8.79	8.76	87.9	87.6	1	75.0-125			0.369	20
Lead,Dissolved	1.00	ND	0.918	0.911	91.8	91.1	1	75.0-125			0.678	20
Magnesium,Dissolved	10.0	2.92	11.5	11.5	85.6	85.5	1	75.0-125			0.152	20
Manganese,Dissolved	1.00	0.121	0.996	0.992	87.5	87.0	1	75.0-125			0.480	20
Nickel,Dissolved	1.00	0.0193	0.987	0.985	96.8	96.5	1	75.0-125			0.281	20
Potassium,Dissolved	10.0	6.25	15.6	15.6	93.6	93.2	1	75.0-125			0.215	20
Selenium,Dissolved	1.00	ND	1.05	1.05	105	105	1	75.0-125			0.0280	20
Silver,Dissolved	0.200	ND	0.190	0.188	95.1	94.2	1	75.0-125			0.994	20
Sodium,Dissolved	10.0	1090	1080	1080	0.000	0.000	1	75.0-125	E V	E V	0.245	20
Thallium,Dissolved	1.00	ND	0.885	0.883	88.5	88.3	1	75.0-125			0.183	20
Vanadium,Dissolved	1.00	ND	0.938	0.930	93.8	93.0	1	75.0-125			0.836	20
Zinc,Dissolved	1.00	ND	0.916	0.912	91.6	91.2	1	75.0-125			0.384	20

L1369622-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1369622-01 06/30/21 03:09 • (MS) R3673737-4 06/30/21 03:15 • (MSD) R3673737-5 06/30/21 03:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead,Dissolved	1.00	ND	0.972	0.968	97.2	96.8	1	75.0-125			0.467	20

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3675265-1 07/02/21 18:16

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0561	0.200
Antimony	U		0.00430	0.0100
Arsenic	U		0.00440	0.0100
Barium	U		0.000736	0.00500
Beryllium	U		0.000330	0.00200
Cadmium	U		0.000479	0.00200
Calcium	U		0.0793	1.00
Chromium	U		0.00140	0.0100
Cobalt	U		0.000840	0.0100
Copper	U		0.00368	0.0100
Iron	U		0.0180	0.100
Lead	U		0.00299	0.00600
Magnesium	U		0.0853	1.00
Manganese	U		0.000934	0.0100
Nickel	U		0.00161	0.0100
Potassium	U		0.261	2.00
Selenium	U		0.00735	0.0100
Silver	U		0.00154	0.00500
Sodium	U		0.504	3.00
Thallium	U		0.00431	0.0100
Vanadium	U		0.00499	0.0200
Zinc	U		0.00652	0.0500

Laboratory Control Sample (LCS)

(LCS) R3675265-2 07/02/21 18:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	10.0	9.67	96.7	80.0-120	
Antimony	1.00	0.943	94.3	80.0-120	
Arsenic	1.00	0.935	93.5	80.0-120	
Barium	1.00	0.992	99.2	80.0-120	
Beryllium	1.00	0.960	96.0	80.0-120	
Cadmium	1.00	0.953	95.3	80.0-120	
Calcium	10.0	9.79	97.9	80.0-120	
Chromium	1.00	0.944	94.4	80.0-120	
Cobalt	1.00	0.973	97.3	80.0-120	
Copper	1.00	0.958	95.8	80.0-120	
Iron	10.0	9.55	95.5	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3675265-2 07/02/21 18:19

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	1.00	0.951	95.1	80.0-120	
Magnesium	10.0	9.68	96.8	80.0-120	
Manganese	1.00	0.959	95.9	80.0-120	
Nickel	1.00	0.962	96.2	80.0-120	
Potassium	10.0	9.54	95.4	80.0-120	
Selenium	1.00	0.944	94.4	80.0-120	
Silver	0.200	0.190	94.9	80.0-120	
Sodium	10.0	9.79	97.9	80.0-120	
Thallium	1.00	0.947	94.7	80.0-120	
Vanadium	1.00	0.985	98.5	80.0-120	
Zinc	1.00	0.952	95.2	80.0-120	

L1367680-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1367680-01 07/02/21 18:22 • (MS) R3675265-4 07/02/21 18:27 • (MSD) R3675265-5 07/02/21 18:29

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	10.0	ND	9.60	9.41	95.1	93.3	1	75.0-125			1.98	20
Antimony	1.00	ND	0.941	0.932	94.1	93.2	1	75.0-125			1.00	20
Arsenic	1.00	ND	0.926	0.913	92.6	91.3	1	75.0-125			1.46	20
Barium	1.00	0.0800	1.06	1.04	97.7	96.5	1	75.0-125			1.14	20
Beryllium	1.00	ND	0.947	0.930	94.6	92.9	1	75.0-125			1.79	20
Cadmium	1.00	ND	0.946	0.933	94.6	93.3	1	75.0-125			1.38	20
Calcium	10.0	ND	10.5	10.3	95.7	93.7	1	75.0-125			1.89	20
Chromium	1.00	ND	0.921	0.911	92.1	91.1	1	75.0-125			1.09	20
Cobalt	1.00	ND	0.968	0.952	96.6	95.0	1	75.0-125			1.67	20
Copper	1.00	ND	0.951	0.934	95.1	93.4	1	75.0-125			1.77	20
Iron	10.0	ND	9.41	9.22	93.5	91.6	1	75.0-125			2.10	20
Lead	1.00	ND	0.939	0.922	93.9	92.2	1	75.0-125			1.82	20
Magnesium	10.0	ND	9.64	9.43	95.5	93.5	1	75.0-125			2.12	20
Manganese	1.00	0.263	1.19	1.17	92.8	91.2	1	75.0-125			1.39	20
Nickel	1.00	ND	0.957	0.942	95.5	94.0	1	75.0-125			1.56	20
Potassium	10.0	ND	10.3	10.1	93.1	91.2	1	75.0-125			1.83	20
Selenium	1.00	ND	0.945	0.922	94.5	92.2	1	75.0-125			2.47	20
Silver	0.200	ND	0.186	0.184	93.2	92.0	1	75.0-125			1.23	20
Sodium	10.0	34.0	42.6	42.2	85.1	81.8	1	75.0-125			0.777	20
Thallium	1.00	ND	0.924	0.912	92.4	91.2	1	75.0-125			1.35	20
Vanadium	1.00	ND	0.975	0.950	97.5	95.0	1	75.0-125			2.56	20
Zinc	1.00	ND	0.947	0.937	94.7	93.7	1	75.0-125			1.14	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Herndon-Group
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Billing Information:
Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Report to:
Roy Weindorf

Email To: **roy.weindorf@herndon-group.com**

Project Description: Burrows

City/State Collected: Silverton, CO

Please Circle: PT MT CT ET

Phone: **866-487-3895**

Client Project #

Lab Project #

Collected by (print): Rory Cowie

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	M6010TAL 250mlHDPE-HNO3 Total metal	250mL HDPE-HNO3-Filtered									Remarks	Sample # (lab only)
B6_SW_A07_G	Grab	GW		6/12/21	1300	2	X	X										-01
B6_SW_HT	Grab	GW		6/12/21	1400	2	X	X										-02
B6_SW_A07_D1	Grab	GW		6/12/21	1415	2	X	X										-03
B6_SW_A07_C1	Grab	GW		6/12/21	1445	2	X	X										-04
B6_SW_A07_B	Grab	GW		6/12/21	1600	2	X	X										-05
B6_SW_A07	Grab	GW		6/12/21	1630	2	X	X										-06
B6_SW_S	Grab	GW		6/12/21	1700	2	X	X										-07
B6_SW_DS	Grab	GW		6/12/21	1700	2	X	X									Duplicate	-08
		GW				1	X											
		GW				1	X											

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: All samples Field preserved → HNO_3
Total metals (not filtered) & Dissolved metals → Field filtered 0.45 um

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 5117 4430 2721

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	6/16/21	1200	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: °C Bottles Received:
33.2=31 16

Date: 06-17-21 Time: 0715

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Chain of Custody Page 1 of 1

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1367851

Table # L-220

Acctnum: **HERGROSCO**
Template: **T186957**
Prelogin: **P854441**
PM: **824 - Chris Ward**
PB:
Shipped Via: **FedEX Ground**

ANALYTICAL REPORT

July 22, 2021

Herndon-Group

Sample Delivery Group:	L1376275
Samples Received:	07/09/2021
Project Number:	
Description:	

Report To: Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 6

Sr: Sample Results 7

- BG-SW-BG1A L1376275-01 7
- BG-SW-BG1A L1376275-02 8
- BG-SD-BG1A L1376275-03 9
- BG-SW-A07G L1376275-04 10
- BG-SD-A07G L1376275-05 11
- BG-SW-A07C1 L1376275-06 12
- BG-SD-A07C1 L1376275-07 13
- BG-SW-A07E L1376275-08 14
- BG-SD-A07E L1376275-09 15
- BG-SW-A07B L1376275-10 16
- BG-SD-A07B L1376275-11 17
- BG-SW-97B L1376275-12 18
- BG-SD-97B L1376275-13 19
- BG-SW-A07 L1376275-14 20
- BG-SD-A07 L1376275-15 21
- BG-SW-BG4 L1376275-16 22
- BG-SD-BG4 L1376275-17 23

Qc: Quality Control Summary 24

- Mercury by Method 7470A 24
- Mercury by Method 7471A 27
- Metals (ICP) by Method 6010B 29

Gl: Glossary of Terms 36

Al: Accreditations & Locations 37

Sc: Sample Chain of Custody 38

BG-SW-BG1A L1376275-01 GW

Collected by: Anne E. | Collected date/time: 07/06/21 10:20 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:43	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 17:08	CCE	Mt. Juliet, TN

BG-SW-BG1A L1376275-02 GW

Collected by: Anne E. | Collected date/time: 07/06/21 10:20 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1704486	1	07/14/21 09:50	07/14/21 17:02	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 02:41	CCE	Mt. Juliet, TN

BG-SD-BG1A L1376275-03 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 10:20 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703708	1	07/12/21 13:21	07/13/21 08:31	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	10	07/15/21 08:53	07/16/21 06:22	CCE	Mt. Juliet, TN

BG-SW-A07G L1376275-04 GW

Collected by: Anne E. | Collected date/time: 07/06/21 11:00 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:45	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1704486	1	07/14/21 09:50	07/14/21 17:08	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 17:11	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 02:43	CCE	Mt. Juliet, TN

BG-SD-A07G L1376275-05 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 11:00 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703886	1	07/13/21 10:12	07/13/21 17:59	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	1	07/15/21 08:53	07/16/21 01:23	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	10	07/15/21 08:53	07/16/21 08:14	CCE	Mt. Juliet, TN

BG-SW-A07C1 L1376275-06 GW

Collected by: Anne E. | Collected date/time: 07/06/21 12:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:47	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1704486	1	07/14/21 09:50	07/14/21 17:10	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 17:13	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 02:51	CCE	Mt. Juliet, TN

BG-SD-A07C1 L1376275-07 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 12:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703886	1	07/13/21 10:12	07/13/21 18:01	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	1	07/15/21 08:53	07/16/21 01:26	CCE	Mt. Juliet, TN

BG-SW-A07E L1376275-08 GW

Collected by: Anne E. | Collected date/time: 07/06/21 11:45 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:49	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1704486	1	07/14/21 09:50	07/14/21 17:12	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 17:16	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 02:54	CCE	Mt. Juliet, TN

BG-SD-A07E L1376275-09 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 11:45 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703886	1	07/13/21 10:12	07/13/21 18:04	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	1	07/15/21 08:53	07/16/21 01:29	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	5	07/15/21 08:53	07/16/21 06:27	CCE	Mt. Juliet, TN

BG-SW-A07B L1376275-10 GW

Collected by: Anne E. | Collected date/time: 07/06/21 13:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:51	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1704486	1	07/14/21 09:50	07/14/21 17:14	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 17:19	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 02:57	CCE	Mt. Juliet, TN

BG-SD-A07B L1376275-11 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 13:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703886	1	07/13/21 10:12	07/13/21 18:06	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	10	07/15/21 08:53	07/16/21 06:30	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	20	07/15/21 08:53	07/16/21 08:17	CCE	Mt. Juliet, TN

BG-SW-97B L1376275-12 GW

Collected by: Anne E. | Collected date/time: 07/06/21 13:55 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:53	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1704486	1	07/14/21 09:50	07/14/21 17:16	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 17:22	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 02:59	CCE	Mt. Juliet, TN

BG-SD-97B L1376275-13 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 13:55 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703886	1	07/13/21 10:12	07/13/21 18:09	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	10	07/15/21 08:53	07/16/21 06:33	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	20	07/15/21 08:53	07/16/21 08:20	CCE	Mt. Juliet, TN

BG-SW-A07 L1376275-14 GW

Collected by: Anne E. | Collected date/time: 07/06/21 14:25 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:55	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1705230	1	07/14/21 15:54	07/15/21 11:12	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 17:25	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 03:02	CCE	Mt. Juliet, TN

BG-SD-A07 L1376275-15 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 14:25 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703886	1	07/13/21 10:12	07/13/21 18:23	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	10	07/15/21 08:53	07/16/21 06:36	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	20	07/15/21 08:53	07/16/21 08:23	CCE	Mt. Juliet, TN

BG-SW-BG4 L1376275-16 GW

Collected by: Anne E. | Collected date/time: 07/06/21 16:20 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1703927	1	07/13/21 10:46	07/13/21 16:28	BMF	Mt. Juliet, TN
Mercury by Method 7470A	WG1705230	1	07/14/21 15:54	07/15/21 11:06	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708626	1	07/21/21 12:15	07/21/21 16:32	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1708986	1	07/21/21 20:35	07/22/21 02:03	CCE	Mt. Juliet, TN

BG-SD-BG4 L1376275-17 Solid

Collected by: Anne E. | Collected date/time: 07/06/21 16:20 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703886	1	07/13/21 10:12	07/13/21 17:51	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	1	07/15/21 08:53	07/16/21 01:41	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1703994	5	07/15/21 08:53	07/16/21 06:39	CCE	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward
Project Manager

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/13/2021 16:43	WG1703927

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	0.821		0.200	1	07/21/2021 17:08	WG1708626
Antimony	ND		0.0100	1	07/21/2021 17:08	WG1708626
Arsenic	ND		0.0100	1	07/21/2021 17:08	WG1708626
Barium	0.0170		0.00500	1	07/21/2021 17:08	WG1708626
Beryllium	ND		0.00200	1	07/21/2021 17:08	WG1708626
Cadmium	ND		0.00200	1	07/21/2021 17:08	WG1708626
Calcium	7.49		1.00	1	07/21/2021 17:08	WG1708626
Chromium	ND		0.0100	1	07/21/2021 17:08	WG1708626
Cobalt	ND		0.0100	1	07/21/2021 17:08	WG1708626
Copper	0.0109		0.0100	1	07/21/2021 17:08	WG1708626
Iron	ND		0.100	1	07/21/2021 17:08	WG1708626
Lead	0.0194		0.00600	1	07/21/2021 17:08	WG1708626
Magnesium	ND		1.00	1	07/21/2021 17:08	WG1708626
Manganese	0.259		0.0100	1	07/21/2021 17:08	WG1708626
Nickel	ND		0.0100	1	07/21/2021 17:08	WG1708626
Potassium	ND		2.00	1	07/21/2021 17:08	WG1708626
Selenium	ND		0.0100	1	07/21/2021 17:08	WG1708626
Silver	ND		0.00500	1	07/21/2021 17:08	WG1708626
Sodium	ND		3.00	1	07/21/2021 17:08	WG1708626
Thallium	ND		0.0100	1	07/21/2021 17:08	WG1708626
Vanadium	ND		0.0200	1	07/21/2021 17:08	WG1708626
Zinc	0.277		0.0500	1	07/21/2021 17:08	WG1708626

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury,Dissolved	ND		0.000200	1	07/14/2021 17:02	WG1704486

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum,Dissolved	0.233		0.200	1	07/22/2021 02:41	WG1708986
Antimony,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Barium,Dissolved	0.0176	B	0.00500	1	07/22/2021 02:41	WG1708986
Beryllium,Dissolved	ND		0.00200	1	07/22/2021 02:41	WG1708986
Cadmium,Dissolved	ND		0.00200	1	07/22/2021 02:41	WG1708986
Calcium,Dissolved	7.64		1.00	1	07/22/2021 02:41	WG1708986
Chromium,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Copper,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Iron,Dissolved	ND		0.100	1	07/22/2021 02:41	WG1708986
Lead,Dissolved	0.00942		0.00600	1	07/22/2021 02:41	WG1708986
Magnesium,Dissolved	ND		1.00	1	07/22/2021 02:41	WG1708986
Manganese,Dissolved	0.235		0.0100	1	07/22/2021 02:41	WG1708986
Nickel,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Potassium,Dissolved	ND		2.00	1	07/22/2021 02:41	WG1708986
Selenium,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Silver,Dissolved	ND		0.00500	1	07/22/2021 02:41	WG1708986
Sodium,Dissolved	ND		3.00	1	07/22/2021 02:41	WG1708986
Thallium,Dissolved	ND		0.0100	1	07/22/2021 02:41	WG1708986
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 02:41	WG1708986
Zinc,Dissolved	0.286		0.0500	1	07/22/2021 02:41	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/13/2021 08:31	WG1703708

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9990		200	10	07/16/2021 06:22	WG1703994
Antimony	ND		20.0	10	07/16/2021 06:22	WG1703994
Arsenic	41.7		20.0	10	07/16/2021 06:22	WG1703994
Barium	61.4		5.00	10	07/16/2021 06:22	WG1703994
Beryllium	ND		2.00	10	07/16/2021 06:22	WG1703994
Cadmium	ND		5.00	10	07/16/2021 06:22	WG1703994
Calcium	ND		1000	10	07/16/2021 06:22	WG1703994
Chromium	15.9		10.0	10	07/16/2021 06:22	WG1703994
Cobalt	19.7		10.0	10	07/16/2021 06:22	WG1703994
Copper	117		20.0	10	07/16/2021 06:22	WG1703994
Iron	15400		100	10	07/16/2021 06:22	WG1703994
Lead	568		5.00	10	07/16/2021 06:22	WG1703994
Magnesium	2150		1000	10	07/16/2021 06:22	WG1703994
Manganese	6650		10.0	10	07/16/2021 06:22	WG1703994
Nickel	37.3		20.0	10	07/16/2021 06:22	WG1703994
Potassium	1150		1000	10	07/16/2021 06:22	WG1703994
Selenium	ND		20.0	10	07/16/2021 06:22	WG1703994
Silver	ND		10.0	10	07/16/2021 06:22	WG1703994
Sodium	ND		1000	10	07/16/2021 06:22	WG1703994
Thallium	ND		20.0	10	07/16/2021 06:22	WG1703994
Vanadium	ND		20.0	10	07/16/2021 06:22	WG1703994
Zinc	444		50.0	10	07/16/2021 06:22	WG1703994

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/13/2021 16:45	WG1703927
Mercury,Dissolved	ND		0.000200	1	07/14/2021 17:08	WG1704486

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	0.423		0.200	1	07/21/2021 17:11	WG1708626
Aluminum,Dissolved	0.402		0.200	1	07/22/2021 02:43	WG1708986
Antimony	ND		0.0100	1	07/21/2021 17:11	WG1708626
Antimony,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Arsenic	ND		0.0100	1	07/21/2021 17:11	WG1708626
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Barium	0.0174		0.00500	1	07/21/2021 17:11	WG1708626
Barium,Dissolved	0.0183	B	0.00500	1	07/22/2021 02:43	WG1708986
Beryllium	ND		0.00200	1	07/21/2021 17:11	WG1708626
Beryllium,Dissolved	ND		0.00200	1	07/22/2021 02:43	WG1708986
Cadmium	ND		0.00200	1	07/21/2021 17:11	WG1708626
Cadmium,Dissolved	ND		0.00200	1	07/22/2021 02:43	WG1708986
Calcium	6.97		1.00	1	07/21/2021 17:11	WG1708626
Calcium,Dissolved	6.94		1.00	1	07/22/2021 02:43	WG1708986
Chromium	ND		0.0100	1	07/21/2021 17:11	WG1708626
Chromium,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Cobalt	ND		0.0100	1	07/21/2021 17:11	WG1708626
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Copper	ND		0.0100	1	07/21/2021 17:11	WG1708626
Copper,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Iron	ND		0.100	1	07/21/2021 17:11	WG1708626
Iron,Dissolved	ND		0.100	1	07/22/2021 02:43	WG1708986
Lead	0.0105		0.00600	1	07/21/2021 17:11	WG1708626
Lead,Dissolved	0.00867		0.00600	1	07/22/2021 02:43	WG1708986
Magnesium	ND		1.00	1	07/21/2021 17:11	WG1708626
Magnesium,Dissolved	ND		1.00	1	07/22/2021 02:43	WG1708986
Manganese	0.242		0.0100	1	07/21/2021 17:11	WG1708626
Manganese,Dissolved	0.237		0.0100	1	07/22/2021 02:43	WG1708986
Nickel	ND		0.0100	1	07/21/2021 17:11	WG1708626
Nickel,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Potassium	ND		2.00	1	07/21/2021 17:11	WG1708626
Potassium,Dissolved	ND		2.00	1	07/22/2021 02:43	WG1708986
Selenium	ND		0.0100	1	07/21/2021 17:11	WG1708626
Selenium,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Silver	ND		0.00500	1	07/21/2021 17:11	WG1708626
Silver,Dissolved	ND		0.00500	1	07/22/2021 02:43	WG1708986
Sodium	ND		3.00	1	07/21/2021 17:11	WG1708626
Sodium,Dissolved	ND		3.00	1	07/22/2021 02:43	WG1708986
Thallium	ND		0.0100	1	07/21/2021 17:11	WG1708626
Thallium,Dissolved	ND		0.0100	1	07/22/2021 02:43	WG1708986
Vanadium	ND		0.0200	1	07/21/2021 17:11	WG1708626
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 02:43	WG1708986
Zinc	0.256		0.0500	1	07/21/2021 17:11	WG1708626
Zinc,Dissolved	0.272		0.0500	1	07/22/2021 02:43	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/13/2021 17:59	WG1703886

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	10200		20.0	1	07/16/2021 01:23	WG1703994
Antimony	2.01		2.00	1	07/16/2021 01:23	WG1703994
Arsenic	90.7		2.00	1	07/16/2021 01:23	WG1703994
Barium	37.5		0.500	1	07/16/2021 01:23	WG1703994
Beryllium	0.772		0.200	1	07/16/2021 01:23	WG1703994
Cadmium	1.63		0.500	1	07/16/2021 01:23	WG1703994
Calcium	780		100	1	07/16/2021 01:23	WG1703994
Chromium	3.24		1.00	1	07/16/2021 01:23	WG1703994
Cobalt	14.7		1.00	1	07/16/2021 01:23	WG1703994
Copper	106		2.00	1	07/16/2021 01:23	WG1703994
Iron	23000		10.0	1	07/16/2021 01:23	WG1703994
Lead	895		0.500	1	07/16/2021 01:23	WG1703994
Magnesium	2040		100	1	07/16/2021 01:23	WG1703994
Manganese	4840		10.0	10	07/16/2021 08:14	WG1703994
Nickel	4.81		2.00	1	07/16/2021 01:23	WG1703994
Potassium	1630		100	1	07/16/2021 01:23	WG1703994
Selenium	2.47		2.00	1	07/16/2021 01:23	WG1703994
Silver	3.12		1.00	1	07/16/2021 01:23	WG1703994
Sodium	ND		100	1	07/16/2021 01:23	WG1703994
Thallium	ND		2.00	1	07/16/2021 01:23	WG1703994
Vanadium	9.15		2.00	1	07/16/2021 01:23	WG1703994
Zinc	290		5.00	1	07/16/2021 01:23	WG1703994

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/13/2021 16:47	WG1703927
Mercury,Dissolved	ND		0.000200	1	07/14/2021 17:10	WG1704486

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	6.77		0.200	1	07/21/2021 17:13	WG1708626
Aluminum,Dissolved	6.88		0.200	1	07/22/2021 02:51	WG1708986
Antimony	ND		0.0100	1	07/21/2021 17:13	WG1708626
Antimony,Dissolved	ND		0.0100	1	07/22/2021 02:51	WG1708986
Arsenic	ND		0.0100	1	07/21/2021 17:13	WG1708626
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 02:51	WG1708986
Barium	0.0269		0.00500	1	07/21/2021 17:13	WG1708626
Barium,Dissolved	0.0279	B	0.00500	1	07/22/2021 02:51	WG1708986
Beryllium	ND		0.00200	1	07/21/2021 17:13	WG1708626
Beryllium,Dissolved	ND		0.00200	1	07/22/2021 02:51	WG1708986
Cadmium	0.0144		0.00200	1	07/21/2021 17:13	WG1708626
Cadmium,Dissolved	0.0149		0.00200	1	07/22/2021 02:51	WG1708986
Calcium	9.61		1.00	1	07/21/2021 17:13	WG1708626
Calcium,Dissolved	9.70		1.00	1	07/22/2021 02:51	WG1708986
Chromium	ND		0.0100	1	07/21/2021 17:13	WG1708626
Chromium,Dissolved	ND		0.0100	1	07/22/2021 02:51	WG1708986
Cobalt	ND		0.0100	1	07/21/2021 17:13	WG1708626
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 02:51	WG1708986
Copper	0.0466		0.0100	1	07/21/2021 17:13	WG1708626
Copper,Dissolved	0.0467		0.0100	1	07/22/2021 02:51	WG1708986
Iron	ND		0.100	1	07/21/2021 17:13	WG1708626
Iron,Dissolved	ND		0.100	1	07/22/2021 02:51	WG1708986
Lead	0.0132		0.00600	1	07/21/2021 17:13	WG1708626
Lead,Dissolved	0.0124		0.00600	1	07/22/2021 02:51	WG1708986
Magnesium	1.36		1.00	1	07/21/2021 17:13	WG1708626
Magnesium,Dissolved	1.35		1.00	1	07/22/2021 02:51	WG1708986
Manganese	2.45		0.0100	1	07/21/2021 17:13	WG1708626
Manganese,Dissolved	2.48		0.0100	1	07/22/2021 02:51	WG1708986
Nickel	ND		0.0100	1	07/21/2021 17:13	WG1708626
Nickel,Dissolved	ND		0.0100	1	07/22/2021 02:51	WG1708986
Potassium	ND		2.00	1	07/21/2021 17:13	WG1708626
Potassium,Dissolved	ND		2.00	1	07/22/2021 02:51	WG1708986
Selenium	ND		0.0100	1	07/21/2021 17:13	WG1708626
Selenium,Dissolved	ND		0.0100	1	07/22/2021 02:51	WG1708986
Silver	ND		0.00500	1	07/21/2021 17:13	WG1708626
Silver,Dissolved	ND		0.00500	1	07/22/2021 02:51	WG1708986
Sodium	ND		3.00	1	07/21/2021 17:13	WG1708626
Sodium,Dissolved	ND		3.00	1	07/22/2021 02:51	WG1708986
Thallium	ND		0.0100	1	07/21/2021 17:13	WG1708626
Thallium,Dissolved	ND		0.0100	1	07/22/2021 02:51	WG1708986
Vanadium	ND		0.0200	1	07/21/2021 17:13	WG1708626
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 02:51	WG1708986
Zinc	2.36		0.0500	1	07/21/2021 17:13	WG1708626
Zinc,Dissolved	2.44		0.0500	1	07/22/2021 02:51	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0477		0.0400	1	07/13/2021 18:01	WG1703886

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	12500		20.0	1	07/16/2021 01:26	WG1703994
Antimony	ND		2.00	1	07/16/2021 01:26	WG1703994
Arsenic	16.3		2.00	1	07/16/2021 01:26	WG1703994
Barium	43.3		0.500	1	07/16/2021 01:26	WG1703994
Beryllium	0.441		0.200	1	07/16/2021 01:26	WG1703994
Cadmium	ND		0.500	1	07/16/2021 01:26	WG1703994
Calcium	353		100	1	07/16/2021 01:26	WG1703994
Chromium	7.09		1.00	1	07/16/2021 01:26	WG1703994
Cobalt	3.02		1.00	1	07/16/2021 01:26	WG1703994
Copper	46.0		2.00	1	07/16/2021 01:26	WG1703994
Iron	10100		10.0	1	07/16/2021 01:26	WG1703994
Lead	158		0.500	1	07/16/2021 01:26	WG1703994
Magnesium	2620		100	1	07/16/2021 01:26	WG1703994
Manganese	201		1.00	1	07/16/2021 01:26	WG1703994
Nickel	5.00		2.00	1	07/16/2021 01:26	WG1703994
Potassium	1720		100	1	07/16/2021 01:26	WG1703994
Selenium	ND		2.00	1	07/16/2021 01:26	WG1703994
Silver	2.08		1.00	1	07/16/2021 01:26	WG1703994
Sodium	ND		100	1	07/16/2021 01:26	WG1703994
Thallium	ND		2.00	1	07/16/2021 01:26	WG1703994
Vanadium	16.2		2.00	1	07/16/2021 01:26	WG1703994
Zinc	226		5.00	1	07/16/2021 01:26	WG1703994

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/13/2021 16:49	WG1703927
Mercury,Dissolved	ND		0.000200	1	07/14/2021 17:12	WG1704486

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	3.37		0.200	1	07/21/2021 17:16	WG1708626
Aluminum,Dissolved	3.44		0.200	1	07/22/2021 02:54	WG1708986
Antimony	ND		0.0100	1	07/21/2021 17:16	WG1708626
Antimony,Dissolved	ND		0.0100	1	07/22/2021 02:54	WG1708986
Arsenic	ND		0.0100	1	07/21/2021 17:16	WG1708626
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 02:54	WG1708986
Barium	0.0152		0.00500	1	07/21/2021 17:16	WG1708626
Barium,Dissolved	0.0159	B	0.00500	1	07/22/2021 02:54	WG1708986
Beryllium	ND		0.00200	1	07/21/2021 17:16	WG1708626
Beryllium,Dissolved	ND		0.00200	1	07/22/2021 02:54	WG1708986
Cadmium	0.00501		0.00200	1	07/21/2021 17:16	WG1708626
Cadmium,Dissolved	0.00487		0.00200	1	07/22/2021 02:54	WG1708986
Calcium	7.10		1.00	1	07/21/2021 17:16	WG1708626
Calcium,Dissolved	7.22		1.00	1	07/22/2021 02:54	WG1708986
Chromium	ND		0.0100	1	07/21/2021 17:16	WG1708626
Chromium,Dissolved	ND		0.0100	1	07/22/2021 02:54	WG1708986
Cobalt	ND		0.0100	1	07/21/2021 17:16	WG1708626
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 02:54	WG1708986
Copper	0.0290		0.0100	1	07/21/2021 17:16	WG1708626
Copper,Dissolved	0.0293		0.0100	1	07/22/2021 02:54	WG1708986
Iron	0.113		0.100	1	07/21/2021 17:16	WG1708626
Iron,Dissolved	ND		0.100	1	07/22/2021 02:54	WG1708986
Lead	0.0127		0.00600	1	07/21/2021 17:16	WG1708626
Lead,Dissolved	0.0127		0.00600	1	07/22/2021 02:54	WG1708986
Magnesium	ND		1.00	1	07/21/2021 17:16	WG1708626
Magnesium,Dissolved	ND		1.00	1	07/22/2021 02:54	WG1708986
Manganese	1.50		0.0100	1	07/21/2021 17:16	WG1708626
Manganese,Dissolved	1.52		0.0100	1	07/22/2021 02:54	WG1708986
Nickel	ND		0.0100	1	07/21/2021 17:16	WG1708626
Nickel,Dissolved	ND		0.0100	1	07/22/2021 02:54	WG1708986
Potassium	ND		2.00	1	07/21/2021 17:16	WG1708626
Potassium,Dissolved	ND		2.00	1	07/22/2021 02:54	WG1708986
Selenium	ND		0.0100	1	07/21/2021 17:16	WG1708626
Selenium,Dissolved	ND		0.0100	1	07/22/2021 02:54	WG1708986
Silver	ND		0.00500	1	07/21/2021 17:16	WG1708626
Silver,Dissolved	ND		0.00500	1	07/22/2021 02:54	WG1708986
Sodium	ND		3.00	1	07/21/2021 17:16	WG1708626
Sodium,Dissolved	ND		3.00	1	07/22/2021 02:54	WG1708986
Thallium	ND		0.0100	1	07/21/2021 17:16	WG1708626
Thallium,Dissolved	ND		0.0100	1	07/22/2021 02:54	WG1708986
Vanadium	ND		0.0200	1	07/21/2021 17:16	WG1708626
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 02:54	WG1708986
Zinc	0.714		0.0500	1	07/21/2021 17:16	WG1708626
Zinc,Dissolved	0.750		0.0500	1	07/22/2021 02:54	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/13/2021 18:04	WG1703886

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	4720		20.0	1	07/16/2021 01:29	WG1703994
Antimony	2.80		2.00	1	07/16/2021 01:29	WG1703994
Arsenic	62.7		2.00	1	07/16/2021 01:29	WG1703994
Barium	35.1		0.500	1	07/16/2021 01:29	WG1703994
Beryllium	0.353		0.200	1	07/16/2021 01:29	WG1703994
Cadmium	ND		0.500	1	07/16/2021 01:29	WG1703994
Calcium	ND		100	1	07/16/2021 01:29	WG1703994
Chromium	12.3		1.00	1	07/16/2021 01:29	WG1703994
Cobalt	6.52		1.00	1	07/16/2021 01:29	WG1703994
Copper	49.7		2.00	1	07/16/2021 01:29	WG1703994
Iron	43900		10.0	1	07/16/2021 01:29	WG1703994
Lead	273		0.500	1	07/16/2021 01:29	WG1703994
Magnesium	1060		100	1	07/16/2021 01:29	WG1703994
Manganese	1580		5.00	5	07/16/2021 06:27	WG1703994
Nickel	3.65		2.00	1	07/16/2021 01:29	WG1703994
Potassium	1460		100	1	07/16/2021 01:29	WG1703994
Selenium	ND		2.00	1	07/16/2021 01:29	WG1703994
Silver	1.03		1.00	1	07/16/2021 01:29	WG1703994
Sodium	ND		100	1	07/16/2021 01:29	WG1703994
Thallium	ND		2.00	1	07/16/2021 01:29	WG1703994
Vanadium	13.8		2.00	1	07/16/2021 01:29	WG1703994
Zinc	139		5.00	1	07/16/2021 01:29	WG1703994

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/13/2021 16:51	WG1703927
Mercury,Dissolved	ND		0.000200	1	07/14/2021 17:14	WG1704486

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	6.52		0.200	1	07/21/2021 17:19	WG1708626
Aluminum,Dissolved	6.69		0.200	1	07/22/2021 02:57	WG1708986
Antimony	ND		0.0100	1	07/21/2021 17:19	WG1708626
Antimony,Dissolved	ND		0.0100	1	07/22/2021 02:57	WG1708986
Arsenic	ND		0.0100	1	07/21/2021 17:19	WG1708626
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 02:57	WG1708986
Barium	0.0231		0.00500	1	07/21/2021 17:19	WG1708626
Barium,Dissolved	0.0238	B	0.00500	1	07/22/2021 02:57	WG1708986
Beryllium	0.00280		0.00200	1	07/21/2021 17:19	WG1708626
Beryllium,Dissolved	0.00278		0.00200	1	07/22/2021 02:57	WG1708986
Cadmium	0.0134		0.00200	1	07/21/2021 17:19	WG1708626
Cadmium,Dissolved	0.0138		0.00200	1	07/22/2021 02:57	WG1708986
Calcium	12.9		1.00	1	07/21/2021 17:19	WG1708626
Calcium,Dissolved	13.1		1.00	1	07/22/2021 02:57	WG1708986
Chromium	ND		0.0100	1	07/21/2021 17:19	WG1708626
Chromium,Dissolved	ND		0.0100	1	07/22/2021 02:57	WG1708986
Cobalt	ND		0.0100	1	07/21/2021 17:19	WG1708626
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 02:57	WG1708986
Copper	0.0370		0.0100	1	07/21/2021 17:19	WG1708626
Copper,Dissolved	0.0364		0.0100	1	07/22/2021 02:57	WG1708986
Iron	0.119		0.100	1	07/21/2021 17:19	WG1708626
Iron,Dissolved	0.113		0.100	1	07/22/2021 02:57	WG1708986
Lead	0.0103		0.00600	1	07/21/2021 17:19	WG1708626
Lead,Dissolved	0.0108		0.00600	1	07/22/2021 02:57	WG1708986
Magnesium	1.77		1.00	1	07/21/2021 17:19	WG1708626
Magnesium,Dissolved	1.72		1.00	1	07/22/2021 02:57	WG1708986
Manganese	2.93		0.0100	1	07/21/2021 17:19	WG1708626
Manganese,Dissolved	2.99		0.0100	1	07/22/2021 02:57	WG1708986
Nickel	ND		0.0100	1	07/21/2021 17:19	WG1708626
Nickel,Dissolved	ND		0.0100	1	07/22/2021 02:57	WG1708986
Potassium	ND		2.00	1	07/21/2021 17:19	WG1708626
Potassium,Dissolved	ND		2.00	1	07/22/2021 02:57	WG1708986
Selenium	ND		0.0100	1	07/21/2021 17:19	WG1708626
Selenium,Dissolved	ND		0.0100	1	07/22/2021 02:57	WG1708986
Silver	ND		0.00500	1	07/21/2021 17:19	WG1708626
Silver,Dissolved	ND		0.00500	1	07/22/2021 02:57	WG1708986
Sodium	ND		3.00	1	07/21/2021 17:19	WG1708626
Sodium,Dissolved	ND		3.00	1	07/22/2021 02:57	WG1708986
Thallium	ND		0.0100	1	07/21/2021 17:19	WG1708626
Thallium,Dissolved	ND		0.0100	1	07/22/2021 02:57	WG1708986
Vanadium	ND		0.0200	1	07/21/2021 17:19	WG1708626
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 02:57	WG1708986
Zinc	2.40		0.0500	1	07/21/2021 17:19	WG1708626
Zinc,Dissolved	2.47		0.0500	1	07/22/2021 02:57	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/13/2021 18:06	WG1703886

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	13900		200	10	07/16/2021 06:30	WG1703994
Antimony	ND		20.0	10	07/16/2021 06:30	WG1703994
Arsenic	38.1		20.0	10	07/16/2021 06:30	WG1703994
Barium	40.8		5.00	10	07/16/2021 06:30	WG1703994
Beryllium	ND		2.00	10	07/16/2021 06:30	WG1703994
Cadmium	6.26		5.00	10	07/16/2021 06:30	WG1703994
Calcium	ND		1000	10	07/16/2021 06:30	WG1703994
Chromium	ND		10.0	10	07/16/2021 06:30	WG1703994
Cobalt	28.6		10.0	10	07/16/2021 06:30	WG1703994
Copper	127		20.0	10	07/16/2021 06:30	WG1703994
Iron	33400		100	10	07/16/2021 06:30	WG1703994
Lead	403		5.00	10	07/16/2021 06:30	WG1703994
Magnesium	1250		1000	10	07/16/2021 06:30	WG1703994
Manganese	12400		20.0	20	07/16/2021 08:17	WG1703994
Nickel	ND		20.0	10	07/16/2021 06:30	WG1703994
Potassium	1090		1000	10	07/16/2021 06:30	WG1703994
Selenium	ND		20.0	10	07/16/2021 06:30	WG1703994
Silver	ND		10.0	10	07/16/2021 06:30	WG1703994
Sodium	ND		1000	10	07/16/2021 06:30	WG1703994
Thallium	ND		20.0	10	07/16/2021 06:30	WG1703994
Vanadium	ND		20.0	10	07/16/2021 06:30	WG1703994
Zinc	557		50.0	10	07/16/2021 06:30	WG1703994

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/13/2021 16:53	WG1703927
Mercury,Dissolved	ND		0.000200	1	07/14/2021 17:16	WG1704486

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	6.60		0.200	1	07/21/2021 17:22	WG1708626
Aluminum,Dissolved	6.67		0.200	1	07/22/2021 02:59	WG1708986
Antimony	ND		0.0100	1	07/21/2021 17:22	WG1708626
Antimony,Dissolved	ND		0.0100	1	07/22/2021 02:59	WG1708986
Arsenic	ND		0.0100	1	07/21/2021 17:22	WG1708626
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 02:59	WG1708986
Barium	0.0232		0.00500	1	07/21/2021 17:22	WG1708626
Barium,Dissolved	0.0240	B	0.00500	1	07/22/2021 02:59	WG1708986
Beryllium	0.00282		0.00200	1	07/21/2021 17:22	WG1708626
Beryllium,Dissolved	0.00278		0.00200	1	07/22/2021 02:59	WG1708986
Cadmium	0.0134		0.00200	1	07/21/2021 17:22	WG1708626
Cadmium,Dissolved	0.0139		0.00200	1	07/22/2021 02:59	WG1708986
Calcium	13.0		1.00	1	07/21/2021 17:22	WG1708626
Calcium,Dissolved	13.1		1.00	1	07/22/2021 02:59	WG1708986
Chromium	ND		0.0100	1	07/21/2021 17:22	WG1708626
Chromium,Dissolved	ND		0.0100	1	07/22/2021 02:59	WG1708986
Cobalt	ND		0.0100	1	07/21/2021 17:22	WG1708626
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 02:59	WG1708986
Copper	0.0375		0.0100	1	07/21/2021 17:22	WG1708626
Copper,Dissolved	0.0371		0.0100	1	07/22/2021 02:59	WG1708986
Iron	0.113		0.100	1	07/21/2021 17:22	WG1708626
Iron,Dissolved	ND		0.100	1	07/22/2021 02:59	WG1708986
Lead	0.0110		0.00600	1	07/21/2021 17:22	WG1708626
Lead,Dissolved	0.00960		0.00600	1	07/22/2021 02:59	WG1708986
Magnesium	1.80		1.00	1	07/21/2021 17:22	WG1708626
Magnesium,Dissolved	1.74		1.00	1	07/22/2021 02:59	WG1708986
Manganese	2.92		0.0100	1	07/21/2021 17:22	WG1708626
Manganese,Dissolved	3.00		0.0100	1	07/22/2021 02:59	WG1708986
Nickel	ND		0.0100	1	07/21/2021 17:22	WG1708626
Nickel,Dissolved	ND		0.0100	1	07/22/2021 02:59	WG1708986
Potassium	ND		2.00	1	07/21/2021 17:22	WG1708626
Potassium,Dissolved	ND		2.00	1	07/22/2021 02:59	WG1708986
Selenium	ND		0.0100	1	07/21/2021 17:22	WG1708626
Selenium,Dissolved	ND		0.0100	1	07/22/2021 02:59	WG1708986
Silver	ND		0.00500	1	07/21/2021 17:22	WG1708626
Silver,Dissolved	ND		0.00500	1	07/22/2021 02:59	WG1708986
Sodium	ND		3.00	1	07/21/2021 17:22	WG1708626
Sodium,Dissolved	ND		3.00	1	07/22/2021 02:59	WG1708986
Thallium	ND		0.0100	1	07/21/2021 17:22	WG1708626
Thallium,Dissolved	ND		0.0100	1	07/22/2021 02:59	WG1708986
Vanadium	ND		0.0200	1	07/21/2021 17:22	WG1708626
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 02:59	WG1708986
Zinc	2.42		0.0500	1	07/21/2021 17:22	WG1708626
Zinc,Dissolved	2.48		0.0500	1	07/22/2021 02:59	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/13/2021 18:09	WG1703886

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	15900		200	10	07/16/2021 06:33	WG1703994
Antimony	ND		20.0	10	07/16/2021 06:33	WG1703994
Arsenic	33.7		20.0	10	07/16/2021 06:33	WG1703994
Barium	52.3		5.00	10	07/16/2021 06:33	WG1703994
Beryllium	2.22		2.00	10	07/16/2021 06:33	WG1703994
Cadmium	8.73		5.00	10	07/16/2021 06:33	WG1703994
Calcium	ND		1000	10	07/16/2021 06:33	WG1703994
Chromium	ND		10.0	10	07/16/2021 06:33	WG1703994
Cobalt	47.4		10.0	10	07/16/2021 06:33	WG1703994
Copper	168		20.0	10	07/16/2021 06:33	WG1703994
Iron	28300		100	10	07/16/2021 06:33	WG1703994
Lead	618		5.00	10	07/16/2021 06:33	WG1703994
Magnesium	1090		1000	10	07/16/2021 06:33	WG1703994
Manganese	17200		20.0	20	07/16/2021 08:20	WG1703994
Nickel	ND		20.0	10	07/16/2021 06:33	WG1703994
Potassium	1240		1000	10	07/16/2021 06:33	WG1703994
Selenium	ND		20.0	10	07/16/2021 06:33	WG1703994
Silver	ND		10.0	10	07/16/2021 06:33	WG1703994
Sodium	ND		1000	10	07/16/2021 06:33	WG1703994
Thallium	ND		20.0	10	07/16/2021 06:33	WG1703994
Vanadium	ND		20.0	10	07/16/2021 06:33	WG1703994
Zinc	620		50.0	10	07/16/2021 06:33	WG1703994

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/13/2021 16:55	WG1703927
Mercury,Dissolved	ND		0.000200	1	07/15/2021 11:12	WG1705230

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	4.54		0.200	1	07/21/2021 17:25	WG1708626
Aluminum,Dissolved	4.59		0.200	1	07/22/2021 03:02	WG1708986
Antimony	ND		0.0100	1	07/21/2021 17:25	WG1708626
Antimony,Dissolved	ND		0.0100	1	07/22/2021 03:02	WG1708986
Arsenic	ND		0.0100	1	07/21/2021 17:25	WG1708626
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 03:02	WG1708986
Barium	0.0175		0.00500	1	07/21/2021 17:25	WG1708626
Barium,Dissolved	0.0192	B	0.00500	1	07/22/2021 03:02	WG1708986
Beryllium	0.00216		0.00200	1	07/21/2021 17:25	WG1708626
Beryllium,Dissolved	0.00212		0.00200	1	07/22/2021 03:02	WG1708986
Cadmium	0.0107		0.00200	1	07/21/2021 17:25	WG1708626
Cadmium,Dissolved	0.0108		0.00200	1	07/22/2021 03:02	WG1708986
Calcium	12.2		1.00	1	07/21/2021 17:25	WG1708626
Calcium,Dissolved	12.3		1.00	1	07/22/2021 03:02	WG1708986
Chromium	ND		0.0100	1	07/21/2021 17:25	WG1708626
Chromium,Dissolved	ND		0.0100	1	07/22/2021 03:02	WG1708986
Cobalt	ND		0.0100	1	07/21/2021 17:25	WG1708626
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 03:02	WG1708986
Copper	0.0523		0.0100	1	07/21/2021 17:25	WG1708626
Copper,Dissolved	0.0513		0.0100	1	07/22/2021 03:02	WG1708986
Iron	0.101		0.100	1	07/21/2021 17:25	WG1708626
Iron,Dissolved	ND		0.100	1	07/22/2021 03:02	WG1708986
Lead	0.00965		0.00600	1	07/21/2021 17:25	WG1708626
Lead,Dissolved	0.00712		0.00600	1	07/22/2021 03:02	WG1708986
Magnesium	2.17		1.00	1	07/21/2021 17:25	WG1708626
Magnesium,Dissolved	2.14		1.00	1	07/22/2021 03:02	WG1708986
Manganese	2.77		0.0100	1	07/21/2021 17:25	WG1708626
Manganese,Dissolved	2.79		0.0100	1	07/22/2021 03:02	WG1708986
Nickel	ND		0.0100	1	07/21/2021 17:25	WG1708626
Nickel,Dissolved	ND		0.0100	1	07/22/2021 03:02	WG1708986
Potassium	ND		2.00	1	07/21/2021 17:25	WG1708626
Potassium,Dissolved	ND		2.00	1	07/22/2021 03:02	WG1708986
Selenium	ND		0.0100	1	07/21/2021 17:25	WG1708626
Selenium,Dissolved	ND		0.0100	1	07/22/2021 03:02	WG1708986
Silver	ND		0.00500	1	07/21/2021 17:25	WG1708626
Silver,Dissolved	ND		0.00500	1	07/22/2021 03:02	WG1708986
Sodium	ND		3.00	1	07/21/2021 17:25	WG1708626
Sodium,Dissolved	ND		3.00	1	07/22/2021 03:02	WG1708986
Thallium	ND		0.0100	1	07/21/2021 17:25	WG1708626
Thallium,Dissolved	ND		0.0100	1	07/22/2021 03:02	WG1708986
Vanadium	ND		0.0200	1	07/21/2021 17:25	WG1708626
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 03:02	WG1708986
Zinc	1.62		0.0500	1	07/21/2021 17:25	WG1708626
Zinc,Dissolved	1.68		0.0500	1	07/22/2021 03:02	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/13/2021 18:23	WG1703886

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	14300		200	10	07/16/2021 06:36	WG1703994
Antimony	ND		20.0	10	07/16/2021 06:36	WG1703994
Arsenic	54.4		20.0	10	07/16/2021 06:36	WG1703994
Barium	85.7		5.00	10	07/16/2021 06:36	WG1703994
Beryllium	2.17		2.00	10	07/16/2021 06:36	WG1703994
Cadmium	9.51		5.00	10	07/16/2021 06:36	WG1703994
Calcium	1050		1000	10	07/16/2021 06:36	WG1703994
Chromium	ND		10.0	10	07/16/2021 06:36	WG1703994
Cobalt	28.6		10.0	10	07/16/2021 06:36	WG1703994
Copper	187		20.0	10	07/16/2021 06:36	WG1703994
Iron	29400		100	10	07/16/2021 06:36	WG1703994
Lead	404		5.00	10	07/16/2021 06:36	WG1703994
Magnesium	2380		1000	10	07/16/2021 06:36	WG1703994
Manganese	12500		20.0	20	07/16/2021 08:23	WG1703994
Nickel	ND		20.0	10	07/16/2021 06:36	WG1703994
Potassium	1480		1000	10	07/16/2021 06:36	WG1703994
Selenium	ND		20.0	10	07/16/2021 06:36	WG1703994
Silver	ND		10.0	10	07/16/2021 06:36	WG1703994
Sodium	ND		1000	10	07/16/2021 06:36	WG1703994
Thallium	ND		20.0	10	07/16/2021 06:36	WG1703994
Vanadium	ND		20.0	10	07/16/2021 06:36	WG1703994
Zinc	675		50.0	10	07/16/2021 06:36	WG1703994

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND	J3 J6 O1	0.000200	1	07/13/2021 16:28	WG1703927
Mercury,Dissolved	ND		0.000200	1	07/15/2021 11:06	WG1705230

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	4.22		0.200	1	07/21/2021 16:32	WG1708626
Aluminum,Dissolved	3.98		0.200	1	07/22/2021 02:03	WG1708986
Antimony	ND		0.0100	1	07/21/2021 16:32	WG1708626
Antimony,Dissolved	ND		0.0100	1	07/22/2021 02:03	WG1708986
Arsenic	ND		0.0100	1	07/21/2021 16:32	WG1708626
Arsenic,Dissolved	ND		0.0100	1	07/22/2021 02:03	WG1708986
Barium	0.0185		0.00500	1	07/21/2021 16:32	WG1708626
Barium,Dissolved	0.0197	B	0.00500	1	07/22/2021 02:03	WG1708986
Beryllium	0.00217		0.00200	1	07/21/2021 16:32	WG1708626
Beryllium,Dissolved	0.00226		0.00200	1	07/22/2021 02:03	WG1708986
Cadmium	0.0103		0.00200	1	07/21/2021 16:32	WG1708626
Cadmium,Dissolved	0.0106		0.00200	1	07/22/2021 02:03	WG1708986
Calcium	12.0		1.00	1	07/21/2021 16:32	WG1708626
Calcium,Dissolved	12.5		1.00	1	07/22/2021 02:03	WG1708986
Chromium	ND		0.0100	1	07/21/2021 16:32	WG1708626
Chromium,Dissolved	ND		0.0100	1	07/22/2021 02:03	WG1708986
Cobalt	ND		0.0100	1	07/21/2021 16:32	WG1708626
Cobalt,Dissolved	ND		0.0100	1	07/22/2021 02:03	WG1708986
Copper	0.0490		0.0100	1	07/21/2021 16:32	WG1708626
Copper,Dissolved	0.0499		0.0100	1	07/22/2021 02:03	WG1708986
Iron	ND		0.100	1	07/21/2021 16:32	WG1708626
Iron,Dissolved	ND		0.100	1	07/22/2021 02:03	WG1708986
Lead	0.0104		0.00600	1	07/21/2021 16:32	WG1708626
Lead,Dissolved	0.00914		0.00600	1	07/22/2021 02:03	WG1708986
Magnesium	2.12		1.00	1	07/21/2021 16:32	WG1708626
Magnesium,Dissolved	2.09		1.00	1	07/22/2021 02:03	WG1708986
Manganese	2.57		0.0100	1	07/21/2021 16:32	WG1708626
Manganese,Dissolved	2.62		0.0100	1	07/22/2021 02:03	WG1708986
Nickel	ND		0.0100	1	07/21/2021 16:32	WG1708626
Nickel,Dissolved	ND		0.0100	1	07/22/2021 02:03	WG1708986
Potassium	ND		2.00	1	07/21/2021 16:32	WG1708626
Potassium,Dissolved	ND		2.00	1	07/22/2021 02:03	WG1708986
Selenium	ND		0.0100	1	07/21/2021 16:32	WG1708626
Selenium,Dissolved	ND		0.0100	1	07/22/2021 02:03	WG1708986
Silver	ND		0.00500	1	07/21/2021 16:32	WG1708626
Silver,Dissolved	ND		0.00500	1	07/22/2021 02:03	WG1708986
Sodium	ND		3.00	1	07/21/2021 16:32	WG1708626
Sodium,Dissolved	ND		3.00	1	07/22/2021 02:03	WG1708986
Thallium	ND		0.0100	1	07/21/2021 16:32	WG1708626
Thallium,Dissolved	ND		0.0100	1	07/22/2021 02:03	WG1708986
Vanadium	ND		0.0200	1	07/21/2021 16:32	WG1708626
Vanadium,Dissolved	ND		0.0200	1	07/22/2021 02:03	WG1708986
Zinc	1.54		0.0500	1	07/21/2021 16:32	WG1708626
Zinc,Dissolved	1.59		0.0500	1	07/22/2021 02:03	WG1708986

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/13/2021 17:51	WG1703886

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	12000		20.0	1	07/16/2021 01:41	WG1703994
Antimony	ND		2.00	1	07/16/2021 01:41	WG1703994
Arsenic	9.37		2.00	1	07/16/2021 01:41	WG1703994
Barium	22.0		0.500	1	07/16/2021 01:41	WG1703994
Beryllium	0.984		0.200	1	07/16/2021 01:41	WG1703994
Cadmium	1.86		0.500	1	07/16/2021 01:41	WG1703994
Calcium	2610		100	1	07/16/2021 01:41	WG1703994
Chromium	1.47		1.00	1	07/16/2021 01:41	WG1703994
Cobalt	14.1		1.00	1	07/16/2021 01:41	WG1703994
Copper	98.5		2.00	1	07/16/2021 01:41	WG1703994
Iron	15200		10.0	1	07/16/2021 01:41	WG1703994
Lead	76.9		0.500	1	07/16/2021 01:41	WG1703994
Magnesium	3060		100	1	07/16/2021 01:41	WG1703994
Manganese	3920		5.00	5	07/16/2021 06:39	WG1703994
Nickel	3.33		2.00	1	07/16/2021 01:41	WG1703994
Potassium	1020		100	1	07/16/2021 01:41	WG1703994
Selenium	ND		2.00	1	07/16/2021 01:41	WG1703994
Silver	ND		1.00	1	07/16/2021 01:41	WG1703994
Sodium	ND		100	1	07/16/2021 01:41	WG1703994
Thallium	ND		2.00	1	07/16/2021 01:41	WG1703994
Vanadium	7.13		2.00	1	07/16/2021 01:41	WG1703994
Zinc	293		5.00	1	07/16/2021 01:41	WG1703994

Method Blank (MB)

(MB) R3678988-1 07/13/21 16:24

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3678988-2 07/13/21 16:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00330	110	80.0-120	

L1376275-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376275-16 07/13/21 16:28 • (MS) R3678988-3 07/13/21 16:30 • (MSD) R3678988-4 07/13/21 16:32

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00213	0.00311	71.0	104	1	75.0-125	J6	J3	37.3	20

Method Blank (MB)

(MB) R3679525-1 07/14/21 16:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury,Dissolved	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3679525-2 07/14/21 16:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury,Dissolved	0.00300	0.00319	106	80.0-120	

L1376248-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376248-01 07/14/21 16:46 • (MS) R3679525-3 07/14/21 16:48 • (MSD) R3679525-4 07/14/21 16:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	ND	0.00334	0.00334	111	111	1	75.0-125			0.00899	20

Method Blank (MB)

(MB) R3679840-1 07/15/21 11:02

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury,Dissolved	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3679840-2 07/15/21 11:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury,Dissolved	0.00300	0.00325	108	80.0-120	

L1376275-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376275-16 07/15/21 11:06 • (MS) R3679840-3 07/15/21 11:08 • (MSD) R3679840-4 07/15/21 11:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury,Dissolved	0.00300	ND	0.00320	0.00322	107	107	1	75.0-125			0.539	20

Method Blank (MB)

(MB) R3678721-1 07/13/21 08:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3678721-2 07/13/21 08:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.575	115	80.0-120	

L1376435-25 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376435-25 07/13/21 08:22 • (MS) R3678721-3 07/13/21 08:24 • (MSD) R3678721-4 07/13/21 08:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.600	0.592	120	118	1	75.0-125			1.35	20

Method Blank (MB)

(MB) R3679004-1 07/13/21 17:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3679004-2 07/13/21 17:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.589	118	80.0-120	

L1376275-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376275-17 07/13/21 17:51 • (MS) R3679004-3 07/13/21 17:53 • (MSD) R3679004-4 07/13/21 17:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.540	0.595	108	119	1	75.0-125			9.68	20

Method Blank (MB)

(MB) R3680154-1 07/16/21 00:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	20.0
Antimony	U		0.544	2.00
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Beryllium	U		0.0315	0.200
Cadmium	U		0.0471	0.500
Calcium	U		10.6	100
Chromium	U		0.133	1.00
Cobalt	U		0.0811	1.00
Copper	U		0.400	2.00
Iron	U		2.24	10.0
Lead	U		0.208	0.500
Magnesium	U		7.38	100
Manganese	U		0.133	1.00
Nickel	U		0.132	2.00
Potassium	U		20.9	100
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Sodium	U		41.2	100
Thallium	U		0.394	2.00
Vanadium	U		0.506	2.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3680154-2 07/16/21 00:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	1010	101	80.0-120	
Antimony	100	99.5	99.5	80.0-120	
Arsenic	100	98.5	98.5	80.0-120	
Barium	100	104	104	80.0-120	
Beryllium	100	103	103	80.0-120	
Cadmium	100	99.6	99.6	80.0-120	
Calcium	1000	1020	102	80.0-120	
Chromium	100	99.9	99.9	80.0-120	
Cobalt	100	105	105	80.0-120	
Copper	100	99.8	99.8	80.0-120	
Iron	1000	1010	101	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3680154-2 07/16/21 00:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	100	100	100	80.0-120	
Magnesium	1000	1020	102	80.0-120	
Manganese	100	99.8	99.8	80.0-120	
Nickel	100	104	104	80.0-120	
Potassium	1000	971	97.1	80.0-120	
Selenium	100	99.9	99.9	80.0-120	
Silver	20.0	17.8	88.8	80.0-120	
Sodium	1000	993	99.3	80.0-120	
Thallium	100	99.7	99.7	80.0-120	
Vanadium	100	103	103	80.0-120	
Zinc	100	101	101	80.0-120	

L1376259-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376259-03 07/16/21 00:47 • (MS) R3680154-5 07/16/21 00:55 • (MSD) R3680154-6 07/16/21 00:58

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	999	14100	17700	18300	360	415	1	75.0-125	V	V	3.05	20
Antimony	99.9	ND	46.2	53.3	46.2	53.3	1	75.0-125	J6	J6	14.2	20
Arsenic	99.9	ND	88.0	100	87.1	99.1	1	75.0-125			12.8	20
Barium	99.9	164	255	273	91.5	110	1	75.0-125			6.84	20
Beryllium	99.9	0.636	94.4	107	93.7	106	1	75.0-125			12.2	20
Cadmium	99.9	ND	90.8	102	90.8	102	1	75.0-125			12.1	20
Calcium	999	2310	3470	3610	116	130	1	75.0-125		J5	3.95	20
Chromium	99.9	13.6	107	119	92.9	105	1	75.0-125			11.1	20
Cobalt	99.9	5.04	103	116	98.3	111	1	75.0-125			11.4	20
Copper	99.9	8.85	100	113	91.6	104	1	75.0-125			11.9	20
Iron	999	11000	12300	13000	131	196	1	75.0-125	V	V	5.17	20
Lead	99.9	8.50	99.4	112	90.9	103	1	75.0-125			11.8	20
Magnesium	999	1630	2750	2920	112	128	1	75.0-125		J5	5.88	20
Manganese	99.9	117	206	225	89.3	108	1	75.0-125			8.62	20
Nickel	99.9	10.5	108	120	97.1	110	1	75.0-125			11.1	20
Potassium	999	1090	2160	2300	106	120	1	75.0-125			6.23	20
Selenium	99.9	ND	89.4	101	89.4	101	1	75.0-125			12.4	20
Silver	20.0	ND	16.6	18.6	82.9	93.2	1	75.0-125			11.7	20
Sodium	999	108	1020	1140	91.2	103	1	75.0-125			10.9	20
Thallium	99.9	ND	89.9	101	89.9	101	1	75.0-125			11.6	20
Vanadium	99.9	27.1	120	134	93.2	107	1	75.0-125			10.8	20
Zinc	99.9	24.5	115	127	90.1	103	1	75.0-125			10.3	20

Method Blank (MB)

(MB) R3682537-1 07/21/21 16:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	U		0.0561	0.200
Antimony	U		0.00430	0.0100
Arsenic	U		0.00440	0.0100
Barium	U		0.000736	0.00500
Beryllium	U		0.000330	0.00200
Cadmium	U		0.000479	0.00200
Calcium	U		0.0793	1.00
Chromium	U		0.00140	0.0100
Cobalt	U		0.000840	0.0100
Copper	U		0.00368	0.0100
Iron	U		0.0180	0.100
Lead	U		0.00299	0.00600
Magnesium	U		0.0853	1.00
Manganese	U		0.000934	0.0100
Nickel	U		0.00161	0.0100
Potassium	U		0.261	2.00
Selenium	U		0.00735	0.0100
Silver	U		0.00154	0.00500
Sodium	U		0.504	3.00
Thallium	U		0.00431	0.0100
Vanadium	U		0.00499	0.0200
Zinc	U		0.00652	0.0500

Laboratory Control Sample (LCS)

(LCS) R3682537-2 07/21/21 16:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	10.0	9.78	97.8	80.0-120	
Antimony	1.00	0.947	94.7	80.0-120	
Arsenic	1.00	0.956	95.6	80.0-120	
Barium	1.00	1.01	101	80.0-120	
Beryllium	1.00	1.01	101	80.0-120	
Cadmium	1.00	0.972	97.2	80.0-120	
Calcium	10.0	10.1	101	80.0-120	
Chromium	1.00	0.988	98.8	80.0-120	
Cobalt	1.00	1.01	101	80.0-120	
Copper	1.00	0.980	98.0	80.0-120	
Iron	10.0	9.98	99.8	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3682537-2 07/21/21 16:29

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	1.00	0.982	98.2	80.0-120	
Magnesium	10.0	10.1	101	80.0-120	
Manganese	1.00	0.987	98.7	80.0-120	
Nickel	1.00	1.00	100	80.0-120	
Potassium	10.0	9.41	94.1	80.0-120	
Selenium	1.00	0.973	97.3	80.0-120	
Silver	0.200	0.177	88.6	80.0-120	
Sodium	10.0	10.2	102	80.0-120	
Thallium	1.00	0.982	98.2	80.0-120	
Vanadium	1.00	1.00	100	80.0-120	
Zinc	1.00	0.988	98.8	80.0-120	

L1376275-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376275-16 07/21/21 16:32 • (MS) R3682537-4 07/21/21 16:38 • (MSD) R3682537-5 07/21/21 16:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	10.0	4.22	13.8	13.7	96.2	94.8	1	75.0-125			0.960	20
Antimony	1.00	ND	0.945	0.943	94.5	94.3	1	75.0-125			0.216	20
Arsenic	1.00	ND	0.953	0.937	95.3	93.7	1	75.0-125			1.75	20
Barium	1.00	0.0185	1.03	1.01	101	99.1	1	75.0-125			2.04	20
Beryllium	1.00	0.00217	0.995	0.977	99.3	97.5	1	75.0-125			1.80	20
Cadmium	1.00	0.0103	0.981	0.963	97.1	95.3	1	75.0-125			1.90	20
Calcium	10.0	12.0	21.7	21.5	96.1	95.0	1	75.0-125			0.500	20
Chromium	1.00	ND	0.973	0.964	97.2	96.3	1	75.0-125			0.955	20
Cobalt	1.00	ND	1.01	0.986	100	98.1	1	75.0-125			2.23	20
Copper	1.00	0.0490	1.01	0.991	95.6	94.2	1	75.0-125			1.42	20
Iron	10.0	ND	9.94	9.78	98.5	96.9	1	75.0-125			1.57	20
Lead	1.00	0.0104	0.989	0.969	97.9	95.9	1	75.0-125			2.01	20
Magnesium	10.0	2.12	12.1	11.9	99.4	97.6	1	75.0-125			1.54	20
Manganese	1.00	2.57	3.42	3.42	85.1	85.1	1	75.0-125			0.00672	20
Nickel	1.00	ND	1.01	0.982	99.8	97.5	1	75.0-125			2.30	20
Potassium	10.0	ND	10.1	9.90	93.3	91.6	1	75.0-125			1.73	20
Selenium	1.00	ND	0.972	0.951	97.2	95.1	1	75.0-125			2.15	20
Silver	0.200	ND	0.175	0.173	87.4	86.5	1	75.0-125			1.10	20
Sodium	10.0	ND	10.7	10.5	98.7	96.7	1	75.0-125			1.88	20
Thallium	1.00	ND	0.982	0.962	98.2	96.2	1	75.0-125			2.10	20
Vanadium	1.00	ND	0.988	0.972	98.8	97.2	1	75.0-125			1.62	20
Zinc	1.00	1.54	2.48	2.45	93.8	91.5	1	75.0-125			0.955	20

Method Blank (MB)

(MB) R3682527-1 07/22/21 01:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum,Dissolved	U		0.0561	0.200
Antimony,Dissolved	U		0.00430	0.0100
Arsenic,Dissolved	U		0.00440	0.0100
Barium,Dissolved	0.00311	J	0.000736	0.00500
Beryllium,Dissolved	U		0.000330	0.00200
Cadmium,Dissolved	U		0.000479	0.00200
Calcium,Dissolved	U		0.0793	1.00
Chromium,Dissolved	U		0.00140	0.0100
Cobalt,Dissolved	U		0.000840	0.0100
Copper,Dissolved	U		0.00368	0.0100
Iron,Dissolved	U		0.0180	0.100
Lead,Dissolved	U		0.00299	0.00600
Magnesium,Dissolved	U		0.0853	1.00
Manganese,Dissolved	U		0.000934	0.0100
Nickel,Dissolved	U		0.00161	0.0100
Potassium,Dissolved	U		0.261	2.00
Selenium,Dissolved	U		0.00735	0.0100
Silver,Dissolved	U		0.00154	0.00500
Sodium,Dissolved	U		0.504	3.00
Thallium,Dissolved	U		0.00431	0.0100
Vanadium,Dissolved	U		0.00499	0.0200
Zinc,Dissolved	U		0.00652	0.0500

Laboratory Control Sample (LCS)

(LCS) R3682527-2 07/22/21 01:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum,Dissolved	10.0	9.68	96.8	80.0-120	
Antimony,Dissolved	1.00	0.978	97.8	80.0-120	
Arsenic,Dissolved	1.00	0.955	95.5	80.0-120	
Barium,Dissolved	1.00	1.01	101	80.0-120	
Beryllium,Dissolved	1.00	0.986	98.6	80.0-120	
Cadmium,Dissolved	1.00	0.969	96.9	80.0-120	
Calcium,Dissolved	10.0	9.83	98.3	80.0-120	
Chromium,Dissolved	1.00	0.980	98.0	80.0-120	
Cobalt,Dissolved	1.00	0.992	99.2	80.0-120	
Copper,Dissolved	1.00	0.970	97.0	80.0-120	
Iron,Dissolved	10.0	9.77	97.7	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3682527-2 07/22/21 01:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	1.00	0.961	96.1	80.0-120	
Magnesium,Dissolved	10.0	9.66	96.6	80.0-120	
Manganese,Dissolved	1.00	0.975	97.5	80.0-120	
Nickel,Dissolved	1.00	0.985	98.5	80.0-120	
Potassium,Dissolved	10.0	9.76	97.6	80.0-120	
Selenium,Dissolved	1.00	0.969	96.9	80.0-120	
Silver,Dissolved	0.200	0.174	86.8	80.0-120	
Sodium,Dissolved	10.0	9.85	98.5	80.0-120	
Thallium,Dissolved	1.00	0.960	96.0	80.0-120	
Vanadium,Dissolved	1.00	0.990	99.0	80.0-120	
Zinc,Dissolved	1.00	0.971	97.1	80.0-120	

L1373856-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1373856-06 07/22/21 01:52 • (MS) R3682527-4 07/22/21 01:57 • (MSD) R3682527-5 07/22/21 02:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum,Dissolved	10.0	ND	9.38	9.77	93.8	97.7	1	75.0-125			4.09	20
Antimony,Dissolved	1.00	ND	1.00	1.02	100	102	1	75.0-125			2.01	20
Arsenic,Dissolved	1.00	ND	1.02	1.04	101	104	1	75.0-125			2.73	20
Barium,Dissolved	1.00	0.484	1.43	1.46	94.5	97.6	1	75.0-125			2.18	20
Beryllium,Dissolved	1.00	ND	0.978	1.00	97.8	100	1	75.0-125			2.76	20
Cadmium,Dissolved	1.00	ND	0.987	1.02	98.7	102	1	75.0-125			3.14	20
Calcium,Dissolved	10.0	91.2	99.4	99.4	82.5	82.3	1	75.0-125			0.0168	20
Chromium,Dissolved	1.00	ND	0.935	0.967	93.5	96.7	1	75.0-125			3.37	20
Cobalt,Dissolved	1.00	ND	0.996	1.03	99.6	103	1	75.0-125			3.81	20
Copper,Dissolved	1.00	ND	0.991	1.02	99.1	102	1	75.0-125			3.08	20
Iron,Dissolved	10.0	ND	9.44	9.71	93.8	96.5	1	75.0-125			2.82	20
Lead,Dissolved	1.00	ND	0.945	0.977	94.5	97.7	1	75.0-125			3.36	20
Magnesium,Dissolved	10.0	80.0	88.4	88.3	84.0	83.5	1	75.0-125			0.0562	20
Manganese,Dissolved	1.00	0.305	1.22	1.25	91.9	94.4	1	75.0-125			2.02	20
Nickel,Dissolved	1.00	ND	0.994	1.03	98.8	102	1	75.0-125			3.51	20
Potassium,Dissolved	10.0	5.72	15.0	15.2	92.3	95.1	1	75.0-125			1.81	20
Selenium,Dissolved	1.00	0.0109	1.06	1.09	105	108	1	75.0-125			2.12	20
Silver,Dissolved	0.200	ND	0.182	0.187	91.0	93.6	1	75.0-125			2.82	20
Sodium,Dissolved	10.0	325	330	329	51.7	45.6	1	75.0-125	V	V	0.185	20
Thallium,Dissolved	1.00	ND	0.903	0.938	90.3	93.8	1	75.0-125			3.79	20
Vanadium,Dissolved	1.00	ND	0.955	0.982	95.5	98.2	1	75.0-125			2.74	20
Zinc,Dissolved	1.00	ND	0.938	0.972	93.8	97.2	1	75.0-125			3.54	20

L1376275-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376275-16 07/22/21 02:03 • (MS) R3682527-6 07/22/21 02:05 • (MSD) R3682527-7 07/22/21 02:07

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum,Dissolved	10.0	3.98	13.6	13.5	96.4	94.8	1	75.0-125			1.19	20
Antimony,Dissolved	1.00	ND	0.986	0.965	98.6	96.5	1	75.0-125			2.20	20
Arsenic,Dissolved	1.00	ND	0.951	0.939	95.1	93.9	1	75.0-125			1.32	20
Barium,Dissolved	1.00	0.0197	1.03	1.02	101	99.8	1	75.0-125			1.18	20
Beryllium,Dissolved	1.00	0.00226	0.983	0.968	98.1	96.6	1	75.0-125			1.60	20
Cadmium,Dissolved	1.00	0.0106	0.975	0.964	96.4	95.4	1	75.0-125			1.08	20
Calcium,Dissolved	10.0	12.5	22.1	21.9	95.5	94.1	1	75.0-125			0.650	20
Chromium,Dissolved	1.00	ND	0.974	0.956	97.4	95.6	1	75.0-125			1.78	20
Cobalt,Dissolved	1.00	ND	0.995	0.980	99.0	97.4	1	75.0-125			1.58	20
Copper,Dissolved	1.00	0.0499	1.01	0.993	95.9	94.3	1	75.0-125			1.55	20
Iron,Dissolved	10.0	ND	9.76	9.67	96.8	95.9	1	75.0-125			0.928	20
Lead,Dissolved	1.00	0.00914	0.971	0.958	96.2	94.9	1	75.0-125			1.39	20
Magnesium,Dissolved	10.0	2.09	11.7	11.5	96.0	94.2	1	75.0-125			1.52	20
Manganese,Dissolved	1.00	2.62	3.51	3.49	89.7	87.3	1	75.0-125			0.678	20
Nickel,Dissolved	1.00	ND	0.988	0.974	98.2	96.8	1	75.0-125			1.48	20
Potassium,Dissolved	10.0	ND	10.6	10.5	95.6	94.4	1	75.0-125			1.09	20
Selenium,Dissolved	1.00	ND	0.960	0.956	96.0	95.6	1	75.0-125			0.336	20
Silver,Dissolved	0.200	ND	0.172	0.171	86.2	85.3	1	75.0-125			1.08	20
Sodium,Dissolved	10.0	ND	10.6	10.8	94.6	96.0	1	75.0-125			1.32	20
Thallium,Dissolved	1.00	ND	0.957	0.940	95.7	94.0	1	75.0-125			1.78	20
Vanadium,Dissolved	1.00	ND	0.989	0.973	98.9	97.3	1	75.0-125			1.62	20
Zinc,Dissolved	1.00	1.59	2.50	2.55	91.5	96.3	1	75.0-125			1.89	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Herndon-Group
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Billing Information:
Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Pres Chk

Report to:
Roy Weindorf

Email To: **roy.weindorf@herndon-group.com**

Project Description: BURROWS GULCH

City/State Collected: Colorado

Please Circle: PT MT CT ET

Phone: **866-487-3895**

Client Project #

Lab Project #

Collected by (print): Anne Eiseman

Site/Facility ID #

P.O. #

Collected by (signature): Anne Eiseman

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day STD

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FF M6010TAL-D 250mlHDPE-NoPres	M6010TAL 250mlHDPE-HNO3	M6010TAL 2ozClr-NoPres	SPLP M6010TAL 1L-Clr-NoPres	Remarks	Sample # (lab only)
BG-SW-B61A	G	SW ~~GW~~		7/6/21	1020	1		X				-01
BG SW-B61A	G	~~GW~~		7/6/21	1020	1	X					-02
-SD	G	SD ~~GW~~		7/6/21	1020	1			X			-03
BG-SW-A07G	G	SW ~~GW~~		7/6/21	1100	2	X	X				-04
-SD	G	SD ~~GW~~		7/6/21	1100	1			X			-05
BG-SW-A07C1	G	SW ~~GW~~		7/6/21	1250	2	X	X				-06
BG SD-A07C1	G	SD ~~GW~~		7/6/21	1250	1			X			-07
BG-SW-A07E	G	SW ~~SS~~		7/6/21	1145	2	X	X				-08
BG-SD-A07E	G	SD ~~SS~~		7/6/21	1145	1			X			-09
BG-SW-A07B	G	SW ~~SS~~		7/6/21	1350	2	X	X				-10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 5217 3315 5755

Relinquished by : (Signature) Anne Eiseman | Date: 7/8/21 | Time: 0800 | Received by: (Signature)

Relinquished by : (Signature) | Date: | Time: | Received by: (Signature)

Relinquished by : (Signature) | Date: | Time: | Received for lab by: (Signature)

Trip Blank Received: Yes / No HCL / MeoH TBR

Temp: °C Bottles Received: Sub to Sub 24

Date: 7.9.21 Time: 0945

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y __N
COC Signed/Accurate: Y __N
Bottles arrive intact: Y __N
Correct bottles used: Y __N
Sufficient volume sent: Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: Y __N
RAD Screen <0.5 mR/hr: __Y __N

Chain of Custody Page 1 of 2

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Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1376275

Table # L-084

Acctnum: **HERGROSCO**
Template: **T190687**
Prelogin: **P858855**
PM: **824 - Chris Ward**
PB:

Shipped Via: **FedEX Ground**

Company Name/Address:
Herndon-Group

4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Billing Information:
Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Pres Chk

Report to:
Roy Weindorf

Email To: roy.weindorf@herndon-group.com

Project Description: Burrows Gulch

City/State Collected: Colorado

Please Circle: PT MT CT ET

Phone: 866-487-3895

Client Project #

Lab Project #

Collected by (print): Anne Eiseman

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FF M6010TAL-D 250mlHDPE-NoPres	M6010TAL 250mlHDPE-HNO3	M6010TAL 2ozClr-NoPres	SPLP M6010TAL 1L-Clr-NoPres	Remarks	Sample # (lab only)
BG-SD-A07B	G	~~SD~~ SS		7/6/21	1350	1	~~X~~	~~X~~	X			-11
BG-SW-97B	G	~~SW~~ SS			1355	2	X	X	~~X~~			-12
BG-SD-97B	G	~~SD~~ SS			1355	1	~~X~~	~~X~~	X			-13
BG-SW-A07	G	SW SS			1425	2	X	X	~~X~~			-14
BG-SD-A07	G	~~SD~~ SS			1425	1			X			-15
BG-SW-BG4	G	~~SW~~ SS			1620	2	X	X				-16
BG-SD-BG4	G	~~SD~~ SS			1620	1			X			-17
		SS										
		SS										
		SS										

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Please use BG-SW-BG4 for MS/MSD

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 5217 3305 5455

Relinquished by : (Signature) — Date: 7/8/21 — Time: 0800

Received by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
~~Non~~ TBR

Relinquished by : (Signature) — Date: — Time:

Received by: (Signature)

Temp: Sample 24 °C Bottles Received:

If preservation required by Login: Date/Time

Relinquished by : (Signature) — Date: — Time:

Received for lab by: (Signature) — Date: 7-9-21 — Time: 0845

Hold:

Condition: NCF / OK

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Chain of Custody Page 1 of 2

Pace Analytical®

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1376275

Table #

Acctnum: HERGROSCO

Template: T190687

Prelogin: P858855

PM: 824 - Chris Ward

PB:

Shipped Via: FedEx Ground

ANALYTICAL REPORT

July 28, 2021

Herndon-Group

Sample Delivery Group:	L1376376
Samples Received:	07/09/2021
Project Number:	
Description:	Burrows Gulch

Report To: Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 7

Sr: Sample Results 8

BG-SS-85 L1376376-01 8

BG-SS-85 L1376376-02 9

BG-SS-77 L1376376-03 10

BG-SS-77 L1376376-04 11

BG-SS-92 L1376376-05 12

BG-SS-92 L1376376-06 13

BG-SS-39 L1376376-07 14

BG-SS-39 L1376376-08 15

BG-SS-11 L1376376-09 16

BG-SS-11 L1376376-10 17

BG-SS-72 L1376376-11 18

BG-SS-99 L1376376-12 19

BG-SS-97 L1376376-13 20

BG-SS-86 L1376376-14 21

BG-SS-60 L1376376-15 22

BG-SS-101 L1376376-16 23

BG-SS-80 L1376376-17 24

BG-SS-950 L1376376-18 25

BG-SS-50 L1376376-19 26

BG-SS-49 L1376376-20 27

BG-SS-62 L1376376-21 28

BG-SS-30 L1376376-22 29

BG-SS-09 L1376376-23 30

BG-SS-32 L1376376-24 31

BG-SS-56 L1376376-25 32

BG-SS-61 L1376376-26 33

BG-SS-961 L1376376-27 34

Qc: Quality Control Summary 35

Mercury by Method 7470A 35

Mercury by Method 7471A 36

Metals (ICP) by Method 6010B 38

Gl: Glossary of Terms 44

Al: Accreditations & Locations 45

Sc: Sample Chain of Custody 46

BG-SS-85 L1376376-01 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:55 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:11	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:14	EL	Mt. Juliet, TN

BG-SS-85 L1376376-02 GW

Collected by: Anne E. | Collected date/time: 07/07/21 11:55 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1703582	1	07/12/21 11:14	07/12/21 11:14	APH	Mt. Juliet, TN
Mercury by Method 7470A	WG1707531	1	07/19/21 13:11	07/20/21 10:18	SD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1707536	1	07/19/21 11:05	07/20/21 11:45	EL	Mt. Juliet, TN

BG-SS-77 L1376376-03 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 10:30 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:19	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:28	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:40	EL	Mt. Juliet, TN

BG-SS-77 L1376376-04 GW

Collected by: Anne E. | Collected date/time: 07/07/21 10:30 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1703582	1	07/12/21 11:14	07/12/21 11:14	APH	Mt. Juliet, TN
Mercury by Method 7470A	WG1707531	1	07/19/21 13:11	07/20/21 10:24	SD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1707536	1	07/19/21 11:05	07/20/21 11:48	EL	Mt. Juliet, TN

BG-SS-92 L1376376-05 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:25 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:26	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:31	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:43	EL	Mt. Juliet, TN

BG-SS-92 L1376376-06 GW

Collected by: Anne E. | Collected date/time: 07/07/21 11:25 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1703582	1	07/12/21 11:14	07/12/21 11:14	APH	Mt. Juliet, TN
Mercury by Method 7470A	WG1707531	1	07/19/21 13:11	07/20/21 10:26	SD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1707536	1	07/19/21 11:05	07/20/21 11:35	EL	Mt. Juliet, TN

BG-SS-39 L1376376-07 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 10:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:29	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:34	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:46	EL	Mt. Juliet, TN

BG-SS-39 L1376376-08 GW

Collected by: Anne E. | Collected date/time: 07/07/21 10:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1703582	1	07/12/21 11:14	07/12/21 11:14	APH	Mt. Juliet, TN
Mercury by Method 7470A	WG1707531	1	07/19/21 13:11	07/20/21 10:28	SD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1707536	1	07/19/21 11:05	07/20/21 11:50	EL	Mt. Juliet, TN

BG-SS-11 L1376376-09 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 10:15 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:32	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:43	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:48	EL	Mt. Juliet, TN

BG-SS-11 L1376376-10 GW

Collected by: Anne E. | Collected date/time: 07/07/21 10:15 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1703582	1	07/12/21 11:14	07/12/21 11:14	APH	Mt. Juliet, TN
Mercury by Method 7470A	WG1707531	1	07/19/21 13:11	07/20/21 10:30	SD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1707536	1	07/19/21 11:05	07/20/21 11:53	EL	Mt. Juliet, TN

BG-SS-72 L1376376-11 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:34	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:46	EL	Mt. Juliet, TN

BG-SS-99 L1376376-12 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:00 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:37	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:49	EL	Mt. Juliet, TN

BG-SS-97 L1376376-13 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 10:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:39	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:52	EL	Mt. Juliet, TN

BG-SS-86 L1376376-14 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 10:35 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:42	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:55	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:51	EL	Mt. Juliet, TN

BG-SS-60 L1376376-15 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 12:00 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:44	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 00:57	EL	Mt. Juliet, TN

BG-SS-101 L1376376-16 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:10 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:47	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:00	EL	Mt. Juliet, TN

BG-SS-80 L1376376-17 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 12:25 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 13:49	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:03	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:54	EL	Mt. Juliet, TN

BG-SS-950 L1376376-18 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:15 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:02	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:06	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:04	EL	Mt. Juliet, TN

BG-SS-50 L1376376-19 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:05 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:05	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:09	EL	Mt. Juliet, TN

BG-SS-49 L1376376-20 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:30 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:07	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:18	EL	Mt. Juliet, TN

BG-SS-62 L1376376-21 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:40 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:10	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:21	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:07	EL	Mt. Juliet, TN

BG-SS-30 L1376376-22 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 10:35 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:12	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:24	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	5	07/19/21 15:58	07/21/21 10:10	EL	Mt. Juliet, TN

BG-SS-09 L1376376-23 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 10:05 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:15	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:27	EL	Mt. Juliet, TN

BG-SS-32 L1376376-24 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 09:30 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:17	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:29	EL	Mt. Juliet, TN

BG-SS-56 L1376376-25 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 09:40 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703702	1	07/13/21 15:58	07/14/21 14:20	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705138	1	07/19/21 15:58	07/21/21 01:32	EL	Mt. Juliet, TN

BG-SS-61 L1376376-26 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:45 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703711	1	07/13/21 16:17	07/14/21 10:08	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705170	1	07/19/21 16:23	07/21/21 07:41	EL	Mt. Juliet, TN

BG-SS-961 L1376376-27 Solid

Collected by: Anne E. | Collected date/time: 07/07/21 11:50 | Received date/time: 07/09/21 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7471A	WG1703711	1	07/13/21 16:17	07/14/21 10:11	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1705170	1	07/19/21 16:23	07/21/21 07:44	EL	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris Ward
Project Manager

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 13:11	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	11800		20.0	1	07/21/2021 00:14	WG1705138
Antimony	ND		2.00	1	07/21/2021 00:14	WG1705138
Arsenic	17.4		2.00	1	07/21/2021 00:14	WG1705138
Barium	76.1		0.500	1	07/21/2021 00:14	WG1705138
Beryllium	0.558		0.200	1	07/21/2021 00:14	WG1705138
Cadmium	ND		0.500	1	07/21/2021 00:14	WG1705138
Calcium	2540		100	1	07/21/2021 00:14	WG1705138
Chromium	6.78		1.00	1	07/21/2021 00:14	WG1705138
Cobalt	3.68		1.00	1	07/21/2021 00:14	WG1705138
Copper	9.84		2.00	1	07/21/2021 00:14	WG1705138
Iron	13600		10.0	1	07/21/2021 00:14	WG1705138
Lead	31.2		0.500	1	07/21/2021 00:14	WG1705138
Magnesium	2990		100	1	07/21/2021 00:14	WG1705138
Manganese	677		1.00	1	07/21/2021 00:14	WG1705138
Nickel	4.98		2.00	1	07/21/2021 00:14	WG1705138
Potassium	2140		100	1	07/21/2021 00:14	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:14	WG1705138
Silver	ND		1.00	1	07/21/2021 00:14	WG1705138
Sodium	ND		100	1	07/21/2021 00:14	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:14	WG1705138
Vanadium	18.1		2.00	1	07/21/2021 00:14	WG1705138
Zinc	111		5.00	1	07/21/2021 00:14	WG1705138

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		7/12/2021 11:14:23 AM	WG1703582
Fluid	2		7/12/2021 11:14:23 AM	WG1703582
Final pH	5.39		7/12/2021 11:14:23 AM	WG1703582

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Mercury	ND		0.000200	1	07/20/2021 10:18	WG1707531

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Aluminum	9.09		0.200	1	07/20/2021 11:45	WG1707536
Antimony	ND		0.0100	1	07/20/2021 11:45	WG1707536
Arsenic	0.0136		0.0100	1	07/20/2021 11:45	WG1707536
Barium	0.102		0.00500	1	07/20/2021 11:45	WG1707536
Beryllium	ND		0.00200	1	07/20/2021 11:45	WG1707536
Cadmium	ND		0.00200	1	07/20/2021 11:45	WG1707536
Calcium	4.99		1.00	1	07/20/2021 11:45	WG1707536
Chromium	0.0134		0.0100	1	07/20/2021 11:45	WG1707536
Cobalt	ND		0.0100	1	07/20/2021 11:45	WG1707536
Copper	0.0174		0.0100	1	07/20/2021 11:45	WG1707536
Iron	9.74		0.100	1	07/20/2021 11:45	WG1707536
Lead	0.0809		0.00600	1	07/20/2021 11:45	WG1707536
Magnesium	2.52		1.00	1	07/20/2021 11:45	WG1707536
Manganese	0.495		0.0100	1	07/20/2021 11:45	WG1707536
Nickel	ND		0.0100	1	07/20/2021 11:45	WG1707536
Potassium	3.90		2.00	1	07/20/2021 11:45	WG1707536
Selenium	ND		0.0100	1	07/20/2021 11:45	WG1707536
Silver	ND		0.00500	1	07/20/2021 11:45	WG1707536
Sodium	18.9		3.00	1	07/20/2021 11:45	WG1707536
Thallium	ND		0.0100	1	07/20/2021 11:45	WG1707536
Vanadium	ND		0.0200	1	07/20/2021 11:45	WG1707536
Zinc	0.149		0.0500	1	07/20/2021 11:45	WG1707536

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0596		0.0400	1	07/14/2021 13:19	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	13600		20.0	1	07/21/2021 00:28	WG1705138
Antimony	ND		2.00	1	07/21/2021 00:28	WG1705138
Arsenic	71.9		2.00	1	07/21/2021 00:28	WG1705138
Barium	107		0.500	1	07/21/2021 00:28	WG1705138
Beryllium	0.560		0.200	1	07/21/2021 00:28	WG1705138
Cadmium	0.837		0.500	1	07/21/2021 00:28	WG1705138
Calcium	1300		100	1	07/21/2021 00:28	WG1705138
Chromium	8.14		1.00	1	07/21/2021 00:28	WG1705138
Cobalt	6.84		1.00	1	07/21/2021 00:28	WG1705138
Copper	41.8		2.00	1	07/21/2021 00:28	WG1705138
Iron	26700		10.0	1	07/21/2021 00:28	WG1705138
Lead	547		0.500	1	07/21/2021 00:28	WG1705138
Magnesium	3120		100	1	07/21/2021 00:28	WG1705138
Manganese	1860		5.00	5	07/21/2021 10:40	WG1705138
Nickel	5.58		2.00	1	07/21/2021 00:28	WG1705138
Potassium	2310		100	1	07/21/2021 00:28	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:28	WG1705138
Silver	5.72		1.00	1	07/21/2021 00:28	WG1705138
Sodium	ND		100	1	07/21/2021 00:28	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:28	WG1705138
Vanadium	24.2		2.00	1	07/21/2021 00:28	WG1705138
Zinc	255		5.00	1	07/21/2021 00:28	WG1705138

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		7/12/2021 11:14:23 AM	WG1703582
Fluid	2		7/12/2021 11:14:23 AM	WG1703582
Final pH	5.52		7/12/2021 11:14:23 AM	WG1703582

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/20/2021 10:24	WG1707531

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	6.91		0.200	1	07/20/2021 11:48	WG1707536
Antimony	ND		0.0100	1	07/20/2021 11:48	WG1707536
Arsenic	0.0505		0.0100	1	07/20/2021 11:48	WG1707536
Barium	0.121		0.00500	1	07/20/2021 11:48	WG1707536
Beryllium	ND		0.00200	1	07/20/2021 11:48	WG1707536
Cadmium	ND		0.00200	1	07/20/2021 11:48	WG1707536
Calcium	2.23		1.00	1	07/20/2021 11:48	WG1707536
Chromium	ND		0.0100	1	07/20/2021 11:48	WG1707536
Cobalt	ND		0.0100	1	07/20/2021 11:48	WG1707536
Copper	0.0223		0.0100	1	07/20/2021 11:48	WG1707536
Iron	14.0		0.100	1	07/20/2021 11:48	WG1707536
Lead	0.323		0.00600	1	07/20/2021 11:48	WG1707536
Magnesium	1.19		1.00	1	07/20/2021 11:48	WG1707536
Manganese	0.839		0.0100	1	07/20/2021 11:48	WG1707536
Nickel	ND		0.0100	1	07/20/2021 11:48	WG1707536
Potassium	3.21		2.00	1	07/20/2021 11:48	WG1707536
Selenium	ND		0.0100	1	07/20/2021 11:48	WG1707536
Silver	ND		0.00500	1	07/20/2021 11:48	WG1707536
Sodium	16.8		3.00	1	07/20/2021 11:48	WG1707536
Thallium	ND		0.0100	1	07/20/2021 11:48	WG1707536
Vanadium	ND		0.0200	1	07/20/2021 11:48	WG1707536
Zinc	0.0852		0.0500	1	07/20/2021 11:48	WG1707536

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 13:26	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	6410		20.0	1	07/21/2021 00:31	WG1705138
Antimony	2.81		2.00	1	07/21/2021 00:31	WG1705138
Arsenic	233		2.00	1	07/21/2021 00:31	WG1705138
Barium	166		0.500	1	07/21/2021 00:31	WG1705138
Beryllium	0.237		0.200	1	07/21/2021 00:31	WG1705138
Cadmium	ND		0.500	1	07/21/2021 00:31	WG1705138
Calcium	222		100	1	07/21/2021 00:31	WG1705138
Chromium	4.24		1.00	1	07/21/2021 00:31	WG1705138
Cobalt	1.06		1.00	1	07/21/2021 00:31	WG1705138
Copper	24.1		2.00	1	07/21/2021 00:31	WG1705138
Iron	52400		50.0	5	07/21/2021 10:43	WG1705138
Lead	21.5		0.500	1	07/21/2021 00:31	WG1705138
Magnesium	955		100	1	07/21/2021 00:31	WG1705138
Manganese	70.0		1.00	1	07/21/2021 00:31	WG1705138
Nickel	3.06		2.00	1	07/21/2021 00:31	WG1705138
Potassium	5490		100	1	07/21/2021 00:31	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:31	WG1705138
Silver	1.44		1.00	1	07/21/2021 00:31	WG1705138
Sodium	ND		100	1	07/21/2021 00:31	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:31	WG1705138
Vanadium	22.4		2.00	1	07/21/2021 00:31	WG1705138
Zinc	18.5		5.00	1	07/21/2021 00:31	WG1705138

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		7/12/2021 11:14:23 AM	WG1703582
Fluid	2		7/12/2021 11:14:23 AM	WG1703582
Final pH	5.26		7/12/2021 11:14:23 AM	WG1703582

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	07/20/2021 10:26	WG1707531

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Aluminum	ND		0.200	1	07/20/2021 11:35	WG1707536
Antimony	ND		0.0100	1	07/20/2021 11:35	WG1707536
Arsenic	ND		0.0100	1	07/20/2021 11:35	WG1707536
Barium	ND		0.00500	1	07/20/2021 11:35	WG1707536
Beryllium	ND		0.00200	1	07/20/2021 11:35	WG1707536
Cadmium	ND		0.00200	1	07/20/2021 11:35	WG1707536
Calcium	ND		1.00	1	07/20/2021 11:35	WG1707536
Chromium	ND		0.0100	1	07/20/2021 11:35	WG1707536
Cobalt	ND		0.0100	1	07/20/2021 11:35	WG1707536
Copper	ND		0.0100	1	07/20/2021 11:35	WG1707536
Iron	ND		0.100	1	07/20/2021 11:35	WG1707536
Lead	ND		0.00600	1	07/20/2021 11:35	WG1707536
Magnesium	ND		1.00	1	07/20/2021 11:35	WG1707536
Manganese	ND		0.0100	1	07/20/2021 11:35	WG1707536
Nickel	ND		0.0100	1	07/20/2021 11:35	WG1707536
Potassium	ND		2.00	1	07/20/2021 11:35	WG1707536
Selenium	ND		0.0100	1	07/20/2021 11:35	WG1707536
Silver	ND		0.00500	1	07/20/2021 11:35	WG1707536
Sodium	ND		3.00	1	07/20/2021 11:35	WG1707536
Thallium	ND		0.0100	1	07/20/2021 11:35	WG1707536
Vanadium	ND		0.0200	1	07/20/2021 11:35	WG1707536
Zinc	ND		0.0500	1	07/20/2021 11:35	WG1707536

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 13:29	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	18100		20.0	1	07/21/2021 00:34	WG1705138
Antimony	ND		2.00	1	07/21/2021 00:34	WG1705138
Arsenic	22.4		2.00	1	07/21/2021 00:34	WG1705138
Barium	103		0.500	1	07/21/2021 00:34	WG1705138
Beryllium	1.44		0.200	1	07/21/2021 00:34	WG1705138
Cadmium	1.15		0.500	1	07/21/2021 00:34	WG1705138
Calcium	2350		100	1	07/21/2021 00:34	WG1705138
Chromium	11.6		1.00	1	07/21/2021 00:34	WG1705138
Cobalt	6.13		1.00	1	07/21/2021 00:34	WG1705138
Copper	25.3		2.00	1	07/21/2021 00:34	WG1705138
Iron	19600		10.0	1	07/21/2021 00:34	WG1705138
Lead	40.3		0.500	1	07/21/2021 00:34	WG1705138
Magnesium	4300		100	1	07/21/2021 00:34	WG1705138
Manganese	1890		5.00	5	07/21/2021 10:46	WG1705138
Nickel	9.00		2.00	1	07/21/2021 00:34	WG1705138
Potassium	3100		100	1	07/21/2021 00:34	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:34	WG1705138
Silver	1.03		1.00	1	07/21/2021 00:34	WG1705138
Sodium	ND		100	1	07/21/2021 00:34	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:34	WG1705138
Vanadium	28.3		2.00	1	07/21/2021 00:34	WG1705138
Zinc	227		5.00	1	07/21/2021 00:34	WG1705138

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		7/12/2021 11:14:23 AM	WG1703582
Fluid	2		7/12/2021 11:14:23 AM	WG1703582
Final pH	5.36		7/12/2021 11:14:23 AM	WG1703582

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Mercury	ND		0.000200	1	07/20/2021 10:28	WG1707531

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Aluminum	1.51		0.200	1	07/20/2021 11:50	WG1707536
Antimony	ND		0.0100	1	07/20/2021 11:50	WG1707536
Arsenic	ND		0.0100	1	07/20/2021 11:50	WG1707536
Barium	0.0143		0.00500	1	07/20/2021 11:50	WG1707536
Beryllium	ND		0.00200	1	07/20/2021 11:50	WG1707536
Cadmium	ND		0.00200	1	07/20/2021 11:50	WG1707536
Calcium	1.47		1.00	1	07/20/2021 11:50	WG1707536
Chromium	ND		0.0100	1	07/20/2021 11:50	WG1707536
Cobalt	ND		0.0100	1	07/20/2021 11:50	WG1707536
Copper	0.0115		0.0100	1	07/20/2021 11:50	WG1707536
Iron	1.05		0.100	1	07/20/2021 11:50	WG1707536
Lead	ND		0.00600	1	07/20/2021 11:50	WG1707536
Magnesium	ND		1.00	1	07/20/2021 11:50	WG1707536
Manganese	0.0783		0.0100	1	07/20/2021 11:50	WG1707536
Nickel	ND		0.0100	1	07/20/2021 11:50	WG1707536
Potassium	ND		2.00	1	07/20/2021 11:50	WG1707536
Selenium	ND		0.0100	1	07/20/2021 11:50	WG1707536
Silver	ND		0.00500	1	07/20/2021 11:50	WG1707536
Sodium	10.7		3.00	1	07/20/2021 11:50	WG1707536
Thallium	ND		0.0100	1	07/20/2021 11:50	WG1707536
Vanadium	ND		0.0200	1	07/20/2021 11:50	WG1707536
Zinc	ND		0.0500	1	07/20/2021 11:50	WG1707536

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0500		0.0400	1	07/14/2021 13:32	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9370		20.0	1	07/21/2021 00:43	WG1705138
Antimony	ND		2.00	1	07/21/2021 00:43	WG1705138
Arsenic	33.5		2.00	1	07/21/2021 00:43	WG1705138
Barium	86.1		0.500	1	07/21/2021 00:43	WG1705138
Beryllium	0.580		0.200	1	07/21/2021 00:43	WG1705138
Cadmium	4.18		0.500	1	07/21/2021 00:43	WG1705138
Calcium	4120		100	1	07/21/2021 00:43	WG1705138
Chromium	5.63		1.00	1	07/21/2021 00:43	WG1705138
Cobalt	6.94		1.00	1	07/21/2021 00:43	WG1705138
Copper	31.2		2.00	1	07/21/2021 00:43	WG1705138
Iron	17800		10.0	1	07/21/2021 00:43	WG1705138
Lead	378		0.500	1	07/21/2021 00:43	WG1705138
Magnesium	2580		100	1	07/21/2021 00:43	WG1705138
Manganese	1450		5.00	5	07/21/2021 10:48	WG1705138
Nickel	4.45		2.00	1	07/21/2021 00:43	WG1705138
Potassium	2340		100	1	07/21/2021 00:43	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:43	WG1705138
Silver	ND		1.00	1	07/21/2021 00:43	WG1705138
Sodium	ND		100	1	07/21/2021 00:43	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:43	WG1705138
Vanadium	19.7		2.00	1	07/21/2021 00:43	WG1705138
Zinc	434		5.00	1	07/21/2021 00:43	WG1705138

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		7/12/2021 11:14:23 AM	WG1703582
Fluid	2		7/12/2021 11:14:23 AM	WG1703582
Final pH	5.54		7/12/2021 11:14:23 AM	WG1703582

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Mercury	ND		0.000200	1	07/20/2021 10:30	WG1707531

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Aluminum	3.17		0.200	1	07/20/2021 11:53	WG1707536
Antimony	ND		0.0100	1	07/20/2021 11:53	WG1707536
Arsenic	0.0101		0.0100	1	07/20/2021 11:53	WG1707536
Barium	0.0487		0.00500	1	07/20/2021 11:53	WG1707536
Beryllium	ND		0.00200	1	07/20/2021 11:53	WG1707536
Cadmium	ND		0.00200	1	07/20/2021 11:53	WG1707536
Calcium	7.14		1.00	1	07/20/2021 11:53	WG1707536
Chromium	ND		0.0100	1	07/20/2021 11:53	WG1707536
Cobalt	ND		0.0100	1	07/20/2021 11:53	WG1707536
Copper	0.0169		0.0100	1	07/20/2021 11:53	WG1707536
Iron	3.93		0.100	1	07/20/2021 11:53	WG1707536
Lead	0.0749		0.00600	1	07/20/2021 11:53	WG1707536
Magnesium	1.15		1.00	1	07/20/2021 11:53	WG1707536
Manganese	0.130		0.0100	1	07/20/2021 11:53	WG1707536
Nickel	ND		0.0100	1	07/20/2021 11:53	WG1707536
Potassium	ND		2.00	1	07/20/2021 11:53	WG1707536
Selenium	ND		0.0100	1	07/20/2021 11:53	WG1707536
Silver	ND		0.00500	1	07/20/2021 11:53	WG1707536
Sodium	19.0		3.00	1	07/20/2021 11:53	WG1707536
Thallium	ND		0.0100	1	07/20/2021 11:53	WG1707536
Vanadium	ND		0.0200	1	07/20/2021 11:53	WG1707536
Zinc	0.132		0.0500	1	07/20/2021 11:53	WG1707536

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 13:34	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	8390		20.0	1	07/21/2021 00:46	WG1705138
Antimony	ND		2.00	1	07/21/2021 00:46	WG1705138
Arsenic	118		2.00	1	07/21/2021 00:46	WG1705138
Barium	212		0.500	1	07/21/2021 00:46	WG1705138
Beryllium	0.410		0.200	1	07/21/2021 00:46	WG1705138
Cadmium	ND		0.500	1	07/21/2021 00:46	WG1705138
Calcium	352		100	1	07/21/2021 00:46	WG1705138
Chromium	4.95		1.00	1	07/21/2021 00:46	WG1705138
Cobalt	3.50		1.00	1	07/21/2021 00:46	WG1705138
Copper	18.8		2.00	1	07/21/2021 00:46	WG1705138
Iron	30600		10.0	1	07/21/2021 00:46	WG1705138
Lead	34.8		0.500	1	07/21/2021 00:46	WG1705138
Magnesium	2050		100	1	07/21/2021 00:46	WG1705138
Manganese	265		1.00	1	07/21/2021 00:46	WG1705138
Nickel	4.42		2.00	1	07/21/2021 00:46	WG1705138
Potassium	3370		100	1	07/21/2021 00:46	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:46	WG1705138
Silver	ND		1.00	1	07/21/2021 00:46	WG1705138
Sodium	ND		100	1	07/21/2021 00:46	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:46	WG1705138
Vanadium	17.6		2.00	1	07/21/2021 00:46	WG1705138
Zinc	37.4		5.00	1	07/21/2021 00:46	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 13:37	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	5620		20.0	1	07/21/2021 00:49	WG1705138
Antimony	2.27		2.00	1	07/21/2021 00:49	WG1705138
Arsenic	137		2.00	1	07/21/2021 00:49	WG1705138
Barium	133		0.500	1	07/21/2021 00:49	WG1705138
Beryllium	0.256		0.200	1	07/21/2021 00:49	WG1705138
Cadmium	ND		0.500	1	07/21/2021 00:49	WG1705138
Calcium	671		100	1	07/21/2021 00:49	WG1705138
Chromium	3.00		1.00	1	07/21/2021 00:49	WG1705138
Cobalt	1.35		1.00	1	07/21/2021 00:49	WG1705138
Copper	11.0		2.00	1	07/21/2021 00:49	WG1705138
Iron	21700		10.0	1	07/21/2021 00:49	WG1705138
Lead	772		0.500	1	07/21/2021 00:49	WG1705138
Magnesium	1110		100	1	07/21/2021 00:49	WG1705138
Manganese	155		1.00	1	07/21/2021 00:49	WG1705138
Nickel	2.53		2.00	1	07/21/2021 00:49	WG1705138
Potassium	2380		100	1	07/21/2021 00:49	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:49	WG1705138
Silver	1.88		1.00	1	07/21/2021 00:49	WG1705138
Sodium	ND		100	1	07/21/2021 00:49	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:49	WG1705138
Vanadium	10.7		2.00	1	07/21/2021 00:49	WG1705138
Zinc	35.0		5.00	1	07/21/2021 00:49	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0556		0.0400	1	07/14/2021 13:39	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	10200		20.0	1	07/21/2021 00:52	WG1705138
Antimony	8.02		2.00	1	07/21/2021 00:52	WG1705138
Arsenic	281		2.00	1	07/21/2021 00:52	WG1705138
Barium	276		0.500	1	07/21/2021 00:52	WG1705138
Beryllium	0.568		0.200	1	07/21/2021 00:52	WG1705138
Cadmium	ND		0.500	1	07/21/2021 00:52	WG1705138
Calcium	967		100	1	07/21/2021 00:52	WG1705138
Chromium	6.62		1.00	1	07/21/2021 00:52	WG1705138
Cobalt	3.83		1.00	1	07/21/2021 00:52	WG1705138
Copper	19.5		2.00	1	07/21/2021 00:52	WG1705138
Iron	38900		10.0	1	07/21/2021 00:52	WG1705138
Lead	486		0.500	1	07/21/2021 00:52	WG1705138
Magnesium	2190		100	1	07/21/2021 00:52	WG1705138
Manganese	342		1.00	1	07/21/2021 00:52	WG1705138
Nickel	5.85		2.00	1	07/21/2021 00:52	WG1705138
Potassium	3860		100	1	07/21/2021 00:52	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:52	WG1705138
Silver	2.55		1.00	1	07/21/2021 00:52	WG1705138
Sodium	ND		100	1	07/21/2021 00:52	WG1705138
Thallium	5.93		2.00	1	07/21/2021 00:52	WG1705138
Vanadium	21.4		2.00	1	07/21/2021 00:52	WG1705138
Zinc	73.1		5.00	1	07/21/2021 00:52	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0451		0.0400	1	07/14/2021 13:42	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	13000		20.0	1	07/21/2021 00:55	WG1705138
Antimony	ND		2.00	1	07/21/2021 00:55	WG1705138
Arsenic	26.8		2.00	1	07/21/2021 00:55	WG1705138
Barium	77.7		0.500	1	07/21/2021 00:55	WG1705138
Beryllium	0.924		0.200	1	07/21/2021 00:55	WG1705138
Cadmium	ND		0.500	1	07/21/2021 00:55	WG1705138
Calcium	1450		100	1	07/21/2021 00:55	WG1705138
Chromium	6.27		1.00	1	07/21/2021 00:55	WG1705138
Cobalt	7.61		1.00	1	07/21/2021 00:55	WG1705138
Copper	17.6		2.00	1	07/21/2021 00:55	WG1705138
Iron	23800		10.0	1	07/21/2021 00:55	WG1705138
Lead	101		0.500	1	07/21/2021 00:55	WG1705138
Magnesium	3890		100	1	07/21/2021 00:55	WG1705138
Manganese	1690		5.00	5	07/21/2021 10:51	WG1705138
Nickel	6.29		2.00	1	07/21/2021 00:55	WG1705138
Potassium	1920		100	1	07/21/2021 00:55	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:55	WG1705138
Silver	ND		1.00	1	07/21/2021 00:55	WG1705138
Sodium	ND		100	1	07/21/2021 00:55	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:55	WG1705138
Vanadium	19.9		2.00	1	07/21/2021 00:55	WG1705138
Zinc	164		5.00	1	07/21/2021 00:55	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0412		0.0400	1	07/14/2021 13:44	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9970		20.0	1	07/21/2021 00:57	WG1705138
Antimony	ND		2.00	1	07/21/2021 00:57	WG1705138
Arsenic	2.67		2.00	1	07/21/2021 00:57	WG1705138
Barium	80.7		0.500	1	07/21/2021 00:57	WG1705138
Beryllium	0.368		0.200	1	07/21/2021 00:57	WG1705138
Cadmium	1.28		0.500	1	07/21/2021 00:57	WG1705138
Calcium	3710		100	1	07/21/2021 00:57	WG1705138
Chromium	6.58		1.00	1	07/21/2021 00:57	WG1705138
Cobalt	2.80		1.00	1	07/21/2021 00:57	WG1705138
Copper	7.26		2.00	1	07/21/2021 00:57	WG1705138
Iron	8350		10.0	1	07/21/2021 00:57	WG1705138
Lead	14.7		0.500	1	07/21/2021 00:57	WG1705138
Magnesium	2150		100	1	07/21/2021 00:57	WG1705138
Manganese	261		1.00	1	07/21/2021 00:57	WG1705138
Nickel	4.13		2.00	1	07/21/2021 00:57	WG1705138
Potassium	1540		100	1	07/21/2021 00:57	WG1705138
Selenium	ND		2.00	1	07/21/2021 00:57	WG1705138
Silver	ND		1.00	1	07/21/2021 00:57	WG1705138
Sodium	ND		100	1	07/21/2021 00:57	WG1705138
Thallium	ND		2.00	1	07/21/2021 00:57	WG1705138
Vanadium	16.9		2.00	1	07/21/2021 00:57	WG1705138
Zinc	95.2		5.00	1	07/21/2021 00:57	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 13:47	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9020		20.0	1	07/21/2021 01:00	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:00	WG1705138
Arsenic	95.0		2.00	1	07/21/2021 01:00	WG1705138
Barium	129		0.500	1	07/21/2021 01:00	WG1705138
Beryllium	0.655		0.200	1	07/21/2021 01:00	WG1705138
Cadmium	ND		0.500	1	07/21/2021 01:00	WG1705138
Calcium	1400		100	1	07/21/2021 01:00	WG1705138
Chromium	4.93		1.00	1	07/21/2021 01:00	WG1705138
Cobalt	5.26		1.00	1	07/21/2021 01:00	WG1705138
Copper	21.4		2.00	1	07/21/2021 01:00	WG1705138
Iron	32900		10.0	1	07/21/2021 01:00	WG1705138
Lead	25.7		0.500	1	07/21/2021 01:00	WG1705138
Magnesium	2350		100	1	07/21/2021 01:00	WG1705138
Manganese	577		1.00	1	07/21/2021 01:00	WG1705138
Nickel	4.76		2.00	1	07/21/2021 01:00	WG1705138
Potassium	3300		100	1	07/21/2021 01:00	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:00	WG1705138
Silver	ND		1.00	1	07/21/2021 01:00	WG1705138
Sodium	ND		100	1	07/21/2021 01:00	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:00	WG1705138
Vanadium	22.5		2.00	1	07/21/2021 01:00	WG1705138
Zinc	71.5		5.00	1	07/21/2021 01:00	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0520		0.0400	1	07/14/2021 13:49	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9220		20.0	1	07/21/2021 01:03	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:03	WG1705138
Arsenic	159		2.00	1	07/21/2021 01:03	WG1705138
Barium	112		0.500	1	07/21/2021 01:03	WG1705138
Beryllium	0.604		0.200	1	07/21/2021 01:03	WG1705138
Cadmium	ND		0.500	1	07/21/2021 01:03	WG1705138
Calcium	894		100	1	07/21/2021 01:03	WG1705138
Chromium	5.77		1.00	1	07/21/2021 01:03	WG1705138
Cobalt	3.82		1.00	1	07/21/2021 01:03	WG1705138
Copper	40.4		2.00	1	07/21/2021 01:03	WG1705138
Iron	44300		50.0	5	07/21/2021 10:54	WG1705138
Lead	26.6		0.500	1	07/21/2021 01:03	WG1705138
Magnesium	2090		100	1	07/21/2021 01:03	WG1705138
Manganese	328		1.00	1	07/21/2021 01:03	WG1705138
Nickel	4.69		2.00	1	07/21/2021 01:03	WG1705138
Potassium	5190		100	1	07/21/2021 01:03	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:03	WG1705138
Silver	2.50		1.00	1	07/21/2021 01:03	WG1705138
Sodium	121		100	1	07/21/2021 01:03	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:03	WG1705138
Vanadium	27.8		2.00	1	07/21/2021 01:03	WG1705138
Zinc	46.8		5.00	1	07/21/2021 01:03	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0715		0.0400	1	07/14/2021 14:02	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	6280		20.0	1	07/21/2021 01:06	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:06	WG1705138
Arsenic	3.05		2.00	1	07/21/2021 01:06	WG1705138
Barium	55.1		0.500	1	07/21/2021 01:06	WG1705138
Beryllium	0.628		0.200	1	07/21/2021 01:06	WG1705138
Cadmium	1.73		0.500	1	07/21/2021 01:06	WG1705138
Calcium	1460		100	1	07/21/2021 01:06	WG1705138
Chromium	4.58		1.00	1	07/21/2021 01:06	WG1705138
Cobalt	3.80		1.00	1	07/21/2021 01:06	WG1705138
Copper	19.6		2.00	1	07/21/2021 01:06	WG1705138
Iron	5990		10.0	1	07/21/2021 01:06	WG1705138
Lead	43.7		0.500	1	07/21/2021 01:06	WG1705138
Magnesium	1460		100	1	07/21/2021 01:06	WG1705138
Manganese	1170		5.00	5	07/21/2021 10:04	WG1705138
Nickel	3.93		2.00	1	07/21/2021 01:06	WG1705138
Potassium	1100		100	1	07/21/2021 01:06	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:06	WG1705138
Silver	ND		1.00	1	07/21/2021 01:06	WG1705138
Sodium	ND		100	1	07/21/2021 01:06	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:06	WG1705138
Vanadium	10.1		2.00	1	07/21/2021 01:06	WG1705138
Zinc	133		5.00	1	07/21/2021 01:06	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0485		0.0400	1	07/14/2021 14:05	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	5830		20.0	1	07/21/2021 01:09	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:09	WG1705138
Arsenic	ND		2.00	1	07/21/2021 01:09	WG1705138
Barium	44.6		0.500	1	07/21/2021 01:09	WG1705138
Beryllium	0.419		0.200	1	07/21/2021 01:09	WG1705138
Cadmium	1.46		0.500	1	07/21/2021 01:09	WG1705138
Calcium	1450		100	1	07/21/2021 01:09	WG1705138
Chromium	4.16		1.00	1	07/21/2021 01:09	WG1705138
Cobalt	1.99		1.00	1	07/21/2021 01:09	WG1705138
Copper	18.9		2.00	1	07/21/2021 01:09	WG1705138
Iron	5430		10.0	1	07/21/2021 01:09	WG1705138
Lead	26.8		0.500	1	07/21/2021 01:09	WG1705138
Magnesium	1400		100	1	07/21/2021 01:09	WG1705138
Manganese	498		1.00	1	07/21/2021 01:09	WG1705138
Nickel	3.60		2.00	1	07/21/2021 01:09	WG1705138
Potassium	1080		100	1	07/21/2021 01:09	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:09	WG1705138
Silver	ND		1.00	1	07/21/2021 01:09	WG1705138
Sodium	ND		100	1	07/21/2021 01:09	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:09	WG1705138
Vanadium	8.94		2.00	1	07/21/2021 01:09	WG1705138
Zinc	132		5.00	1	07/21/2021 01:09	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0525		0.0400	1	07/14/2021 14:07	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9070		20.0	1	07/21/2021 01:18	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:18	WG1705138
Arsenic	5.81		2.00	1	07/21/2021 01:18	WG1705138
Barium	58.1		0.500	1	07/21/2021 01:18	WG1705138
Beryllium	0.382		0.200	1	07/21/2021 01:18	WG1705138
Cadmium	0.519		0.500	1	07/21/2021 01:18	WG1705138
Calcium	1570		100	1	07/21/2021 01:18	WG1705138
Chromium	6.30		1.00	1	07/21/2021 01:18	WG1705138
Cobalt	2.52		1.00	1	07/21/2021 01:18	WG1705138
Copper	8.24		2.00	1	07/21/2021 01:18	WG1705138
Iron	8030		10.0	1	07/21/2021 01:18	WG1705138
Lead	24.9		0.500	1	07/21/2021 01:18	WG1705138
Magnesium	2350		100	1	07/21/2021 01:18	WG1705138
Manganese	249		1.00	1	07/21/2021 01:18	WG1705138
Nickel	4.89		2.00	1	07/21/2021 01:18	WG1705138
Potassium	1480		100	1	07/21/2021 01:18	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:18	WG1705138
Silver	ND		1.00	1	07/21/2021 01:18	WG1705138
Sodium	ND		100	1	07/21/2021 01:18	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:18	WG1705138
Vanadium	14.4		2.00	1	07/21/2021 01:18	WG1705138
Zinc	92.9		5.00	1	07/21/2021 01:18	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0485		0.0400	1	07/14/2021 14:10	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	10200		20.0	1	07/21/2021 01:21	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:21	WG1705138
Arsenic	10.1		2.00	1	07/21/2021 01:21	WG1705138
Barium	97.5		0.500	1	07/21/2021 01:21	WG1705138
Beryllium	0.491		0.200	1	07/21/2021 01:21	WG1705138
Cadmium	2.27		0.500	1	07/21/2021 01:21	WG1705138
Calcium	2990		100	1	07/21/2021 01:21	WG1705138
Chromium	6.94		1.00	1	07/21/2021 01:21	WG1705138
Cobalt	12.6		1.00	1	07/21/2021 01:21	WG1705138
Copper	12.0		2.00	1	07/21/2021 01:21	WG1705138
Iron	12600		10.0	1	07/21/2021 01:21	WG1705138
Lead	51.1		0.500	1	07/21/2021 01:21	WG1705138
Magnesium	2480		100	1	07/21/2021 01:21	WG1705138
Manganese	2750		5.00	5	07/21/2021 10:07	WG1705138
Nickel	5.36		2.00	1	07/21/2021 01:21	WG1705138
Potassium	1570		100	1	07/21/2021 01:21	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:21	WG1705138
Silver	ND		1.00	1	07/21/2021 01:21	WG1705138
Sodium	ND		100	1	07/21/2021 01:21	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:21	WG1705138
Vanadium	17.2		2.00	1	07/21/2021 01:21	WG1705138
Zinc	161		5.00	1	07/21/2021 01:21	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0468		0.0400	1	07/14/2021 14:12	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	11100		20.0	1	07/21/2021 01:24	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:24	WG1705138
Arsenic	27.5		2.00	1	07/21/2021 01:24	WG1705138
Barium	77.9		0.500	1	07/21/2021 01:24	WG1705138
Beryllium	0.674		0.200	1	07/21/2021 01:24	WG1705138
Cadmium	1.34		0.500	1	07/21/2021 01:24	WG1705138
Calcium	2550		100	1	07/21/2021 01:24	WG1705138
Chromium	7.53		1.00	1	07/21/2021 01:24	WG1705138
Cobalt	7.64		1.00	1	07/21/2021 01:24	WG1705138
Copper	15.3		2.00	1	07/21/2021 01:24	WG1705138
Iron	16000		10.0	1	07/21/2021 01:24	WG1705138
Lead	114		0.500	1	07/21/2021 01:24	WG1705138
Magnesium	3080		100	1	07/21/2021 01:24	WG1705138
Manganese	1100		5.00	5	07/21/2021 10:10	WG1705138
Nickel	5.93		2.00	1	07/21/2021 01:24	WG1705138
Potassium	2170		100	1	07/21/2021 01:24	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:24	WG1705138
Silver	ND		1.00	1	07/21/2021 01:24	WG1705138
Sodium	ND		100	1	07/21/2021 01:24	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:24	WG1705138
Vanadium	21.6		2.00	1	07/21/2021 01:24	WG1705138
Zinc	239		5.00	1	07/21/2021 01:24	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0453		0.0400	1	07/14/2021 14:15	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	7070		20.0	1	07/21/2021 01:27	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:27	WG1705138
Arsenic	7.90		2.00	1	07/21/2021 01:27	WG1705138
Barium	82.5		0.500	1	07/21/2021 01:27	WG1705138
Beryllium	0.337		0.200	1	07/21/2021 01:27	WG1705138
Cadmium	5.32		0.500	1	07/21/2021 01:27	WG1705138
Calcium	4130		100	1	07/21/2021 01:27	WG1705138
Chromium	4.90		1.00	1	07/21/2021 01:27	WG1705138
Cobalt	2.41		1.00	1	07/21/2021 01:27	WG1705138
Copper	13.5		2.00	1	07/21/2021 01:27	WG1705138
Iron	7570		10.0	1	07/21/2021 01:27	WG1705138
Lead	86.4		0.500	1	07/21/2021 01:27	WG1705138
Magnesium	1790		100	1	07/21/2021 01:27	WG1705138
Manganese	461		1.00	1	07/21/2021 01:27	WG1705138
Nickel	4.14		2.00	1	07/21/2021 01:27	WG1705138
Potassium	1690		100	1	07/21/2021 01:27	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:27	WG1705138
Silver	ND		1.00	1	07/21/2021 01:27	WG1705138
Sodium	ND		100	1	07/21/2021 01:27	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:27	WG1705138
Vanadium	12.3		2.00	1	07/21/2021 01:27	WG1705138
Zinc	387		5.00	1	07/21/2021 01:27	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.164		0.0400	1	07/14/2021 14:17	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	9420		20.0	1	07/21/2021 01:29	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:29	WG1705138
Arsenic	19.8		2.00	1	07/21/2021 01:29	WG1705138
Barium	29.9		0.500	1	07/21/2021 01:29	WG1705138
Beryllium	0.346		0.200	1	07/21/2021 01:29	WG1705138
Cadmium	ND		0.500	1	07/21/2021 01:29	WG1705138
Calcium	312		100	1	07/21/2021 01:29	WG1705138
Chromium	5.36		1.00	1	07/21/2021 01:29	WG1705138
Cobalt	2.08		1.00	1	07/21/2021 01:29	WG1705138
Copper	125		2.00	1	07/21/2021 01:29	WG1705138
Iron	13000		10.0	1	07/21/2021 01:29	WG1705138
Lead	262		0.500	1	07/21/2021 01:29	WG1705138
Magnesium	1880		100	1	07/21/2021 01:29	WG1705138
Manganese	163		1.00	1	07/21/2021 01:29	WG1705138
Nickel	4.21		2.00	1	07/21/2021 01:29	WG1705138
Potassium	1400		100	1	07/21/2021 01:29	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:29	WG1705138
Silver	2.22		1.00	1	07/21/2021 01:29	WG1705138
Sodium	ND		100	1	07/21/2021 01:29	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:29	WG1705138
Vanadium	11.7		2.00	1	07/21/2021 01:29	WG1705138
Zinc	118		5.00	1	07/21/2021 01:29	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0596		0.0400	1	07/14/2021 14:20	WG1703702

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	11200		20.0	1	07/21/2021 01:32	WG1705138
Antimony	ND		2.00	1	07/21/2021 01:32	WG1705138
Arsenic	6.20		2.00	1	07/21/2021 01:32	WG1705138
Barium	26.2		0.500	1	07/21/2021 01:32	WG1705138
Beryllium	0.510		0.200	1	07/21/2021 01:32	WG1705138
Cadmium	0.634		0.500	1	07/21/2021 01:32	WG1705138
Calcium	260		100	1	07/21/2021 01:32	WG1705138
Chromium	6.79		1.00	1	07/21/2021 01:32	WG1705138
Cobalt	5.00		1.00	1	07/21/2021 01:32	WG1705138
Copper	20.1		2.00	1	07/21/2021 01:32	WG1705138
Iron	8680		10.0	1	07/21/2021 01:32	WG1705138
Lead	33.3		0.500	1	07/21/2021 01:32	WG1705138
Magnesium	2460		100	1	07/21/2021 01:32	WG1705138
Manganese	555		1.00	1	07/21/2021 01:32	WG1705138
Nickel	5.23		2.00	1	07/21/2021 01:32	WG1705138
Potassium	1550		100	1	07/21/2021 01:32	WG1705138
Selenium	ND		2.00	1	07/21/2021 01:32	WG1705138
Silver	ND		1.00	1	07/21/2021 01:32	WG1705138
Sodium	ND		100	1	07/21/2021 01:32	WG1705138
Thallium	ND		2.00	1	07/21/2021 01:32	WG1705138
Vanadium	15.2		2.00	1	07/21/2021 01:32	WG1705138
Zinc	151		5.00	1	07/21/2021 01:32	WG1705138

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 10:08	WG1703711

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	10400		20.0	1	07/21/2021 07:41	WG1705170
Antimony	ND		2.00	1	07/21/2021 07:41	WG1705170
Arsenic	7.48		2.00	1	07/21/2021 07:41	WG1705170
Barium	61.2		0.500	1	07/21/2021 07:41	WG1705170
Beryllium	0.653		0.200	1	07/21/2021 07:41	WG1705170
Cadmium	1.08		0.500	1	07/21/2021 07:41	WG1705170
Calcium	1870		100	1	07/21/2021 07:41	WG1705170
Chromium	7.01		1.00	1	07/21/2021 07:41	WG1705170
Cobalt	5.68		1.00	1	07/21/2021 07:41	WG1705170
Copper	10.8		2.00	1	07/21/2021 07:41	WG1705170
Iron	9330		10.0	1	07/21/2021 07:41	WG1705170
Lead	28.5		0.500	1	07/21/2021 07:41	WG1705170
Magnesium	2510		100	1	07/21/2021 07:41	WG1705170
Manganese	755		1.00	1	07/21/2021 07:41	WG1705170
Nickel	6.15		2.00	1	07/21/2021 07:41	WG1705170
Potassium	1520		100	1	07/21/2021 07:41	WG1705170
Selenium	ND		2.00	1	07/21/2021 07:41	WG1705170
Silver	ND		1.00	1	07/21/2021 07:41	WG1705170
Sodium	ND		100	1	07/21/2021 07:41	WG1705170
Thallium	ND		2.00	1	07/21/2021 07:41	WG1705170
Vanadium	16.3		2.00	1	07/21/2021 07:41	WG1705170
Zinc	167		5.00	1	07/21/2021 07:41	WG1705170

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	07/14/2021 10:11	WG1703711

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Aluminum	11800		20.0	1	07/21/2021 07:44	WG1705170
Antimony	ND		2.00	1	07/21/2021 07:44	WG1705170
Arsenic	6.13		2.00	1	07/21/2021 07:44	WG1705170
Barium	58.6		0.500	1	07/21/2021 07:44	WG1705170
Beryllium	0.640		0.200	1	07/21/2021 07:44	WG1705170
Cadmium	0.704		0.500	1	07/21/2021 07:44	WG1705170
Calcium	1440		100	1	07/21/2021 07:44	WG1705170
Chromium	8.13		1.00	1	07/21/2021 07:44	WG1705170
Cobalt	7.34		1.00	1	07/21/2021 07:44	WG1705170
Copper	10.9		2.00	1	07/21/2021 07:44	WG1705170
Iron	10400		10.0	1	07/21/2021 07:44	WG1705170
Lead	24.4		0.500	1	07/21/2021 07:44	WG1705170
Magnesium	2860		100	1	07/21/2021 07:44	WG1705170
Manganese	860		1.00	1	07/21/2021 07:44	WG1705170
Nickel	6.20		2.00	1	07/21/2021 07:44	WG1705170
Potassium	1670		100	1	07/21/2021 07:44	WG1705170
Selenium	ND		2.00	1	07/21/2021 07:44	WG1705170
Silver	1.00		1.00	1	07/21/2021 07:44	WG1705170
Sodium	ND		100	1	07/21/2021 07:44	WG1705170
Thallium	ND		2.00	1	07/21/2021 07:44	WG1705170
Vanadium	17.6		2.00	1	07/21/2021 07:44	WG1705170
Zinc	155		5.00	1	07/21/2021 07:44	WG1705170

Method Blank (MB)

(MB) R3681495-1 07/20/21 10:14

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.000100	0.000200

Laboratory Control Sample (LCS)

(LCS) R3681495-2 07/20/21 10:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00300	0.00342	114	80.0-120	

L1376376-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376376-02 07/20/21 10:18 • (MS) R3681495-3 07/20/21 10:20 • (MSD) R3681495-4 07/20/21 10:22

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00343	0.00340	114	113	1	75.0-125			0.902	20

Method Blank (MB)

(MB) R3679347-1 07/14/21 13:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3679347-2 07/14/21 13:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.553	111	80.0-120	

L1376376-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376376-01 07/14/21 13:11 • (MS) R3679347-3 07/14/21 13:14 • (MSD) R3679347-4 07/14/21 13:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.580	0.543	109	101	1	75.0-125			6.56	20

Method Blank (MB)

(MB) R3679227-1 07/14/21 09:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3679227-2 07/14/21 09:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.472	94.5	80.0-120	

L1376476-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376476-03 07/14/21 09:15 • (MS) R3679227-3 07/14/21 09:17 • (MSD) R3679227-4 07/14/21 09:20

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.543	0.446	109	89.3	1	75.0-125			19.6	20

Method Blank (MB)

(MB) R3682055-1 07/21/21 00:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	20.0
Antimony	U		0.544	2.00
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Beryllium	U		0.0315	0.200
Cadmium	U		0.0471	0.500
Calcium	U		10.6	100
Chromium	U		0.133	1.00
Cobalt	U		0.0811	1.00
Copper	U		0.400	2.00
Iron	U		2.24	10.0
Lead	U		0.208	0.500
Magnesium	U		7.38	100
Manganese	U		0.133	1.00
Nickel	U		0.132	2.00
Potassium	U		20.9	100
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Sodium	U		41.2	100
Thallium	U		0.394	2.00
Vanadium	U		0.506	2.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3682055-2 07/21/21 00:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	973	97.3	80.0-120	
Antimony	100	96.0	96.0	80.0-120	
Arsenic	100	95.0	95.0	80.0-120	
Barium	100	101	101	80.0-120	
Beryllium	100	100	100	80.0-120	
Cadmium	100	95.7	95.7	80.0-120	
Calcium	1000	980	98.0	80.0-120	
Chromium	100	96.8	96.8	80.0-120	
Cobalt	100	99.5	99.5	80.0-120	
Copper	100	96.3	96.3	80.0-120	
Iron	1000	977	97.7	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3682055-2 07/21/21 00:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	100	97.2	97.2	80.0-120	
Magnesium	1000	994	99.4	80.0-120	
Manganese	100	97.1	97.1	80.0-120	
Nickel	100	99.4	99.4	80.0-120	
Potassium	1000	938	93.8	80.0-120	
Selenium	100	96.9	96.9	80.0-120	
Silver	20.0	17.2	85.9	80.0-120	
Sodium	1000	992	99.2	80.0-120	
Thallium	100	97.4	97.4	80.0-120	
Vanadium	100	99.4	99.4	80.0-120	
Zinc	100	97.5	97.5	80.0-120	

L1376376-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376376-01 07/21/21 00:14 • (MS) R3682055-5 07/21/21 00:23 • (MSD) R3682055-6 07/21/21 00:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	11800	15100	15400	329	358	1	75.0-125	V	V	1.92	20
Antimony	100	ND	45.2	45.9	45.2	45.9	1	75.0-125	J6	J6	1.50	20
Arsenic	100	17.4	131	132	114	115	1	75.0-125			0.658	20
Barium	100	76.1	185	194	109	118	1	75.0-125			4.91	20
Beryllium	100	0.558	109	110	109	110	1	75.0-125			0.909	20
Cadmium	100	ND	104	106	104	106	1	75.0-125			1.66	20
Calcium	1000	2540	3710	4230	117	169	1	75.0-125		J5	13.1	20
Chromium	100	6.78	111	113	105	106	1	75.0-125			1.31	20
Cobalt	100	3.68	116	118	112	115	1	75.0-125			2.04	20
Copper	100	9.84	117	120	107	110	1	75.0-125			2.78	20
Iron	1000	13600	19800	22100	615	848	1	75.0-125	V	V	11.1	20
Lead	100	31.2	146	145	115	114	1	75.0-125			0.879	20
Magnesium	1000	2990	4840	4750	184	175	1	75.0-125	J5	J5	1.93	20
Manganese	100	677	1120	1080	442	400	1	75.0-125	E V	E V	3.83	20
Nickel	100	4.98	115	117	110	112	1	75.0-125			1.92	20
Potassium	1000	2140	3270	3500	112	136	1	75.0-125		J5	6.95	20
Selenium	100	ND	104	105	104	105	1	75.0-125			0.976	20
Silver	20.0	ND	20.5	21.0	99.6	102	1	75.0-125			2.62	20
Sodium	1000	ND	1120	1130	104	106	1	75.0-125			1.35	20
Thallium	100	ND	103	103	103	103	1	75.0-125			0.113	20
Vanadium	100	18.1	126	128	108	110	1	75.0-125			1.23	20
Zinc	100	111	215	233	104	122	1	75.0-125			7.97	20

Method Blank (MB)

(MB) R3682058-1 07/21/21 06:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aluminum	U		6.08	20.0
Antimony	U		0.544	2.00
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Beryllium	U		0.0315	0.200
Cadmium	U		0.0471	0.500
Calcium	U		10.6	100
Chromium	U		0.133	1.00
Cobalt	U		0.0811	1.00
Copper	U		0.400	2.00
Iron	U		2.24	10.0
Lead	U		0.208	0.500
Magnesium	U		7.38	100
Manganese	U		0.133	1.00
Nickel	U		0.132	2.00
Potassium	U		20.9	100
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Sodium	U		41.2	100
Thallium	U		0.394	2.00
Vanadium	U		0.506	2.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3682058-2 07/21/21 06:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	1000	972	97.2	80.0-120	
Antimony	100	95.5	95.5	80.0-120	
Arsenic	100	94.9	94.9	80.0-120	
Barium	100	101	101	80.0-120	
Beryllium	100	100	100	80.0-120	
Cadmium	100	95.6	95.6	80.0-120	
Calcium	1000	980	98.0	80.0-120	
Chromium	100	96.3	96.3	80.0-120	
Cobalt	100	99.5	99.5	80.0-120	
Copper	100	96.0	96.0	80.0-120	
Iron	1000	974	97.4	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3682058-2 07/21/21 06:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	100	96.9	96.9	80.0-120	
Magnesium	1000	990	99.0	80.0-120	
Manganese	100	96.6	96.6	80.0-120	
Nickel	100	99.5	99.5	80.0-120	
Potassium	1000	925	92.5	80.0-120	
Selenium	100	96.5	96.5	80.0-120	
Silver	20.0	17.1	85.4	80.0-120	
Sodium	1000	982	98.2	80.0-120	
Thallium	100	97.6	97.6	80.0-120	
Vanadium	100	99.2	99.2	80.0-120	
Zinc	100	97.0	97.0	80.0-120	

L1376284-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376284-09 07/21/21 06:54 • (MS) R3682058-5 07/21/21 07:03 • (MSD) R3682058-6 07/21/21 07:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	1000	10700	13800	11300	313	67.9	1	75.0-125	V	V	19.5	20
Antimony	100	ND	57.9	66.8	56.3	65.2	1	75.0-125	J6	J6	14.4	20
Arsenic	100	ND	107	105	105	103	1	75.0-125			2.12	20
Barium	100	185	385	271	200	86.4	1	75.0-125	J5	J3	34.7	20
Beryllium	100	0.505	105	105	105	104	1	75.0-125			0.626	20
Cadmium	100	4.96	106	104	101	98.8	1	75.0-125			2.34	20
Calcium	1000	31700	39300	20300	762	0.000	1	75.0-125	V	J3 V	63.8	20
Chromium	100	22.8	134	117	112	94.6	1	75.0-125			13.6	20
Cobalt	100	8.63	122	113	113	105	1	75.0-125			7.28	20
Copper	100	74.7	334	154	259	78.8	1	75.0-125	J5	J3	74.0	20
Iron	1000	19100	27000	20200	788	105	1	75.0-125	V	J3	28.9	20
Lead	100	131	326	217	194	85.6	1	75.0-125	J5	J3	40.1	20
Magnesium	1000	4230	6710	5260	248	103	1	75.0-125	V	J3	24.2	20
Manganese	100	242	636	311	394	68.8	1	75.0-125	J5	J3 J6	68.7	20
Nickel	100	59.2	168	134	109	75.0	1	75.0-125		J3	22.3	20
Potassium	1000	1980	3630	3160	165	118	1	75.0-125	J5		14.0	20
Selenium	100	ND	91.9	96.1	91.9	96.1	1	75.0-125			4.53	20
Silver	20.0	ND	19.0	18.8	95.2	94.2	1	75.0-125			1.05	20
Sodium	1000	1190	2550	2110	136	91.5	1	75.0-125	J5		19.0	20
Thallium	100	ND	95.9	97.0	95.9	97.0	1	75.0-125			1.17	20
Vanadium	100	17.3	121	117	104	99.6	1	75.0-125			3.60	20
Zinc	100	1100	1780	1060	676	0.000	1	75.0-125	V	J3 V	50.4	20

Method Blank (MB)

(MB) R3681605-1 07/20/21 11:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Aluminum	0.0760	J	0.0561	0.200
Antimony	U		0.00430	0.0100
Arsenic	U		0.00440	0.0100
Barium	U		0.000736	0.00500
Beryllium	U		0.000330	0.00200
Cadmium	U		0.000479	0.00200
Calcium	U		0.0793	1.00
Chromium	U		0.00140	0.0100
Cobalt	U		0.000840	0.0100
Copper	U		0.00368	0.0100
Iron	U		0.0180	0.100
Lead	U		0.00299	0.00600
Magnesium	U		0.0853	1.00
Manganese	0.00132	J	0.000934	0.0100
Nickel	0.00172	J	0.00161	0.0100
Potassium	U		0.261	2.00
Selenium	U		0.00735	0.0100
Silver	U		0.00154	0.00500
Sodium	U		0.504	3.00
Thallium	U		0.00431	0.0100
Vanadium	U		0.00499	0.0200
Zinc	U		0.00652	0.0500

Laboratory Control Sample (LCS)

(LCS) R3681605-2 07/20/21 11:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aluminum	10.0	9.85	98.5	80.0-120	
Antimony	1.00	0.971	97.1	80.0-120	
Arsenic	1.00	0.983	98.3	80.0-120	
Barium	1.00	1.02	102	80.0-120	
Beryllium	1.00	1.01	101	80.0-120	
Cadmium	1.00	0.975	97.5	80.0-120	
Calcium	10.0	9.98	99.8	80.0-120	
Chromium	1.00	0.994	99.4	80.0-120	
Cobalt	1.00	0.991	99.1	80.0-120	
Copper	1.00	0.992	99.2	80.0-120	
Iron	10.0	9.88	98.8	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R3681605-2 07/20/21 11:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	1.00	0.980	98.0	80.0-120	
Magnesium	10.0	10.2	102	80.0-120	
Manganese	1.00	0.966	96.6	80.0-120	
Nickel	1.00	0.981	98.1	80.0-120	
Potassium	10.0	9.62	96.2	80.0-120	
Selenium	1.00	0.982	98.2	80.0-120	
Silver	0.200	0.197	98.3	80.0-120	
Sodium	10.0	10.0	100	80.0-120	
Thallium	1.00	0.994	99.4	80.0-120	
Vanadium	1.00	1.01	101	80.0-120	
Zinc	1.00	0.965	96.5	80.0-120	

L1376376-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1376376-06 07/20/21 11:35 • (MS) R3681605-4 07/20/21 11:40 • (MSD) R3681605-5 07/20/21 11:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aluminum	10.0	ND	9.95	9.94	98.8	98.7	1	75.0-125			0.0774	20
Antimony	1.00	ND	0.989	0.980	98.9	98.0	1	75.0-125			0.859	20
Arsenic	1.00	ND	0.992	0.990	99.2	99.0	1	75.0-125			0.169	20
Barium	1.00	ND	1.02	1.03	102	102	1	75.0-125			0.367	20
Beryllium	1.00	ND	1.01	1.02	101	102	1	75.0-125			0.877	20
Cadmium	1.00	ND	0.979	0.985	97.9	98.5	1	75.0-125			0.644	20
Calcium	10.0	ND	10.5	10.6	99.9	101	1	75.0-125			0.757	20
Chromium	1.00	ND	0.997	1.00	99.7	100	1	75.0-125			0.763	20
Cobalt	1.00	ND	1.00	1.01	100	101	1	75.0-125			0.548	20
Copper	1.00	ND	0.992	0.995	99.2	99.5	1	75.0-125			0.239	20
Iron	10.0	ND	9.92	10.0	99.0	99.8	1	75.0-125			0.827	20
Lead	1.00	ND	0.992	0.997	99.2	99.7	1	75.0-125			0.466	20
Magnesium	10.0	ND	10.3	10.3	102	102	1	75.0-125			0.0629	20
Manganese	1.00	ND	0.975	0.982	96.9	97.5	1	75.0-125			0.686	20
Nickel	1.00	ND	0.992	1.00	99.2	100	1	75.0-125			0.894	20
Potassium	10.0	ND	11.1	11.2	94.6	95.5	1	75.0-125			0.800	20
Selenium	1.00	ND	0.991	0.991	99.1	99.1	1	75.0-125			0.0583	20
Silver	0.200	ND	0.196	0.198	98.2	98.8	1	75.0-125			0.664	20
Sodium	10.0	ND	11.8	11.9	97.5	98.4	1	75.0-125			0.751	20
Thallium	1.00	ND	1.00	1.00	100	100	1	75.0-125			0.218	20
Vanadium	1.00	ND	1.01	1.02	101	102	1	75.0-125			0.511	20
Zinc	1.00	ND	0.976	0.982	97.6	98.2	1	75.0-125			0.678	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Herndon-Group
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Billing Information:
Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Pres Chk

Report to:
Roy Weindorf

Email To: **roy.weindorf@herndon-group.com**

Project Description: Burrows Gulch

City/State Collected:

Please Circle: PT MT CT ET

Phone: **866-487-3895**

Client Project #

Lab Project #

Collected by (print): Anne Eisemen

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FF M6010TAL-D 250mlHDPE-NoPres	M6010TAL 250mlHDPE-HNO3	M6010TAL 2ozClr-NoPres	SPLP M6010TAL 1L-Clr-NoPres							Remarks	Sample # (lab only)
BG-SS-85	C	SS	0-2"	070721	1155	2			X	X								-01/02
BG-SS-77		SS			1030	2												03/04
BG-SS-92		SS			1125	2												05/06
BG-SS-39		SS			1050	2												07/08
BG-SS-11		SS			1015	2												09/10
BG-SS-72		SS			1150	1												11
BG-SS-99		SS			1100	1												12
BG-SS-97		SS			1050	2												13
BG-SS-86		SS			1035	1												14
BG-SS-60		SS			1200	1												15

Analysis / Container / Preservative

Chain of Custody Page 1 of 3

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SDG # L1376376

C145

Acctnum: **HERGROSCO**
Template: **T190687**
Prelogin: **P858855**
PM: **824 - Chris Ward**
PB:
Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Please do an MS/MSD for 20% of samples.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y ✓N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Anne Eisemen	7/8/21	0800		NA
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
				1.4+0.1=1.4 27
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				7/9 0945

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Company Name/Address:
Herndon-Group

4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Billing Information:
Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Pres Chk

Report to:
Roy Weindorf

Email To: **roy.weindorf@herndon-group.com**

Project Description:

City/State Collected:

Please Circle: PT MT CT ET

Phone: **866-487-3895**

Client Project #

Lab Project #

Collected by (print): Anne Eiseman

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	FF M6010TAL-D 250mlHDPE-NoPres	M6010TAL 250mlHDPE-HNO3	M6010TAL 2ozClr-NoPres	SPLP M6010TAL 1L-Clr-NoPres	Remarks	Sample # (lab only)
BG-SS-101	C	SS	0-2"	070721	1110	1			X			16
BG-SS-80		SS			1225							17
BG-SS-950		SS			1115							18
BG-SS-50		SS			1105							19
BG-SS-49		SS			1130							20
BG-SS-62		SS			1140							21
BG-SS-30		SS			1035							22
BG-SS-09		SS			1005							23
BG-SS-32		SS			0930							24
BG-SS-56		SS			0940							25

Chain of Custody Page 2 of 3

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SDG # L1376376

Table #

Acctnum: **HERGROSCO**

Template: **T190687**

Prelogin: **P858855**

PM: **824 - Chris Ward**

PB:

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	7/8/21	0800		ACOR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
				1.4+0=1.4 27
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				7/9 0995

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Company Name/Address:
Herndon-Group

4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Billing Information:
Roy Weindorf
4001 South Decatur Blvd #37-376
Las Vegas, NV 89103

Pres Chk

Report to:
Roy Weindorf

Email To: **roy.weindorf@herndon-group.com**

Project Description:

City/State Collected: CO

Please Circle: PT MT CT ET

Phone: **866-487-3895**

Client Project #

Lab Project #

Collected by (print): Anne Eisman

Site/Facility ID #

P.O. #

Collected by (signature): Anne Eisman

Immediately Packed on Ice N___ Y___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 3 of 3

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SDG # L1376376

Table #

Acctnum: **HERGROSCO**

Template: **T186957**

Prelogin: **P845432**

PM: **824 - Chris Ward**

PB:

Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	M6010TAL 2ozClr-NoPres	Remarks	Sample # (lab only)
BG-SS-61	C	SS	0-2"	070721	1145	1	X		26
BG-SS-961	C	SS	1	1	1150	1	X		27
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		
		SS				1	X		

Anne Eisman 7/7/21

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

	Date:	Time:		
Relinquished by : (Signature) Anne Eisman	7/8/21	0800	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 1.4+0.2=1.6 27
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/9 Time: 0945

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Appendix F

Analytical Results Summary Tables

Use or disclosure of data contained on this sheet is restricted.

Method	Analyte	Units	CAS Number	RSL TAPW TR 1e-06 THQ 1 MAY2021	BG_SW_01_1020-D		BG_SW_02_1020-D		BG_SW_03_1020-D		BG_SW_04_1020-D		BG_SW_05_1020-D		BG_SW_01_1020-T		BG_SW_02_1020-T		BG_SW_03_1020-T		BG_SW_04_1020-T		BG_SW_05_1020-T	
M200.7 ICP	Aluminum	mg/L	7429-90-5	20	**0.189**	B	**0.526**		**10.2**		**22**		**7**		**0.149**	B	**1.12**		**10.4**		**22**		**6.94**	
M200.7 ICP	Antimony	mg/L	7440-36-0	0.0078	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U	0.0004	U
M200.7 ICP	Arsenic	mg/L	7440-38-2	0.000052	0.0002	U	**0.00024**	B	**0.00031**	B	**0.0005**	B	**0.0003**	B	0.0002	U	**0.00041**	B	**0.0007**	B	**0.00211**		**0.00093**	B
M200.7 ICP	Barium	mg/L	7440-39-3	3.8	**0.0305**	B	**0.0262**	B	**0.0236**	B	**0.0269**	B	**0.033**	B	**0.0184**	B	**0.014**	B	**0.0103**	B	**0.0134**	B	**0.0193**	B
M200.7 ICP	Beryllium	mg/L	7440-41-7	0.025	**0.000404**		**0.000217**	B	**0.00113**		**0.00238**		**0.00313**		**0.000248**	B	**0.000199**	B	**0.000913**		**0.00209**		**0.00283**	
M200.7 ICP	Cadmium	mg/L	7440-43-9	0	**0.00103**		**0.000995**		**0.0126**		**0.0226**		**0.0159**		**0.000993**		**0.0014**		**0.0124**		**0.0227**		**0.016**	
M200.7 ICP	Calcium	mg/L	7440-70-2	0	**9.4**		**9.17**		**16.4**		**24.6**		**27.1**		**9.81**		**9.22**		**16.4**		**24.1**		**26.7**	
M200.7 ICP	Chromium	mg/L	7440-47-3	0	**0.012**	B	**0.01**	B	**0.011**	B	**0.012**	B	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
M200.7 ICP	Cobalt	mg/L	7440-48-4	0.006	**0.01**	B	**0.011**	B	**0.026**	B	**0.036**	B	**0.016**	B	0.01	U	0.01	U	0.01	U	**0.021**	B	0.01	U
M200.7 ICP	Copper	mg/L	7440-50-8	0.8	**0.013**	B	**0.015**	B	**0.075**		**0.123**		**0.065**		0.01	U	**0.018**	B	**0.056**		**0.105**		**0.052**	
M200.7 ICP	Iron	mg/L	7439-89-6	14	0.06	U	0.06	U	**0.077**	B	**0.242**		0.06	U	**0.069**	B	**0.228**		0.06	U	**0.218**		0.06	U
M200.7 ICP	Lead	mg/L	7439-92-1	0.015	**0.00137**		**0.00857**		**0.013**		**0.0388**		**0.00601**		**0.00142**		**0.119**		**0.0129**		**0.0393**		**0.00611**	
M200.7 ICP	Magnesium	mg/L	7439-95-4	0	**0.45**	B	**0.52**	B	**2.57**		**4.57**		**4.2**		**0.76**	B	**0.77**	B	**2.86**		**4.78**		**4.36**	
M200.7 ICP	Manganese	mg/L	7439-96-5	0	**0.023**	B	**0.059**		**5.9**		**10.6**		**4.48**		**0.037**	B	**0.406**		**6.43**		**11.4**		**4.78**	
M245.1 CVAA	Mercury	mg/L	7439-97-6	0.00063	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
M200.7 ICP	Nickel	mg/L	7440-02-0	0.39	0.008	U	0.008	U	**0.0096**	B	**0.0212**	B	**0.0133**	B	0.008	U	0.008	U	**0.0088**	B	**0.0211**	B	**0.014**	B
M200.7 ICP	Potassium	mg/L	7440-09-7	0	0.2	U	**0.24**	B	**0.65**	B	**0.62**	B	**1.02**		**0.37**	B	**0.32**	B	**0.72**	B	**0.66**	B	**1.07**	
M200.7 ICP	Selenium	mg/L	7782-49-2	0.1	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	**0.00032**		0.0001	U
M200.7 ICP	Silver	mg/L	7440-22-4	0.094	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
M200.7 ICP	Sodium	mg/L	7440-23-5	0	0.2	U	0.2	U	**0.28**	B	**0.36**	B	**1.6**		**0.42**	B	**0.22**	B	**0.34**	B	**0.4**	B	**1.61**	
M200.7 ICP	Thallium	mg/L	7440-28-0	0.0002	0.0001	U	0.0001	U	**0.00012**	B	**0.00011**	B	0.0001	U	0.0001	U	0.0001	U	**0.00011**	B	**0.00016**	B	0.0001	U
M200.7 ICP	Vanadium	mg/L	7440-62-2	0.086	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
M200.7 ICP	Zinc	mg/L	7440-66-6	6	**0.227**		**0.22**		**1.98**		**3.43**		**2.33**		**0.223**		**0.237**		**2.02**		**3.44**		**2.35**	

Client Sample ID					B6_SW_A07_G	B6_SW_HT	B6_SW_A07_D1	B6_SW_A07_C1	B6_SW_A07_B	B6_SW_A07	B6_SW_5	B6_SW_95
Date Collected					06/12/2021	06/12/2021	06/12/2021	06/12/2021	06/12/2021	06/12/2021	06/12/2021	06/12/2021
Method	Analyte	Units	CAS	RSL TAPW TR 1e-06 THQ 1 MAY2021	Result	Result	Result	Result	Result	Result	Result	Result
6010B	ALUMINUM	mg/l	7429-90-5	20	**0.642**	**10.4**	**1.87**	**6.68**	**5.17**	**3.24**	**2.88**	**2.88**
6010B	ANTIMONY	mg/l	7440-36-0	0.0078	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	ARSENIC	mg/l	7440-38-2	0.000052	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	BARIUM	mg/l	7440-39-3	3.8	**0.0133**	**0.00842**	**0.0107**	**0.0215**	**0.0188**	**0.0156**	**0.0162**	**0.0169**
6010B	BERYLLIUM	mg/l	7440-41-7	0.025	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
6010B	CADMIUM	mg/l	7440-43-9	0.0092	<0.00200	0.0109	**0.00255**	0.0135	0.0135	**0.00837**	**0.00739**	**0.00751**
6010B	CALCIUM	mg/l	7440-70-2		**5.16**	**7.79**	**4.69**	**8.27**	**9.71**	**8.25**	**7.71**	**7.69**
6010B	CHROMIUM	mg/l	7440-47-3		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	COBALT	mg/l	7440-48-4	0.006	<0.0100	0.0164	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	COPPER	mg/l	7440-50-8	0.8	**0.0115**	**0.0752**	**0.018**	**0.0285**	**0.0262**	**0.0309**	**0.0289**	**0.0271**
6010B	IRON	mg/l	7439-89-6	14	**0.277**	**0.703**	**0.107**	<0.100	**0.129**	**0.121**	**0.101**	**0.111**
6010B	LEAD	mg/l	7439-92-1	0.015	**0.00778**	**0.00894**	**0.00638**	**0.0107**	**0.00754**	**0.0115**	**0.0117**	**0.0118**
6010B	MAGNESIUM	mg/l	7439-95-4		<1.00	**1.64**	<1.00	**1.23**	**1.22**	**1.28**	**1.2**	**1.19**
6010B	MANGANESE	mg/l	7439-96-5	0.43	0.524	3.8	0.866	2.15	2.16	1.57	1.37	1.36
6010B	NICKEL	mg/l	7440-02-0	0.39	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	POTASSIUM	mg/l	7440-09-7		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
6010B	SELENIUM	mg/l	7782-49-2	0.1	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	SILVER	mg/l	7440-22-4	0.094	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
6010B	SODIUM	mg/l	7440-23-5		<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00
6010B	THALLIUM	mg/l	7440-28-0	0.0002	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	VANADIUM	mg/l	7440-62-2	0.086	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
6010B	ZINC	mg/l	7440-66-6	6	**0.238**	**1.36**	**0.41**	**2.13**	**2.13**	**1.25**	**1.12**	**1.12**
7470A	MERCURY	mg/l	7439-97-6	0.00063	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200
6010B	ALUMINUM,DISSOLVED	mg/l	7429-90-5	20	**0.628**	**10.4**	**1.9**	**6.72**	**5.1**	**3.13**	**2.82**	**2.83**
6010B	ANTIMONY,DISSOLVED	mg/l	7440-36-0	0.0078	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	ARSENIC,DISSOLVED	mg/l	7440-38-2	0.000052	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	BARIUM,DISSOLVED	mg/l	7440-39-3	3.8	**0.0133**	**0.00917**	**0.0108**	**0.0217**	**0.0189**	**0.0156**	**0.0156**	**0.0161**
6010B	BERYLLIUM,DISSOLVED	mg/l	7440-41-7	0.025	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200
6010B	CADMIUM,DISSOLVED	mg/l	7440-43-9	0.0092	<0.00200	0.011	**0.00258**	0.014	0.0138	**0.00864**	**0.0074**	**0.00786**
6010B	CALCIUM,DISSOLVED	mg/l	7440-70-2		**5.15**	**7.86**	**4.6**	**8.16**	**9.47**	**8.09**	**7.55**	**7.5**
6010B	CHROMIUM,DISSOLVED	mg/l	7440-47-3		<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	COBALT,DISSOLVED	mg/l	7440-48-4	0.006	<0.0100	0.0167	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	COPPER,DISSOLVED	mg/l	7440-50-8	0.8	<0.0100	**0.0775**	**0.0186**	**0.0291**	**0.0253**	**0.0297**	**0.0261**	**0.0266**
6010B	IRON,DISSOLVED	mg/l	7439-89-6	14	<0.100	**0.666**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
6010B	LEAD,DISSOLVED	mg/l	7439-92-1	0.015	**0.00666**	**0.00701**	<0.00600	**0.0109**	**0.00634**	**0.00906**	**0.0098**	**0.00696**
6010B	MAGNESIUM,DISSOLVED	mg/l	7439-95-4		<1.00	**1.62**	<1.00	**1.19**	**1.17**	**1.25**	**1.15**	**1.17**
6010B	MANGANESE,DISSOLVED	mg/l	7439-96-5	0.43	0.522	3.79	0.864	2.16	2.13	1.56	1.37	1.36
6010B	NICKEL,DISSOLVED	mg/l	7440-02-0	0.39	<0.0100	**0.0107**	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	POTASSIUM,DISSOLVED	mg/l	7440-09-7		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
6010B	SELENIUM,DISSOLVED	mg/l	7782-49-2	0.1	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	SILVER,DISSOLVED	mg/l	7440-22-4	0.094	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
6010B	SODIUM,DISSOLVED	mg/l	7440-23-5		<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00
6010B	THALLIUM,DISSOLVED	mg/l	7440-28-0	0.0002	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
6010B	VANADIUM,DISSOLVED	mg/l	7440-62-2	0.086	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
6010B	ZINC,DISSOLVED	mg/l	7440-66-6	6	**0.217**	**1.37**	**0.416**	**2.14**	**2.12**	**1.25**	**1.14**	**1.14**
7470A	MERCURY,DISSOLVED	mg/l	7439-97-6	0.00063	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200

Client Sample ID					BG-SW-BG1A		BG-SW-A07G		BG-SW-A07C1		BG-SW-A07E		BG-SW-A07B		BG-SW-97B		BG-SW-A07		BG-SW-BG4	
Date Collected					07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021	
Method	Analyte	Units	CAS	RSL TAPW TR 1e-06 THQ 1 MAY2021	Result		Result		Result		Result		Result		Result		Result		Result	Qualifier
6010B	ALUMINUM	mg/l	7429-90-5	20	**0.821**		**0.423**		**6.77**		**3.37**		**6.52**		**6.6**		**4.54**		**4.22**	
6010B	ANTIMONY	mg/l	7440-36-0	0.0078	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	ARSENIC	mg/l	7440-38-2	0.000052	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	BARIUM	mg/l	7440-39-3	3.8	**0.017**		**0.0174**		**0.0269**		**0.0152**		**0.0231**		**0.0232**		**0.0175**		**0.0185**	
6010B	BERYLLIUM	mg/l	7440-41-7	0.025	<0.00200		<0.00200		<0.00200		<0.00200		**0.0028**		**0.00282**		**0.00216**		**0.00217**	
6010B	CADMIUM	mg/l	7440-43-9	0.0092	<0.00200		<0.00200		0.0144		**0.00501**		0.0134		0.0134		0.0107		0.0103	
6010B	CALCIUM	mg/l	7440-70-2		**7.49**		**6.97**		**9.61**		**7.1**		**12.9**		**13**		**12.2**		**12**	
6010B	CHROMIUM	mg/l	7440-47-3		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	COBALT	mg/l	7440-48-4	0.006	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	COPPER	mg/l	7440-50-8	0.8	**0.0109**		<0.0100		**0.0466**		**0.029**		**0.037**		**0.0375**		**0.0523**		**0.049**	
6010B	IRON	mg/l	7439-89-6	14	<0.100		<0.100		<0.100		**0.113**		**0.119**		**0.113**		**0.101**		<0.100	
6010B	LEAD	mg/l	7439-92-1	0.015	0.0194		**0.0105**		**0.0132**		**0.0127**		**0.0103**		**0.011**		**0.00965**		**0.0104**	
6010B	MAGNESIUM	mg/l	7439-95-4		<1.00		<1.00		**1.36**		<1.00		**1.77**		**1.8**		**2.17**		**2.12**	
6010B	MANGANESE	mg/l	7439-96-5	0.43	**0.259**		**0.242**		2.45		1.5		2.93		2.92		2.77		2.57	
6010B	NICKEL	mg/l	7440-02-0	0.39	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	POTASSIUM	mg/l	7440-09-7		<2.00		<2.00		<2.00		<2.00		<2.00		<2.00		<2.00		<2.00	
6010B	SELENIUM	mg/l	7782-49-2	0.1	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	SILVER	mg/l	7440-22-4	0.094	<0.00500		<0.00500		<0.00500		<0.00500		<0.00500		<0.00500		<0.00500		<0.00500	
6010B	SODIUM	mg/l	7440-23-5		<3.00		<3.00		<3.00		<3.00		<3.00		<3.00		<3.00		<3.00	
6010B	THALLIUM	mg/l	7440-28-0	0.0002	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	VANADIUM	mg/l	7440-62-2	0.086	<0.0200		<0.0200		<0.0200		<0.0200		<0.0200		<0.0200		<0.0200		<0.0200	
6010B	ZINC	mg/l	7440-66-6	6	**0.277**		**0.256**		**2.36**		**0.714**		**2.4**		**2.42**		**1.62**		**1.54**	
6010B	ALUMINUM,DISSOLVED	mg/l	7429-90-5	20	**0.233**		**0.402**		**6.88**		**3.44**		**6.69**		**6.67**		**4.59**		**3.98**	
6010B	ANTIMONY,DISSOLVED	mg/l	7440-36-0	0.0078	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	ARSENIC,DISSOLVED	mg/l	7440-38-2	0.000052	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	BARIUM,DISSOLVED	mg/l	7440-39-3	3.8	**0.0176**	B	**0.0183**	B	**0.0279**	B	**0.0159**	B	**0.0238**	B	**0.024**	B	**0.0192**	B	**0.0197**	B
6010B	BERYLLIUM,DISSOLVED	mg/l	7440-41-7	0.025	<0.00200		<0.00200		<0.00200		<0.00200		**0.00278**		**0.00278**		**0.00212**		**0.00226**	
6010B	CADMIUM,DISSOLVED	mg/l	7440-43-9	0.0092	<0.00200		<0.00200		0.0149		**0.00487**		0.0138		0.0139		0.0108		0.0106	
6010B	CALCIUM,DISSOLVED	mg/l	7440-70-2		**7.64**		**6.94**		**9.7**		**7.22**		**13.1**		**13.1**		**12.3**		**12.5**	
6010B	CHROMIUM,DISSOLVED	mg/l	7440-47-3		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	COBALT,DISSOLVED	mg/l	7440-48-4	0.006	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	COPPER,DISSOLVED	mg/l	7440-50-8	0.8	<0.0100		<0.0100		**0.0467**		**0.0293**		**0.0364**		**0.0371**		**0.0513**		**0.0499**	
6010B	IRON,DISSOLVED	mg/l	7439-89-6	14	<0.100		<0.100		<0.100		<0.100		**0.113**		<0.100		<0.100		<0.100	
6010B	LEAD,DISSOLVED	mg/l	7439-92-1	0.015	**0.00942**		**0.00867**		**0.0124**		**0.0127**		**0.0108**		**0.0096**		**0.00712**		**0.00914**	
6010B	MAGNESIUM,DISSOLVED	mg/l	7439-95-4		<1.00		<1.00		**1.35**		<1.00		**1.72**		**1.74**		**2.14**		**2.09**	
6010B	MANGANESE,DISSOLVED	mg/l	7439-96-5	0.43	**0.235**		**0.237**		2.48		1.52		2.99		3		2.79		2.62	
6010B	NICKEL,DISSOLVED	mg/l	7440-02-0	0.39	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	POTASSIUM,DISSOLVED	mg/l	7440-09-7		<2.00		<2.00		<2.00		<2.00		<2.00		<2.00		<2.00		<2.00	
6010B	SELENIUM,DISSOLVED	mg/l	7782-49-2	0.1	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	SILVER,DISSOLVED	mg/l	7440-22-4	0.094	<0.00500		<0.00500		<0.00500		<0.00500		<0.00500		<0.00500		<0.00500		<0.00500	
6010B	SODIUM,DISSOLVED	mg/l	7440-23-5		<3.00		<3.00		<3.00		<3.00		<3.00		<3.00		<3.00		<3.00	
6010B	THALLIUM,DISSOLVED	mg/l	7440-28-0	0.0002	<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100		<0.0100	
6010B	VANADIUM,DISSOLVED	mg/l	7440-62-2	0.086	<0.0200		<0.0200		<0.0200		<0.0200		<0.0200		<0.0200		<0.0200		<0.0200	
6010B	ZINC,DISSOLVED	mg/l	7440-66-6	6	**0.286**		**0.272**		**2.44**		**0.75**		**2.47**		**2.48**		**1.68**		**1.59**	
7470A	MERCURY	mg/l	7439-97-6	0.00063	<0.000200		<0.000200		<0.000200		<0.000200		<0.000200		<0.000200		<0.000200		<0.000200	J3 J6 O1
7470A	MERCURY,DISSOLVED	mg/l	7439-97-6	0.00063	<0.000200		<0.000200		<0.000200		<0.000200		<0.000200		<0.000200		<0.000200		<0.000200	

Qualifiers: B: The same analyte is found in the associated blank. **J3:** The associated batch QC was outside the established quality control range for precision. **J6:** The sample matrix interfered with the ability to make any accurate determination; spike value is low

O1: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

Client Sample ID					BG-SD-BG1A		BG-SD-A07G		BG-SD-A07C1		BG-SD-A07E		BG-SD-A07B		BG-SD-97B		BG-SD-A07		BG-SD-BG4	
Date Collected					07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021		07/06/2021	
Method	Analyte	Units	CAS	RSL Ind Soil TR 1e-06 THQ 1 MAY2021	Result		Result		Result		Result		Result		Result		Result		Result	
6010B	ALUMINUM	mg/kg	7429-90-5	1100000	**9990**		**10200**		**12500**		**4720**		**13900**		**15900**		**14300**		**12000**	
6010B	ANTIMONY	mg/kg	7440-36-0	470	<5.44		**2.01**		<0.544		**2.8**		<5.44		<5.44		<5.44		<0.544	
6010B	ARSENIC	mg/kg	7440-38-2	3	41.7		90.7		16.3		62.7		38.1		33.7		54.4		9.37	
6010B	BARIUM	mg/kg	7440-39-3	220000	**61.4**		**37.5**		**43.3**		**35.1**		**40.8**		**52.3**		**85.7**		**22**	
6010B	BERYLLIUM	mg/kg	7440-41-7	2300	<0.315		**0.772**		**0.441**		**0.353**		<0.315		**2.22**		**2.17**		**0.984**	
6010B	CADMIUM	mg/kg	7440-43-9	980	<0.471		**1.63**		<0.0471		<0.0471		**6.26**		**8.73**		**9.51**		**1.86**	
6010B	CALCIUM	mg/kg	7440-70-2		<106		**780**		**353**		<10.6		<106		<106		**1050**		**2610**	
6010B	CHROMIUM	mg/kg	7440-47-3		**15.9**		**3.24**		**7.09**		**12.3**		<1.33		<1.33		<1.33		**1.47**	
6010B	COBALT	mg/kg	7440-48-4	350	**19.7**		**14.7**		**3.02**		**6.52**		**28.6**		**47.4**		**28.6**		**14.1**	
6010B	COPPER	mg/kg	7440-50-8	47000	**117**		**106**		**46**		**49.7**		**127**		**168**		**187**		**98.5**	
6010B	IRON	mg/kg	7439-89-6	820000	**15400**		**23000**		**10100**		**43900**		**33400**		**28300**		**29400**		**15200**	
6010B	LEAD	mg/kg	7439-92-1	800	**568**		895		**158**		**273**		**403**		**618**		**404**		**76.9**	
6010B	MAGNESIUM	mg/kg	7439-95-4		**2150**		**2040**		**2620**		**1060**		**1250**		**1090**		**2380**		**3060**	
6010B	MANGANESE	mg/kg	7439-96-5	26000	**6650**		**4840**		**201**		**1580**		**12400**		**17200**		**12500**		**3920**	
6010B	NICKEL	mg/kg	7440-02-0	22000	**37.3**		**4.81**		**5**		**3.65**		<1.32		<1.32		<1.32		**3.33**	
6010B	POTASSIUM	mg/kg	7440-09-7		**1150**		**1630**		**1720**		**1460**		**1090**		**1240**		**1480**		**1020**	
6010B	SELENIUM	mg/kg	7782-49-2	5800	<7.64		**2.47**		<0.764		<0.764		<7.64		<7.64		<7.64		<0.764	
6010B	SILVER	mg/kg	7440-22-4	5800	<1.27		**3.12**		**2.08**		**1.03**		<1.27		<1.27		<1.27		<0.127	
6010B	SODIUM	mg/kg	7440-23-5		<412		<41.2		<41.2		<41.2		<412		<412		<412		<41.2	
6010B	THALLIUM	mg/kg	7440-28-0	12	<3.94		<0.394		<0.394		<0.394		<3.94		<3.94		<3.94		<0.394	
6010B	VANADIUM	mg/kg	7440-62-2	5800	<5.06		**9.15**		**16.2**		**13.8**		<5.06		<5.06		<5.06		**7.13**	
6010B	ZINC	mg/kg	7440-66-6	350000	**444**		**290**		**226**		**139**		**557**		**620**		**675**		**293**	
7471A	MERCURY	mg/kg	7439-97-6	46	<0.0180		<0.0180		**0.0477**		<0.0180		<0.0180		<0.0180		<0.0180		<0.0180	

Client Sample ID					BG-SS-85	BG-SS-77	BG-SS-92	BG-SS-39	BG-SS-11	BG-SS-72	BG-SS-99	BG-SS-97	BG-SS-86	BG-SS-60	BG-SS-101	BG-SS-80	BG-SS-950	BG-SS-50	BG-SS-49
Date Collected					07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021
Method	Analyte	Units	CAS	RSL Ind Soil TR 1e-06 THQ 1 MAY2021	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
6010B	ALUMINUM	mg/kg	7429-90-5	1100000	**11800**	**13600**	**6410**	**18100**	**9370**	**8390**	**5620**	**10200**	**13000**	**9970**	**9020**	**9220**	**6280**	**5830**	**9070**
6010B	ANTIMONY	mg/kg	7440-36-0	470	<0.544	<0.544	**2.81**	<0.544	<0.544	<0.544	**2.27**	**8.02**	<0.544	<0.544	<0.544	<0.544	<0.544	<0.544	<0.544
6010B	ARSENIC	mg/kg	7440-38-2	3	17.4	71.9	233	22.4	33.5	118	137	281	26.8	**2.67**	95	159	3.05	<0.518	5.81
6010B	BARIUM	mg/kg	7440-39-3	220000	**76.1**	**107**	**166**	**103**	**86.1**	**212**	**133**	**276**	**77.7**	**80.7**	**129**	**112**	**55.1**	**44.6**	**58.1**
6010B	BERYLLIUM	mg/kg	7440-41-7	2300	**0.558**	**0.56**	**0.237**	**1.44**	**0.58**	**0.41**	**0.256**	**0.568**	**0.924**	**0.368**	**0.655**	**0.604**	**0.628**	**0.419**	**0.382**
6010B	CADMIUM	mg/kg	7440-43-9	980	<0.0471	**0.837**	<0.0471	**1.15**	**4.18**	<0.0471	<0.0471	<0.0471	<0.0471	**1.28**	<0.0471	<0.0471	**1.73**	**1.46**	**0.519**
6010B	CALCIUM	mg/kg	7440-70-2		**2540**	**1300**	**222**	**2350**	**4120**	**352**	**671**	**967**	**1450**	**3710**	**1400**	**894**	**1460**	**1450**	**1570**
6010B	CHROMIUM	mg/kg	7440-47-3		**6.78**	**8.14**	**4.24**	**11.6**	**5.63**	**4.95**	**3**	**6.62**	**6.27**	**6.58**	**4.93**	**5.77**	**4.58**	**4.16**	**6.3**
6010B	COBALT	mg/kg	7440-48-4	350	**3.68**	**6.84**	**1.06**	**6.13**	**6.94**	**3.5**	**1.35**	**3.83**	**7.61**	**2.8**	**5.26**	**3.82**	**3.8**	**1.99**	**2.52**
6010B	COPPER	mg/kg	7440-50-8	47000	**9.84**	**41.8**	**24.1**	**25.3**	**31.2**	**18.8**	**11**	**19.5**	**17.6**	**7.26**	**21.4**	**40.4**	**19.6**	**18.9**	**8.24**
6010B	IRON	mg/kg	7439-89-6	820000	**13600**	**26700**	**52400**	**19600**	**17800**	**30600**	**21700**	**38900**	**23800**	**8350**	**32900**	**44300**	**5990**	**5430**	**8030**
6010B	LEAD	mg/kg	7439-92-1	800	**31.2**	**547**	**21.5**	**40.3**	**378**	**34.8**	**772**	**486**	**101**	**14.7**	**25.7**	**26.6**	**43.7**	**26.8**	**24.9**
6010B	MAGNESIUM	mg/kg	7439-95-4		**2990**	**3120**	**955**	**4300**	**2580**	**2050**	**1110**	**2190**	**3890**	**2150**	**2350**	**2090**	**1460**	**1400**	**2350**
6010B	MANGANESE	mg/kg	7439-96-5	26000	**677**	**1860**	**70**	**1890**	**1450**	**265**	**155**	**342**	**1690**	**261**	**577**	**328**	**1170**	**498**	**249**
6010B	NICKEL	mg/kg	7440-02-0	22000	**4.98**	**5.58**	**3.06**	**9**	**4.45**	**4.42**	**2.53**	**5.85**	**6.29**	**4.13**	**4.76**	**4.69**	**3.93**	**3.6**	**4.89**
6010B	POTASSIUM	mg/kg	7440-09-7		**2140**	**2310**	**5490**	**3100**	**2340**	**3370**	**2380**	**3860**	**1920**	**1540**	**3300**	**5190**	**1100**	**1080**	**1480**
6010B	SELENIUM	mg/kg	7782-49-2	5800	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764
6010B	SILVER	mg/kg	7440-22-4	5800	<0.127	**5.72**	**1.44**	**1.03**	<0.127	<0.127	**1.88**	**2.55**	<0.127	<0.127	<0.127	**2.5**	<0.127	<0.127	<0.127
6010B	SODIUM	mg/kg	7440-23-5		<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	**121**	<41.2	<41.2	<41.2
6010B	THALLIUM	mg/kg	7440-28-0	12	<0.394	<0.394	<0.394	<0.394	<0.394	<0.394	<0.394	**5.93**	<0.394	<0.394	<0.394	<0.394	<0.394	<0.394	<0.394
6010B	VANADIUM	mg/kg	7440-62-2	5800	**18.1**	**24.2**	**22.4**	**28.3**	**19.7**	**17.6**	**10.7**	**21.4**	**19.9**	**16.9**	**22.5**	**27.8**	**10.1**	**8.94**	**14.4**
6010B	ZINC	mg/kg	7440-66-6	350000	**111**	**255**	**18.5**	**227**	**434**	**37.4**	**35**	**73.1**	**164**	**95.2**	**71.5**	**46.8**	**133**	**132**	**92.9**
7471A	MERCURY	mg/kg	7439-97-6	46	<0.0180	**0.0596**	<0.0180	<0.0180	**0.05**	<0.0180	<0.0180	**0.0556**	**0.0451**	**0.0412**	<0.0180	**0.052**	**0.0715**	**0.0485**	**0.0525**

Client Sample ID					BG-SS-62	BG-SS-30	BG-SS-09	BG-SS-32	BG-SS-56	BG-SS-61	BG-SS-961
Date Collected					07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021	07/07/2021
Method	Analyte	Units	CAS	RSL Ind Soil TR 1e-06 THQ 1 MAY2021	Result	Result	Result	Result	Result	Result	Result
6010B	ALUMINUM	mg/kg	7429-90-5	1100000	**10200**	**11100**	**7070**	**9420**	**11200**	**10400**	**11800**
6010B	ANTIMONY	mg/kg	7440-36-0	470	<0.544	<0.544	<0.544	<0.544	<0.544	<0.544	<0.544
6010B	ARSENIC	mg/kg	7440-38-2	3	10.1	27.5	7.9	19.8	6.2	7.48	6.13
6010B	BARIUM	mg/kg	7440-39-3	220000	**97.5**	**77.9**	**82.5**	**29.9**	**26.2**	**61.2**	**58.6**
6010B	BERYLLIUM	mg/kg	7440-41-7	2300	**0.491**	**0.674**	**0.337**	**0.346**	**0.51**	**0.653**	**0.64**
6010B	CADMIUM	mg/kg	7440-43-9	980	**2.27**	**1.34**	**5.32**	<0.0471	**0.634**	**1.08**	**0.704**
6010B	CALCIUM	mg/kg	7440-70-2		**2990**	**2550**	**4130**	**312**	**260**	**1870**	**1440**
6010B	CHROMIUM	mg/kg	7440-47-3		**6.94**	**7.53**	**4.9**	**5.36**	**6.79**	**7.01**	**8.13**
6010B	COBALT	mg/kg	7440-48-4	350	**12.6**	**7.64**	**2.41**	**2.08**	**5**	**5.68**	**7.34**
6010B	COPPER	mg/kg	7440-50-8	47000	**12**	**15.3**	**13.5**	**125**	**20.1**	**10.8**	**10.9**
6010B	IRON	mg/kg	7439-89-6	820000	**12600**	**16000**	**7570**	**13000**	**8680**	**9330**	**10400**
6010B	LEAD	mg/kg	7439-92-1	800	**51.1**	**114**	**86.4**	**262**	**33.3**	**28.5**	**24.4**
6010B	MAGNESIUM	mg/kg	7439-95-4		**2480**	**3080**	**1790**	**1880**	**2460**	**2510**	**2860**
6010B	MANGANESE	mg/kg	7439-96-5	26000	**2750**	**1100**	**461**	**163**	**555**	**755**	**860**
6010B	NICKEL	mg/kg	7440-02-0	22000	**5.36**	**5.93**	**4.14**	**4.21**	**5.23**	**6.15**	**6.2**
6010B	POTASSIUM	mg/kg	7440-09-7		**1570**	**2170**	**1690**	**1400**	**1550**	**1520**	**1670**
6010B	SELENIUM	mg/kg	7782-49-2	5800	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764	<0.764
6010B	SILVER	mg/kg	7440-22-4	5800	<0.127	<0.127	<0.127	**2.22**	<0.127	<0.127	**1**
6010B	SODIUM	mg/kg	7440-23-5		<41.2	<41.2	<41.2	<41.2	<41.2	<41.2	<41.2
6010B	THALLIUM	mg/kg	7440-28-0	12	<0.394	<0.394	<0.394	<0.394	<0.394	<0.394	<0.394
6010B	VANADIUM	mg/kg	7440-62-2	5800	**17.2**	**21.6**	**12.3**	**11.7**	**15.2**	**16.3**	**17.6**
6010B	ZINC	mg/kg	7440-66-6	350000	**161**	**239**	**387**	**118**	**151**	**167**	**155**
7471A	MERCURY	mg/kg	7439-97-6	46	**0.0485**	**0.0468**	**0.0453**	**0.164**	**0.0596**	<0.0180	<0.0180

Appendix G

Background Soil Comparison Values

Use or disclosure of data contained on this sheet is restricted.

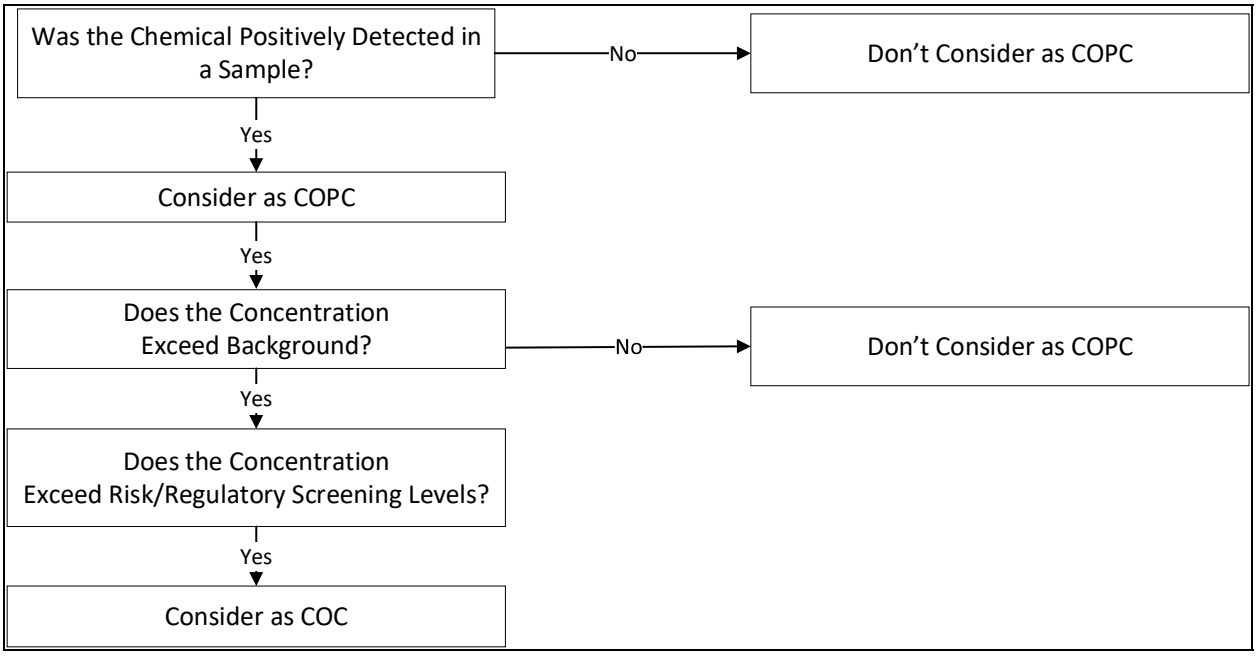
1 Background and Objectives

This Appendix provides background soil screening concentrations (BSSCs) derived from locations in and around Burrows Gulch (BG) deemed to be representative of background conditions. These have been collected in accordance with the Work Plan (HSG 2021), validated to Level II use, are considered representative of background conditions and are suitable for use in a traditional three step:

1) Is it a Chemical of Potential Concern (COPC)?
2) Is it a "contaminant" related to mining activities (i.e., concentrations exceeding background concentrations)?
3) Is it a Contaminant of Concern (COC) because it exceeds risk and/or regulatory screening thresholds?

This process is illustrated below.

Exhibit G 1 Three Step COPC COC Screening Process



Steps 1 and 2 are the subject of this Appendix.

Like other locations in the Bonita Peaks Mining District (BMPD), over time, BG has been impacted by mining and other activities. As a consequence, the present-day soil concentration profile of heavy metals is an amalgamation representing natural sources, historic mining activities, and other anthropogenic activities affecting concentrations (e.g., earth moving). In general, this mixture of heavy metal soil concentrations are elevated relative to common background soil concentrations1

[1] Soil concentrations associated within BPMD mining activities were distinguished from those **not associated with BPMD mining activities**, but still within the overall BPMD vicinity, as illustrated in Table 2-1 of CDM 2019. Table 2-

In order to implement activities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the effects of mining activities, in terms of elevated soils concentrations, need to be distinguished from the amalgamation.

2 Screening Level Development Process

The process for developing BSSCs screening for use in the Exhibit G-1 involves several steps outlined below:

Step 1 In the workplan development stage, existing data was reviewed including the CDM BPMD Human Health Risk Assessment's (HHRA) Summary Statistics for Soil and Mine Waste (CDM 2019). As noted above, HHRA Table 2-1 presented a contrast between soil concentrations associated with mining activities in the Mining Districts and Upland Soil Reference Locations - essentially sites known to be affected by mining activities (Locations Within the Mining Districts, Panel A) - and sites with the BPMD not affected by mining activities (Upland Soils Reference Locations, Panel B). The not affected by mining activities (Upland Soils Reference Locations, Panel B) data was used as a framework to assess the influence of natural conditions in the BG water shed. Specifically to: 1) in order to estimate an appropriate number of BG unaffected by mining background (henceforth "background") samples to use in the Exhibit G-1 process, and 2) serve as an additional reference for substantiate the BG background soil data set. These two aspects are discussed below.

Step 2 Using summary statistics from the unaffected Upland Soil Reference Locations, sample sizes were computed for a similar unaffected vs. affected comparison in the BGWS assessment. Assuming that the BGWS soil profile was generally comparable to the BPMD Upland Soil Reference Locations [2].; a soil sample size of 16 to 20 random locations was settled on for the field sampling activity. Field work proceeded in July 2021 with collection of composites, shallow surface samples (approximately 0 to 2 inches) from 20 BG locations specified by a random allocation from areas believed to be un impacted by mining activities.

Step 3 The 20 BG samples were collected and validated with no quality control issues. Exhibit G -2 summarizes the BG Unaffected by Mining and Bonita Peaks Mining District Upland Soil Reference Locations results. Summary statistics for both data sets are provided. Additionally, the results of the statistical comparisons of means (far right column) are shown. As indicated, in only two cases, arsenic and potassium, was the mean was *statistically* higher in the higher in BG Unaffected by Mining data than

1 illustrates that soil concentrations associated within mining activities (Locations Within the Mining District; Table 2-1 Panel A) are notably higher from those not associated with mining activities (Upland Reference Locations; Panel B). Additionally, the Upland Soil Reference Locations (Table 2-1 Panel B) are elevated above commonly found soil heavy metal concentrations. For example, average lead concentrations in BMPD Upland Soils Reference Locations (from Table 2-1 Panel B) and "typical Colorado surface soils" are: 100 mg/kg, and 30 mg/kg (from Dragun and Chekiri, 2005) respectively.

[2] The Upland Soils Reference Location data is not formally categorized by CDM as BPMD "background". According to CDM, for the Upland Soil Reference Locations, only natural, non-developed areas not likely to be impacted by roads, and other anthropogenic features that might be sources of contamination, were selected. A range of different upland vegetation communities consisting of subalpine forests and meadows and alpine meadows were sampled (CDM 2019). Site inspection of BG confirmed that this characterization was not dissimilar to the BGWS unaffected by mining background sampling locations.

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in the BPMD Upland Soil Reference Locations data. In several instances (antimony, selenium, sodium, and thallium), the sample sizes were not adequate make meaningful comparisons. In all other cases, the comparison shows no significant difference between the two data sets indicating that, the BG unaffected heavy metals surface soil concentrations are not markedly different than the unaffected portions of the BPMD.

Exhibit G – 3 profiles the means of the analytes for both unaffected data sets. The key observation is the general consistency in side-by-side profiles and the similarity in their magnitudes.

In summary, Exhibits G -2 and G 3 illustrate that, overall, the BG background unaffected heavy metals surface soil concentrations collected in July 2021 are not markedly different than the unaffected portions of the BPMD and thus are suitable for use in the screening process illustrated in Exhibit G - 1

Exhibit G – 2. Summary of Burrows Gulch (BG) Unaffected by Mining and Bonita Peaks Mining District Upland Soil Reference Locations.

Analyte	Units	CAS	Burrows Gulch (**BG**) *Unaffected by Mining*						Bonita Peaks Mining District (**BPMD**) *Upland Soil Reference Locations* [c]						Statistically, Are the Means Equal to or Lower in **BG** Unaffected By Mining than the **BPMD** Upland Soil Reference Locations? (based on t-test [d])
			n [a]	Detection Frequency [b]	mean	Std. Dev.	Maximum	CV	n	Detection Frequency [b]	mean	Std. Dev.	Maximum	CV	
Aluminum	mg/kg	7429-90-5	20	100%	9,995.8	2,872.1	18100	29%	34	100%	9,257.0	3178	14600	34%	Yes (p ~0.8)
Antimony	mg/kg	7440-36-0	20	15%	0.9	1.9	8.02	207%	34	41%	0.4	0.27	1.2	73%	Low DF in both data sets. No T-tests
Arsenic	mg/kg	7440-38-2	20	100%	64.2	81.8	281	127%	34	100%	10.0	8.3	26	83%	No (BG Unaffected Higher) (p ~ 1)
Barium	mg/kg	7440-39-3	20	100%	102.0	60.1	276	59%	34	100%	175.0	81	456	46%	Yes (p ~ < 0.05)
Beryllium	mg/kg	7440-41-7	20	100%	0.6	0.3	1.44	48%	34	15%	0.6	0.71	3.3	122%	Yes (p ~ 0.5)
Cadmium	mg/kg	7440-43-9	20	50%	1.0	1.4	5.32	141%	34	100%	0.9	1.5	6.5	165%	Yes (p ~ 0.6)
Calcium	mg/kg	7440-70-2	20	100%	1,744.9	1,254.8	4130	72%	34	100%	5,917.0	5301	21400	90%	Yes (p < 0.05)
Chromium	mg/kg	7440-47-3	20	100%	6.2	1.8	11.6	29%	34	100%	6.1	1.2	9.2	20%	Yes (p ~ 0.6)
Cobalt	mg/kg	7440-48-4	20	100%	4.7	2.8	12.6	59%	34	100%	6.1	2.8	14	46%	Yes (p < 0.05)
Copper	mg/kg	7440-50-8	20	100%	24.6	25.5	125	104%	34	100%	23.0	15	79	65%	Yes (p ~ 0.6)
Iron	mg/kg	7439-89-6	20	100%	20,605.3	13,308.8	52400	65%	34	100%	18,194.0	11280	62000	62%	Yes (p ~ 0.8)
Lead	mg/kg	7439-92-1	20	100%	155.6	217.8	772	140%	34	100%	100.0	120	431	120%	Yes (p ~ 0.9)
Magnesium	mg/kg	7439-95-4	20	100%	2,396.5	825.5	4300	34%	34	100%	3,109.0	1136	5560	37%	Yes (p < 0.05)
Manganese	mg/kg	7439-96-5	20	100%	824.2	736.8	2750	89%	34	100%	1,249.0	1306	7020	105%	Yes (p ~ 0.07)
Mercury	mg/kg	7439-97-6	20	65%	0.04	0.04	0.164	84%	34	100%	0.1	0.10	0.61	115%	Yes (p < 0.05)
Nickel	mg/kg	7440-02-0	20	100%	5.0	1.4	9	27%	34	100%	5.3	2.7	15	51%	Yes (p ~ 0.3)
Potassium	mg/kg	7440-09-7	20	100%	2,474.3	1,231.7	5490	50%	34	100%	1,237.0	334	1950	27%	No (BG Unaffected Higher) (p ~ 1)
Selenium	mg/kg	7782-49-2	20	0%	0.4	0.0	0.382	0%	34	24%	0.6	0.49	2.2	83%	Low DF in both data sets. No T-tests
Silver	mg/kg	7440-22-4	20	30%	0.9	1.4	5.72	165%	34	44%	0.5	0.43	1.6	90%	Yes (p 0.11) Low DF
Sodium	mg/kg	7440-23-5	20	5%	23.6	13.5	81.1	57%	34	0%	93.0	31	All Nd	33%	Low DF in both data sets. No T-tests
Thallium	mg/kg	7440-28-0	20	5%	0.5	1.3	5.93	265%	34	6%	0.4	0.28	1.7	65%	Low DF in both data sets. No T-tests
Vanadium	mg/kg	7440-62-2	20	100%	18.4	5.7	28.3	31%	34	100%	18.0	5.6	29	31%	Yes (p ~ 0.6)
Zinc	mg/kg	7440-66-6	20	100%	150.5	111.7	434	74%	34	100%	138.0	117	527	85%	Yes (p ~ 0.7)

[a] n = number samples (2 duplicates; results averaged)

[b] number positive detections / number samples (as %) (aka DF)

[c] CDM 2019 Table 2-1. Upland Soil Reference Locations.

[d] Lower end one sided t-tests (Hi BG = BPMG and Hi: BG > BPMD), unequal variance. 95% Significance Level; consistent with EPA 2002.
Assumes approximately normal distributions; not all not all were normally distributed. Test results are more indicative than definitive.

Std. Dev. = Standard Deviation

CV = Coefficient of Variation (Std. Dev./ mean) (as %)

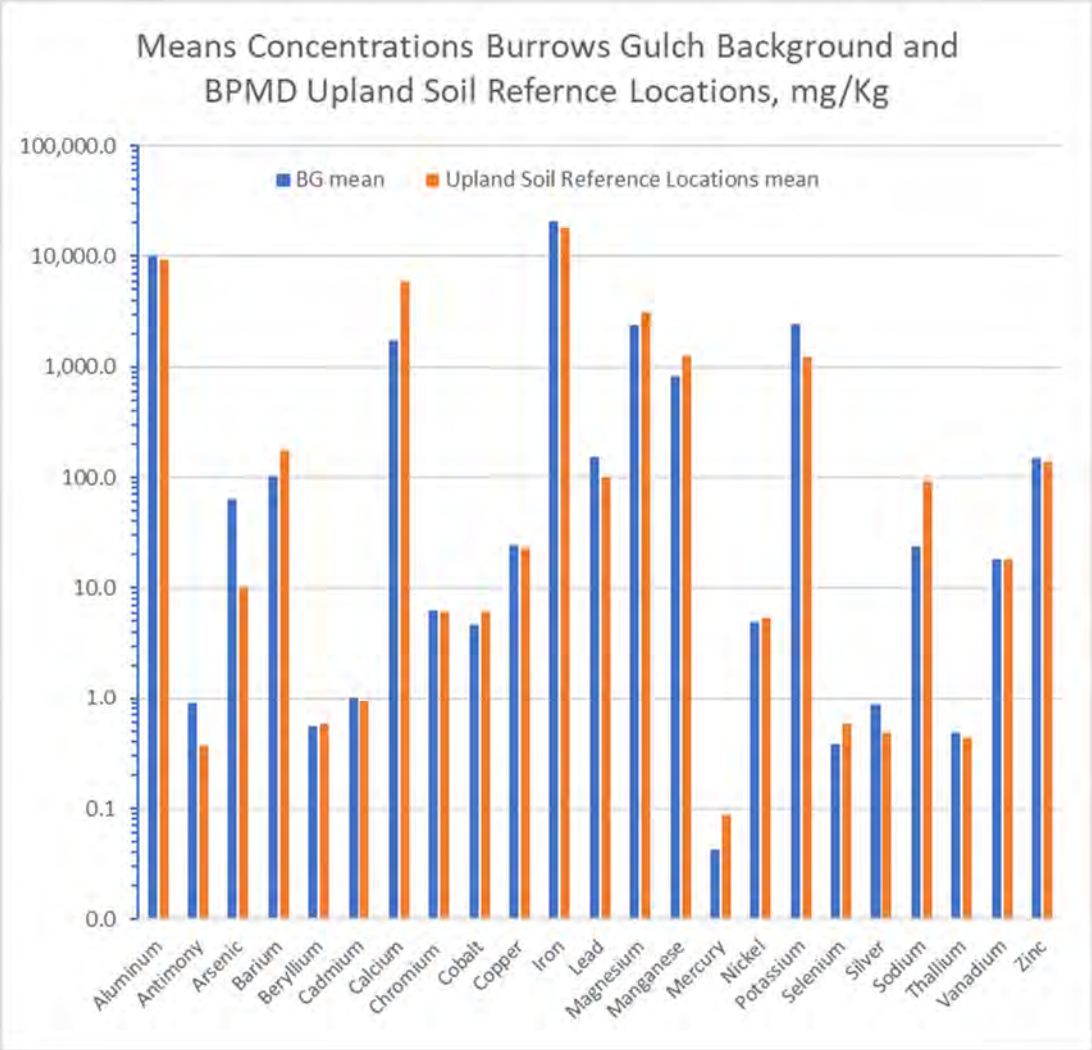
Nd = Not detected at analytical detection limit.

p = probability value; a measure of the probability that an observed difference could have occurred just by random chance. The lower the p-value, the greater the statistical significance of the observed inference.

Below detection reports assumed 1/2 detection limits.

Low DF indicates not present at significant concentration. T-tests on non detect data unreliable and not performed.

Exhibit G – 3 Profile of Means Between BG and BPMD Areas Unaffected by Mining Activities



3 Derivation of Background Screening Values

For the purposes screening as illustrated in Exhibit G -1, upper end limit Background Threshold Value (BTV) will be used to facilitate the background comparisons step. The BTV is generally recognized as the upper limit of background variation of a certain element in soil, which is free of anthropogenic influence or, the affects in mining, in this case. Based on consultation with EPA guidance (2002 and 2016), the BTV will be the upper 95% tolerance limit (UTL $_{95,95}$[3]) or, in the case where a UTL $_{95,95}$ is not appropriate (e.g., small sample size for antimony and others), the maximum concentration will be used.

[3] $UTL_{95,95}$, is interpreted as there is a 95% probability that the upper limit (the BTV) contains or "bounds' 95% of the associated population of interest (or 95% confident that 95% of the values in the associated population are less that the BTV).

The UTL $_{95,95}$'s were computed using EPA's ProUCL software, version 5.1.002 (2016). ProUCL is a comprehensive statistical software package developed and supported by EPA for computing statistical intervals to respond to concerns at a specific Superfund. ProUCL is commonly used for computing BTVs.

Exhibit G -4 provides the BTVs (far right column) for use in the COPC COC background screening step. Additional supporting information (e.g., maximum concentration, basis for computing the $UTL_{95,95}$) is also provided.

Exhibit G – 4 BTVs for COPC Background Screening.

Analyte	Units	Detection Frequency	Maximum	Pro UCL Distribution and Basis for $UTL_{95,95}$ (see notes)	$UTL_{95,95}$	BTV ($UTL_{95,95}$ unless **Bold which is the maximum** [a])
Aluminum	mg/kg	100%	18,100.0	Normal: 95% UTL with 95% Coverage	16,877.0	16,877.0
Antimony	mg/kg	**15%**	8.0	No Discernable Distribution: Non Parametric 95% UTL with 95% Coverage	8.0	**8.0**
Arsenic	mg/kg	100%	281.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	427.9	427.9
Barium	mg/kg	100%	276.0	Normal: 95% UTL with 95% Coverage	246.0	246.0
Beryllium	mg/kg	100%	1.4	Lognormal: 95% UTL with 95% Coverage	1.4	1.4
Cadmium	mg/kg	**50%**	5.3	No Discernable Distribution: Non Parametric 95% UTL with 95% Coverage	5.3	**5.3**
Calcium	mg/kg	100%	4,130.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	7,295.0	4,130.0
Chromium	mg/kg	100%	11.6	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	11.3	11.3
Cobalt	mg/kg	100%	12.6	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	14.5	12.6
Copper	mg/kg	100%	125.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	84.4	84.4
Iron	mg/kg	100%	52,400.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	66,315.0	52,400.0
Lead	mg/kg	100%	772.0	No Discernable Distribution: Non Parametric 95% UTL with 95% Coverage	772.0	772.0
Magnesium	mg/kg	100%	4,300.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	5,022.0	4,300.0
Manganese	mg/kg	100%	2,750.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	3,763.0	2,750.0
Mercury	mg/kg	**65%**	0.2	No Discernable Distribution: Non Parametric 95% UTL with 95% Coverage	0.2	**0.2**
Nickel	mg/kg	100%	9.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	8.8	8.8
Potassium	mg/kg	100%	5,490.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	6,053.0	5,490.0
Selenium	mg/kg	**0%**	0.4	No Result	-	**0.04** [b]
Silver	mg/kg	**30%**	5.7	No Discernable Distribution: Non Parametric 95% UTL with 95% Coverage	5.7	**5.7**
Sodium	mg/kg	**5%**	81.1	No Discernable Distribution: Non Parametric 95% UTL with 95% Coverage	81.1	**81.1**
Thallium	mg/kg	**5%**	5.9	No Discernable Distribution: Non Parametric 95% UTL with 95% Coverage	5.9	**5.9**
Vanadium	mg/kg	100%	28.3	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	34.5	28.3
Zinc	mg/kg	100%	434.0	Gamma: 95% HW Approx. Gamma UTL with 95% Coverage	575.5	434.0

Notes

Pro UCL attempts to fit statistical distributions to the data (e.g., normal, gamma), then identifies the best fit and provides a recommended distribution for selecting the UTL.

UTL = Upper Tolerance Limit.

HW = Hawkins-Wixley (approximation method)

Gamma = gamma distribution, often right skewed.

Normal = conventional normal distribution.

Non parametric = a parametric distribution could not be fitted to the data. A distribution free UTL is computed.

Lognormal = convnetional right tailed lognormal distribution.

[a] Acording to EPA, it is desirable to collect at least 10-15 background samples to compute. reliable estimates of BTVs.
Furthermore, it is suggested not to use estimated BTVs and not-t-oexceed values based upon background data sets of sizes smaller than 8-10 (EPA 2016). The maximim is used in these cases.

[b] There were no positive detections. The BTV is the highest detection limit.

4 References

CDM Federal Programs Corporation (CDM). 2019. Bonita Peak Mining District Human Health Risk Assessment.

Dragun, J., and K Chekiri. 2005. Elements in North American Soils, 2nd ed. Amherst Publishing. Amherst MA.

EPA 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA 540-R-01-003 OSWER 9285.7-4.

EPA. 2016. Statistical Software ProUCL 5.1.00 for Environmental Applications for Data Sets with and without Nondetect Observations

NCSS 2021, PASS (Power and Sample Size) 2021. Confidence Intervals for the Difference between Two Means. NCSS and PASS Statistical Software.

Appendix H

Photographic Documentation

Use or disclosure of data contained on this sheet is restricted.

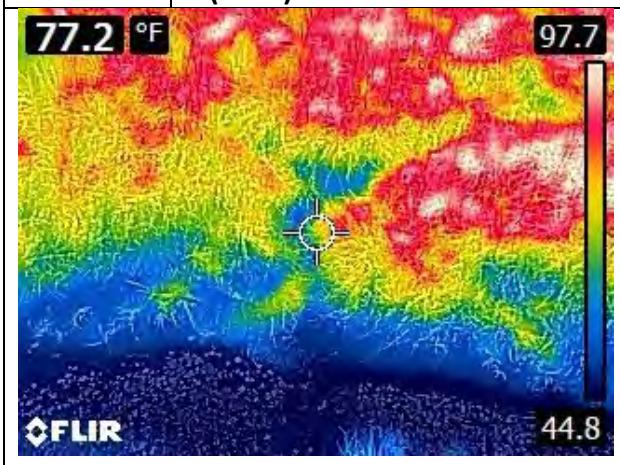
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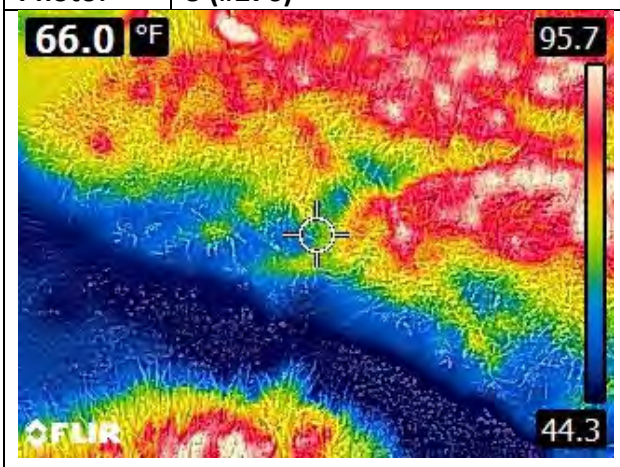
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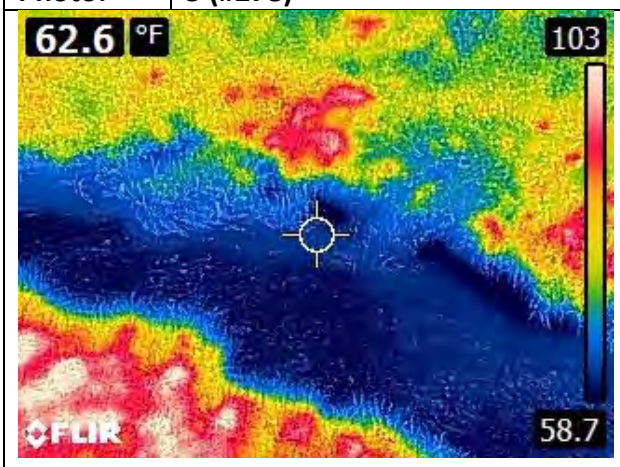
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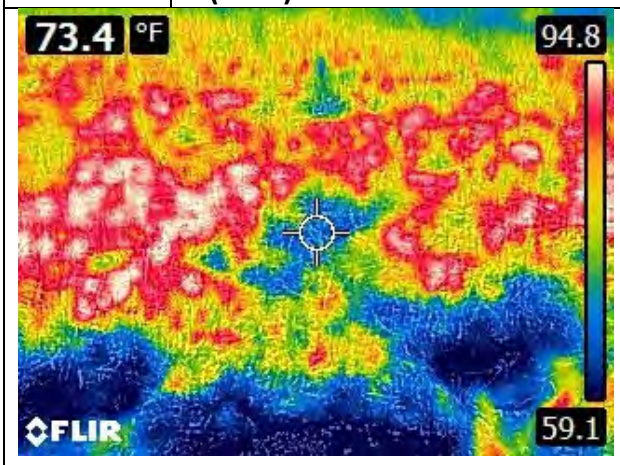
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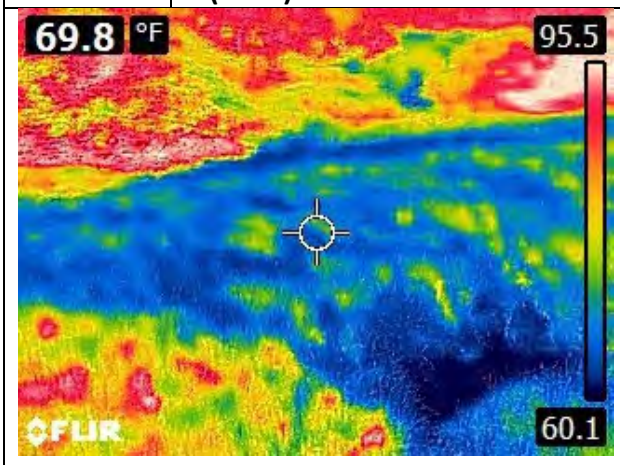
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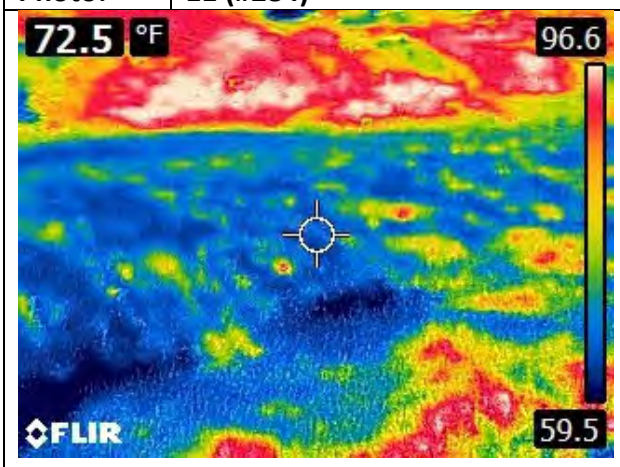
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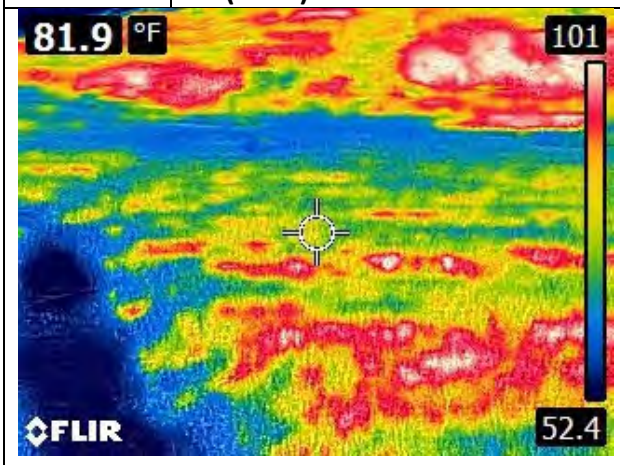
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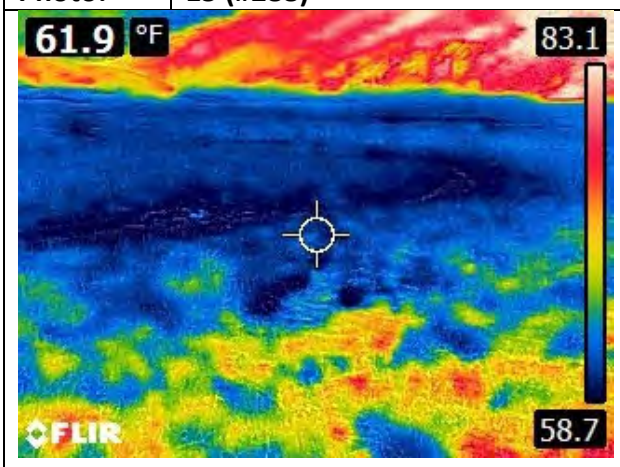
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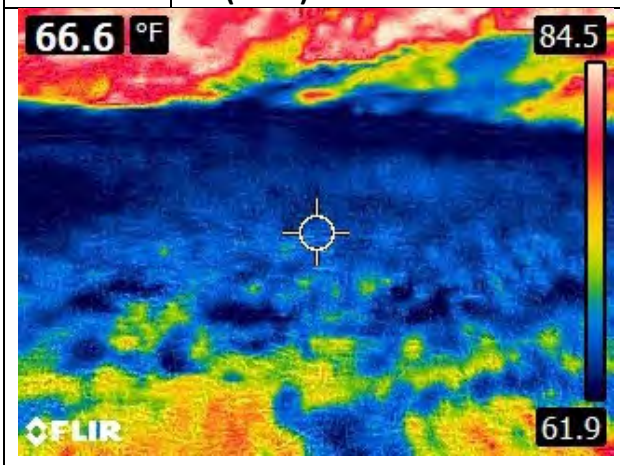
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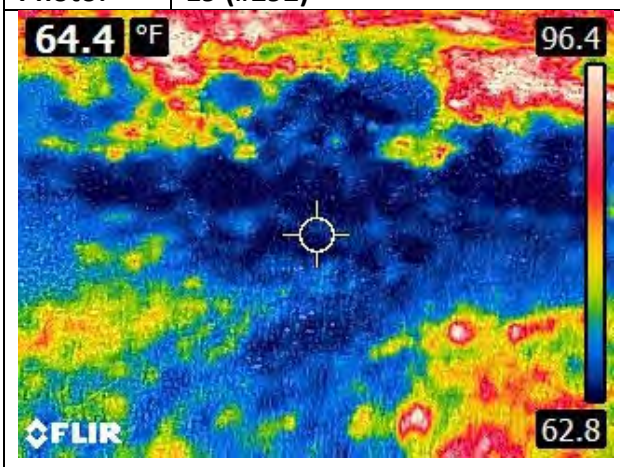
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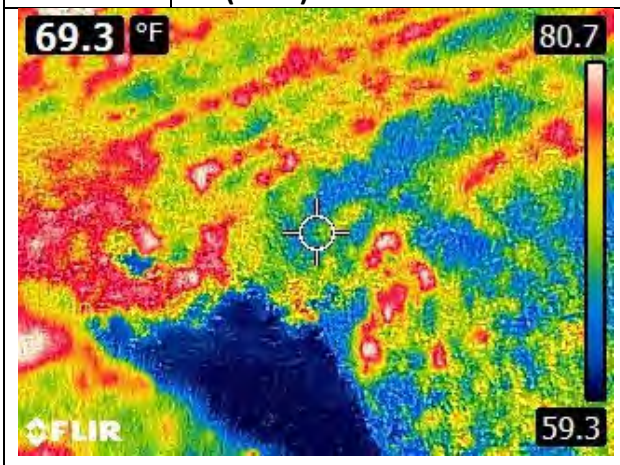
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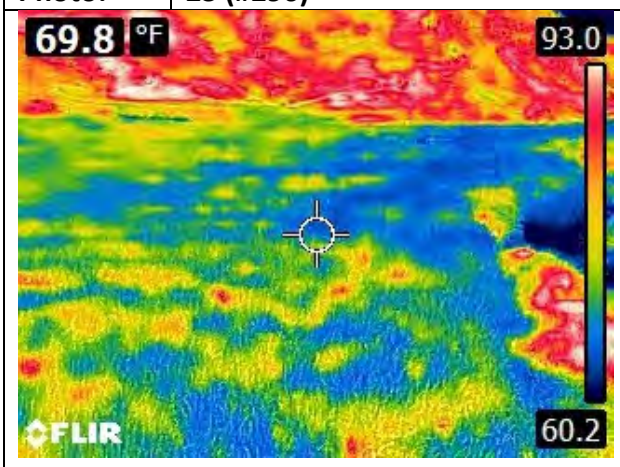
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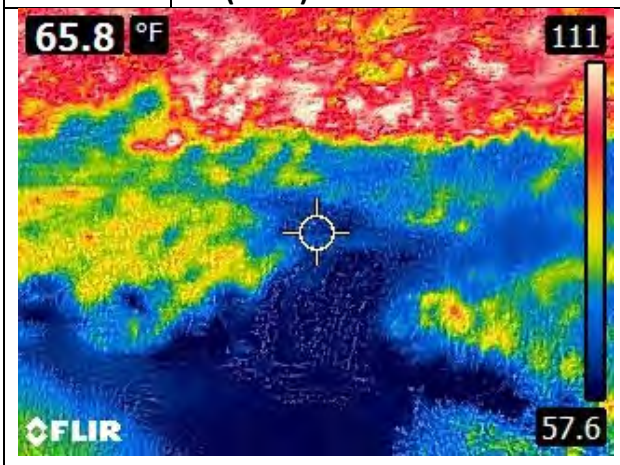
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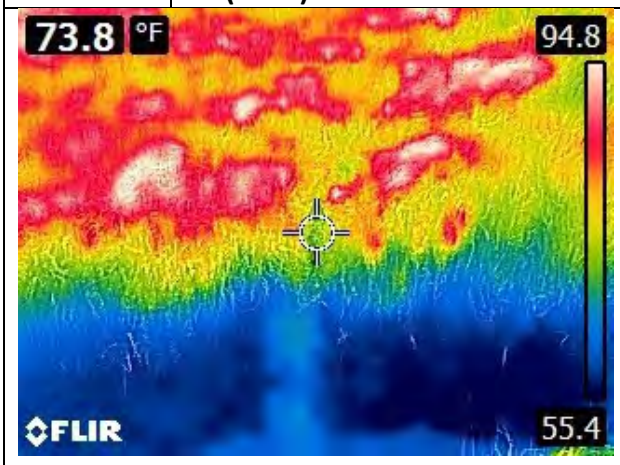
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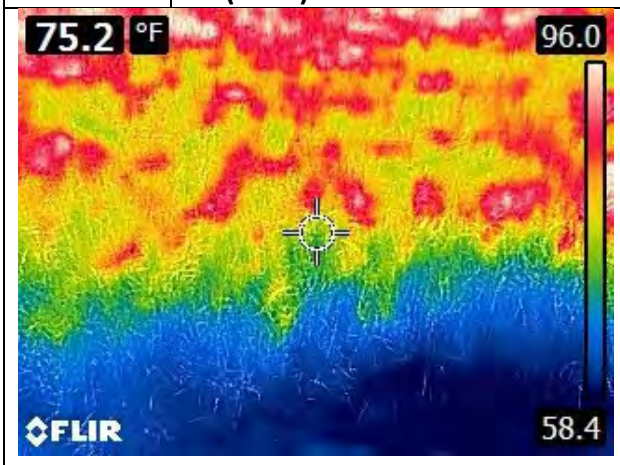
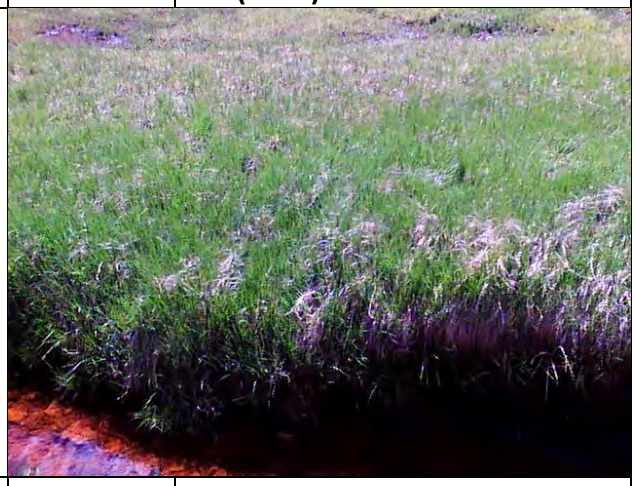
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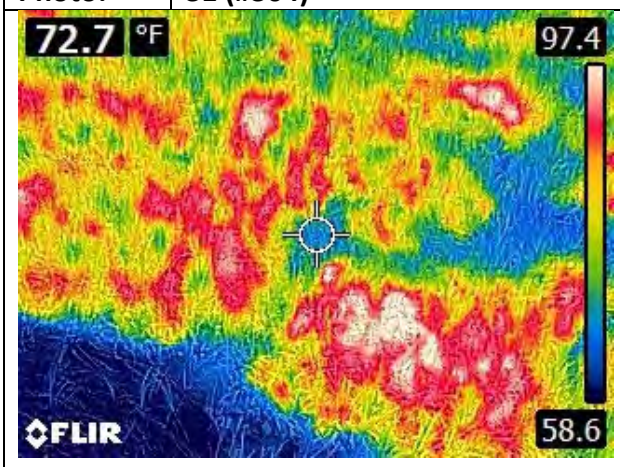
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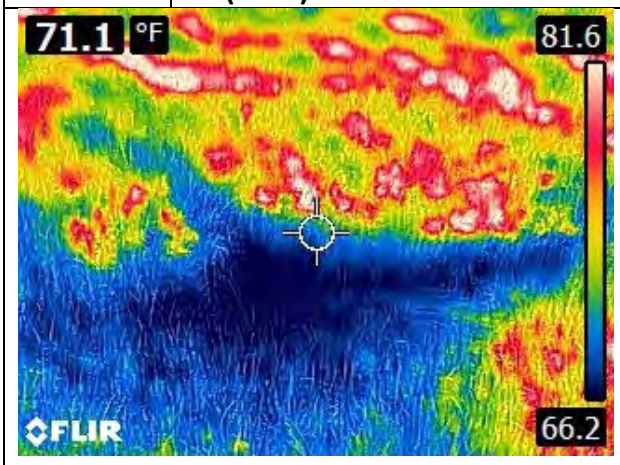
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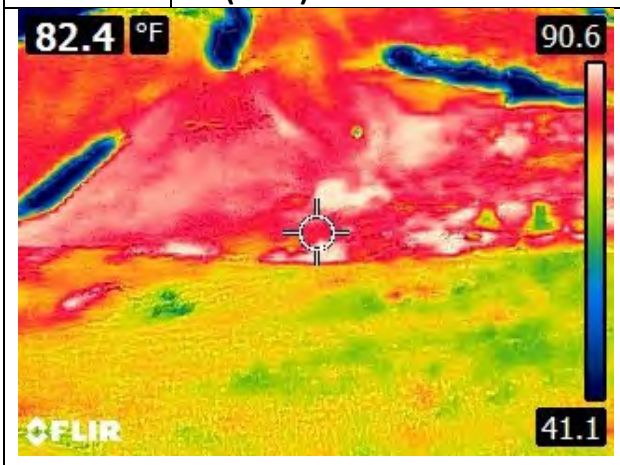
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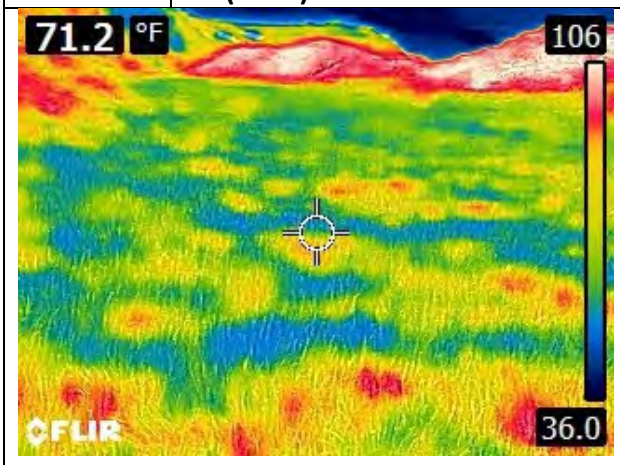
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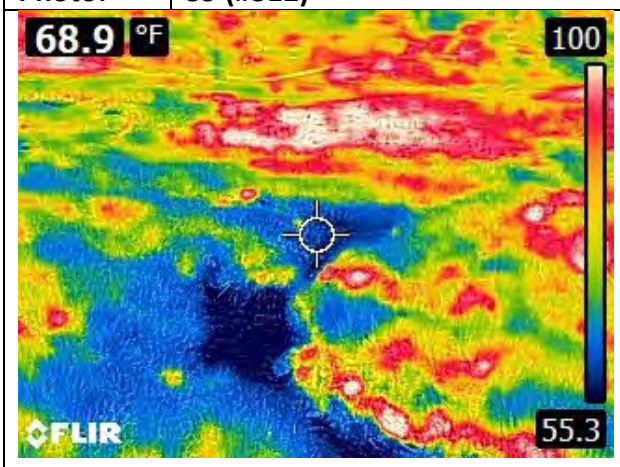
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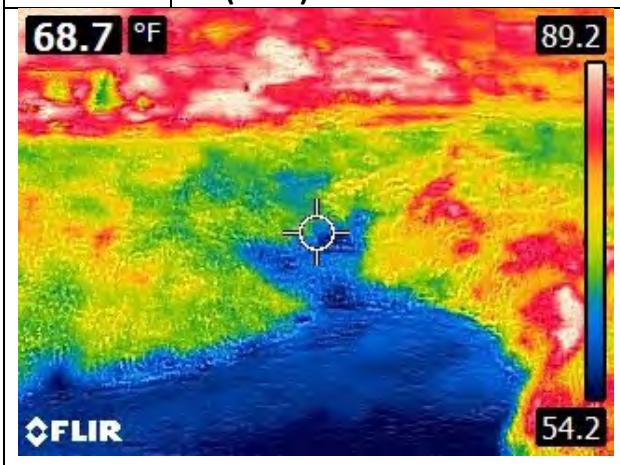
Photo:	**41 (#314)**	**Photo:**	**42 (#315)**
			
Direction:		Direction:	
Description: Located at Point 14. Approximately 1 GPM inflow from right bank.		Description: Located at Point 14. Approximately 1 GPM inflow from right bank.	

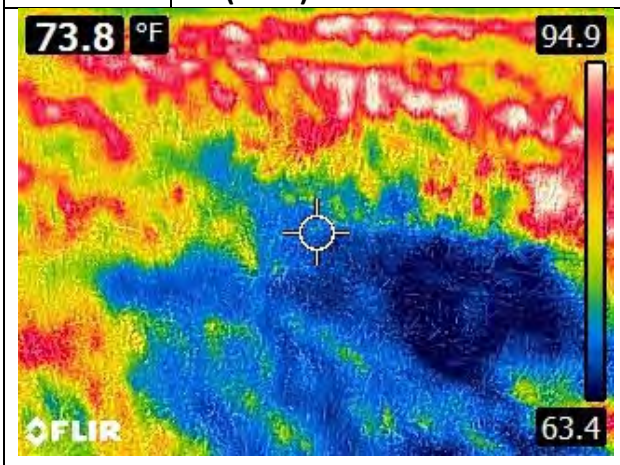
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Direction:		Direction:	
Description:		Description: End of upper wetland, mostly all channel flow up stream.	

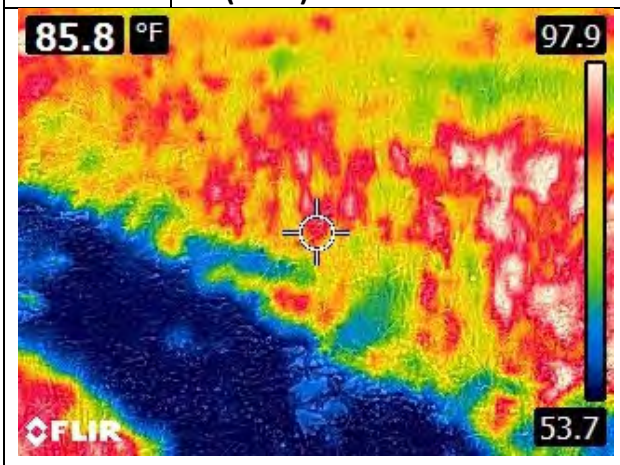
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Description:		Description:	

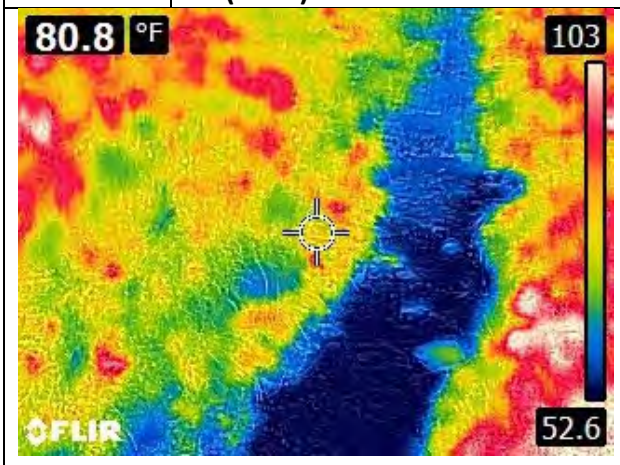
Photo:	**47 (#320)**	**Photo:**	**48 (#321)**
			
Direction:		Direction:	
Description:		Description: End of upper wetland, mostly all channel flow up stream.	

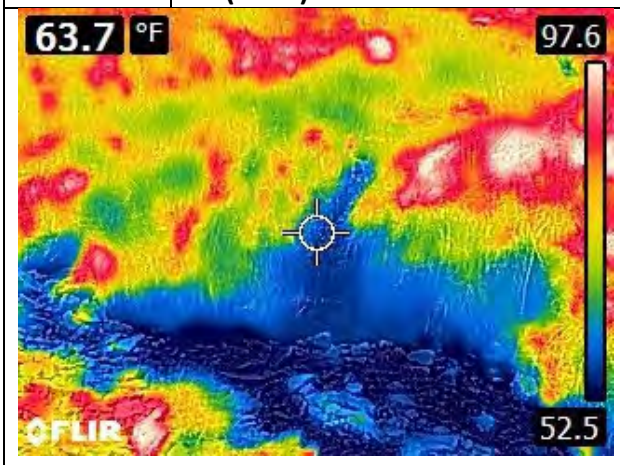
Photo:	**49 (#322)**	**Photo:**	**50 (#323)**
			
Direction:		Direction:	
Description: Inflow off ditch, approximately 1 gpm		Description: Inflow off ditch, approximately 1 gpm.	

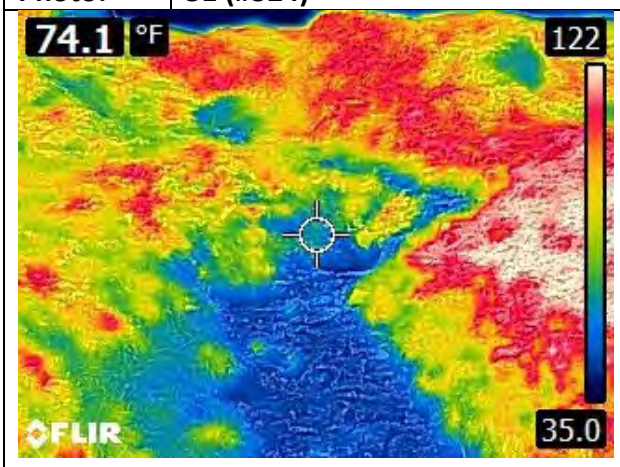
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Direction:		Direction:	
Description:		Description:	

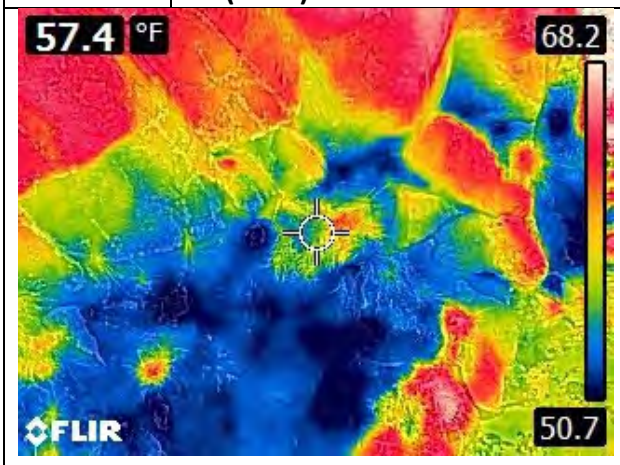
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Direction:		Direction:	
Description:		Description:	

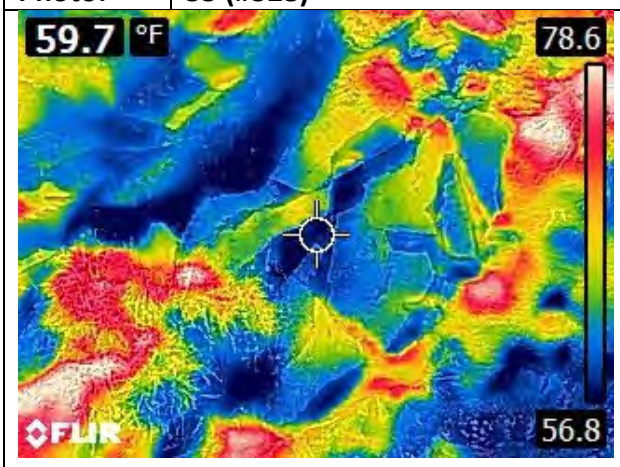
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Direction:		Direction:	
Description:		Description:	

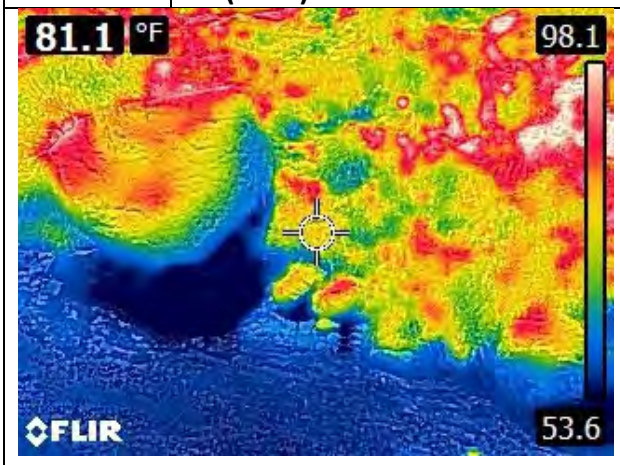
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Description:		Description:	

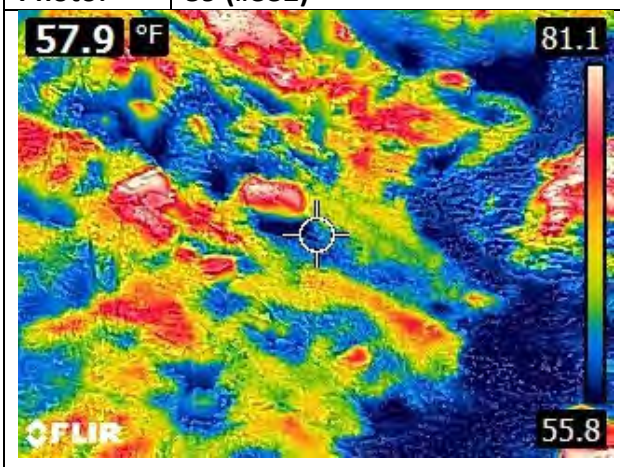
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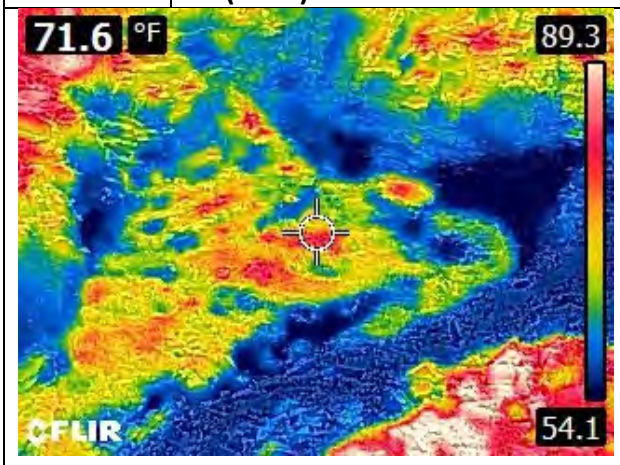
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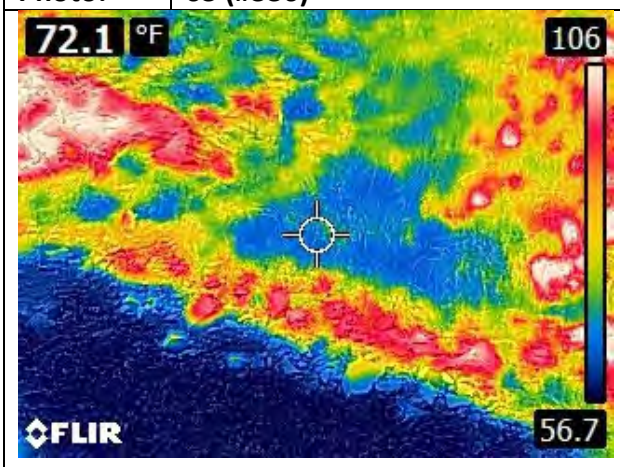
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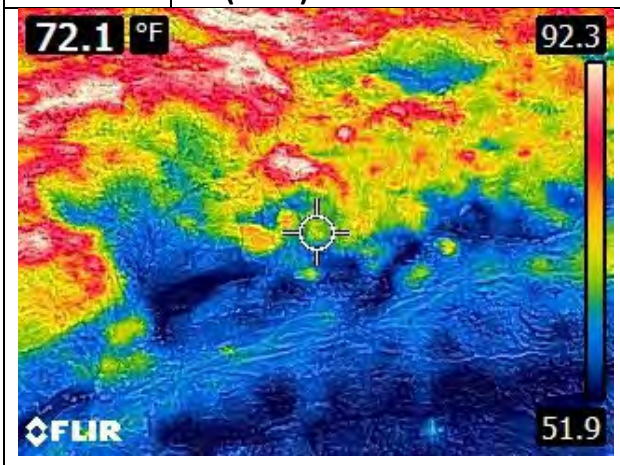
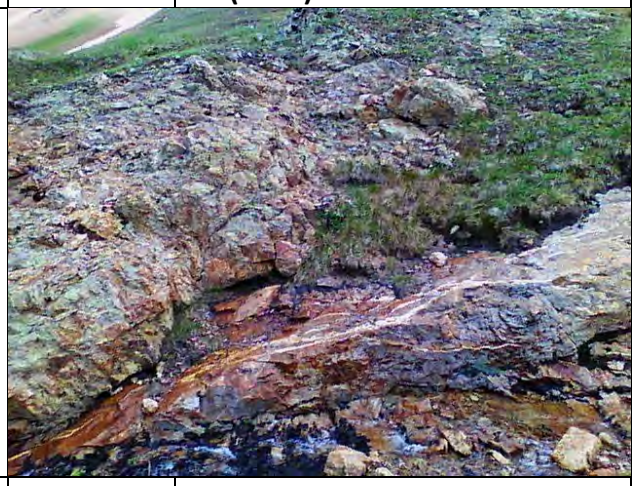
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Description:		Description:	

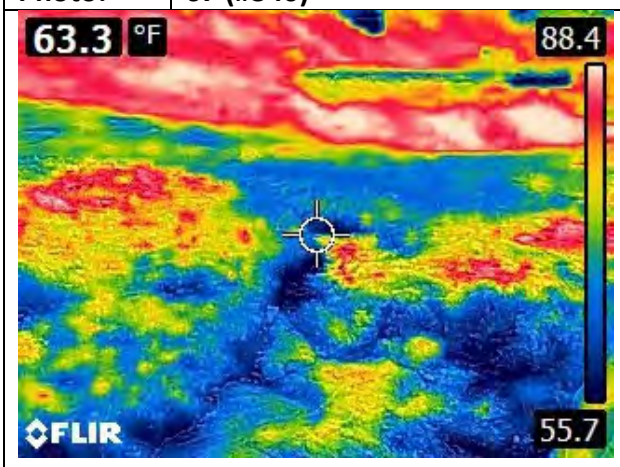
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Direction:		Direction:	
Description:		Description:	

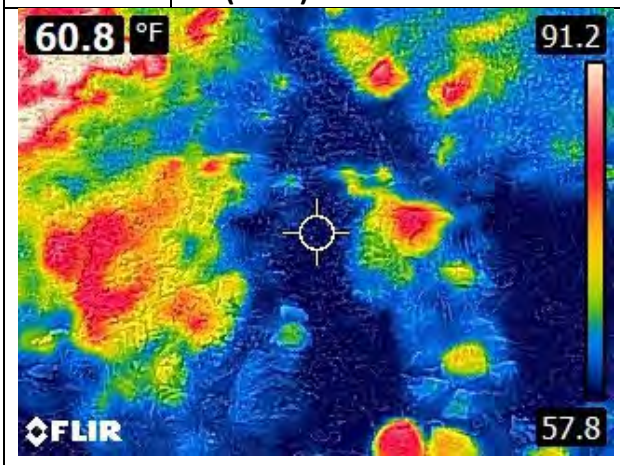
Photo:	**69 (#342)**	**Photo:**	**70 (#343)**
			
Direction:		Direction:	
Description: Seepage from right bank and wetland outfall from left bank. Gaining from both sides and different chemistry on either bank. Photo of left bank.		Description: Seepage from right bank and wetland outfall from left bank. Gaining from both sides and different chemistry on either bank. Photo of left bank.	

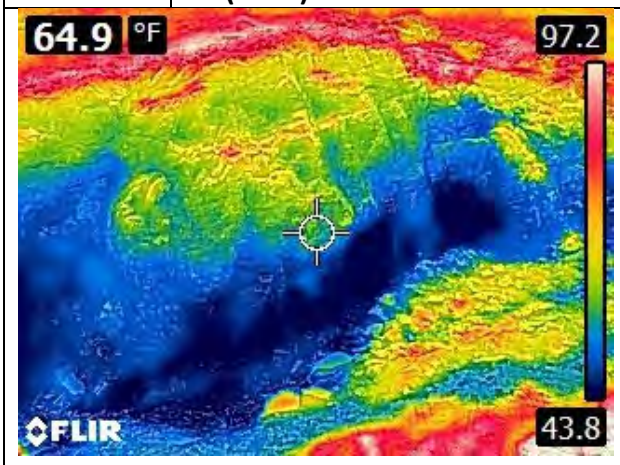
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Direction:		Direction:	
Description:		Description:	

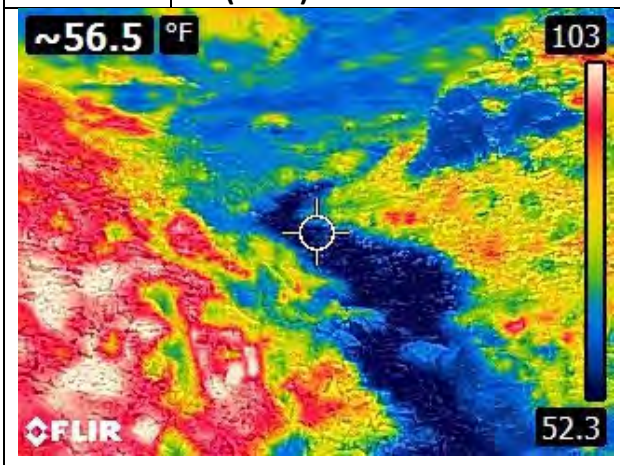
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Direction:		Direction:	
Description:		Description:	

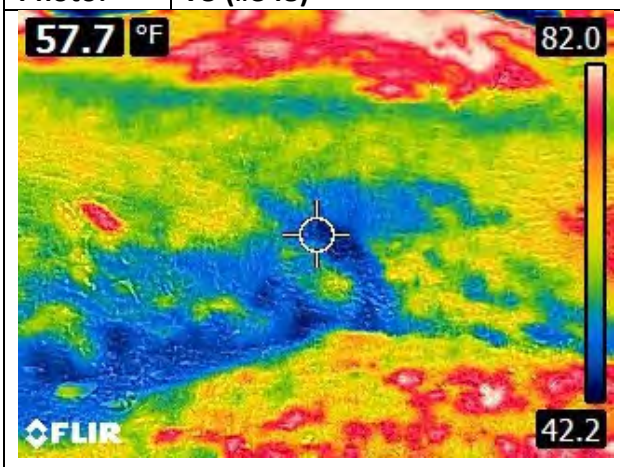
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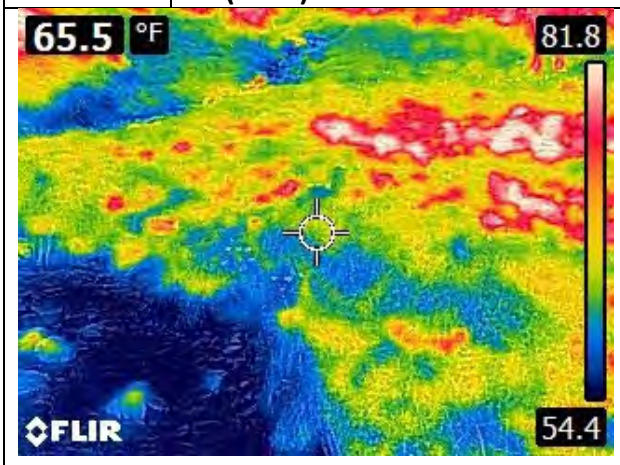
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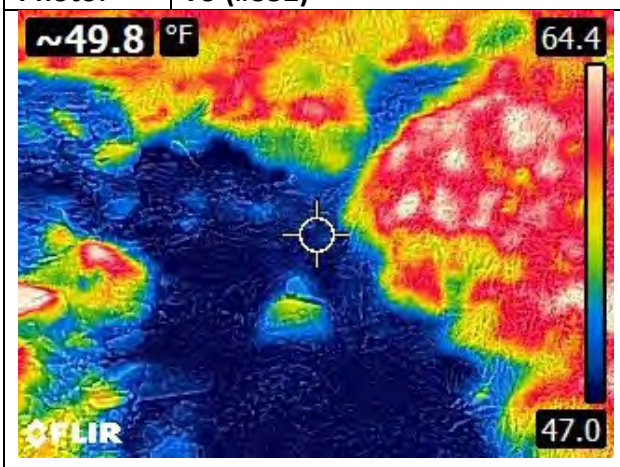
Photo:	**79 (#352)**	**Photo:**	**80 (#353)**
			
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Description:		Description:	

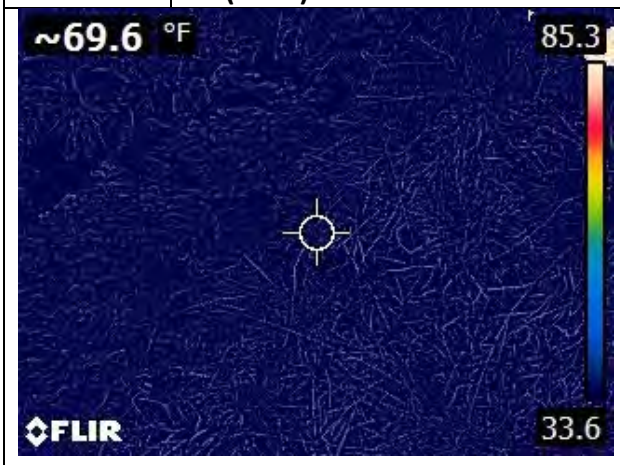
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Description:		Description:	

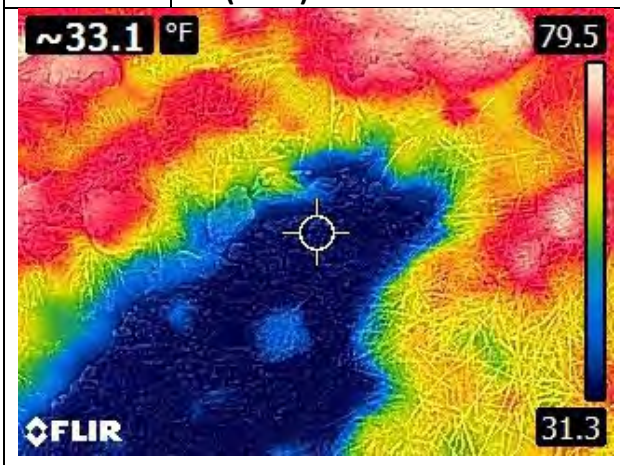
Photo:	**83 (#356)**	**Photo:**	**84 (#357)**
			
Direction:		Direction:	
Description: Inflow 32.0° F		Description: Inflow 32.0° F	

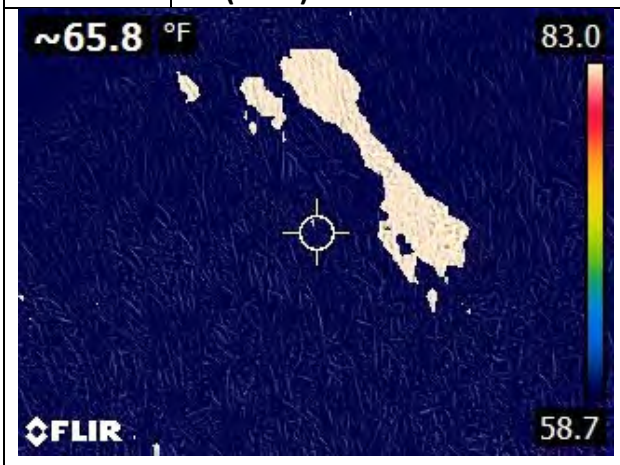
Photo:	**85 (#358)**	**Photo:**	**86 (#359)**
			
Direction:		Direction:	
Description: Diffuse outfall on right bank higher elevation than stream.		Description: Diffuse outfall on right bank higher elevation than stream.	

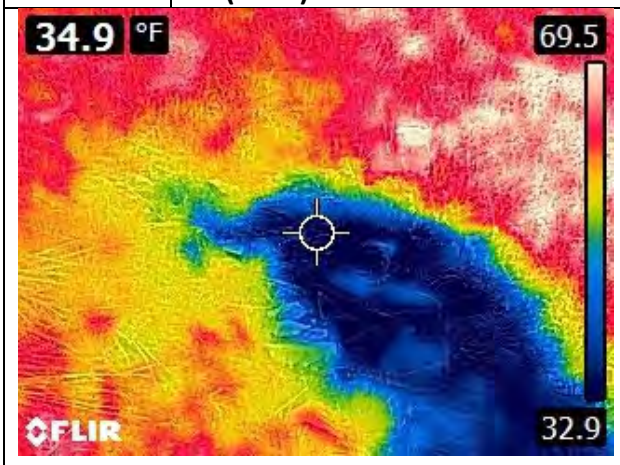
Photo:	**87 (#360)**	**Photo:**	**88 (#361)**
			
Direction:		Direction:	
Description: Seep on right bank. Approximately <5 gpm. Second seep on other side of rock outcropping. Stream gaining on both sides.		Description: Seep on right bank. Approximately <5 gpm. Second seep on other side of rock outcropping. Stream gaining on both sides.	

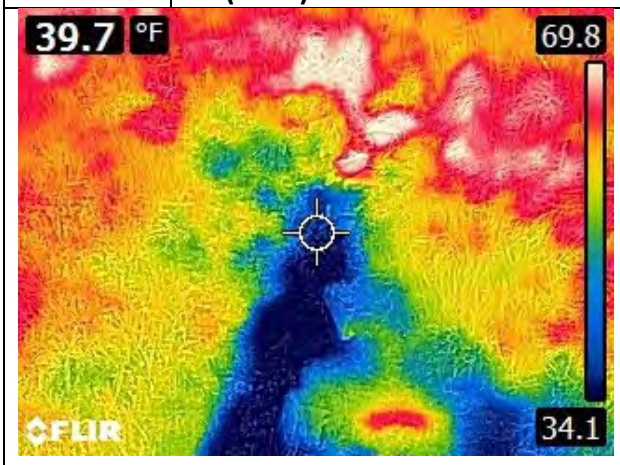
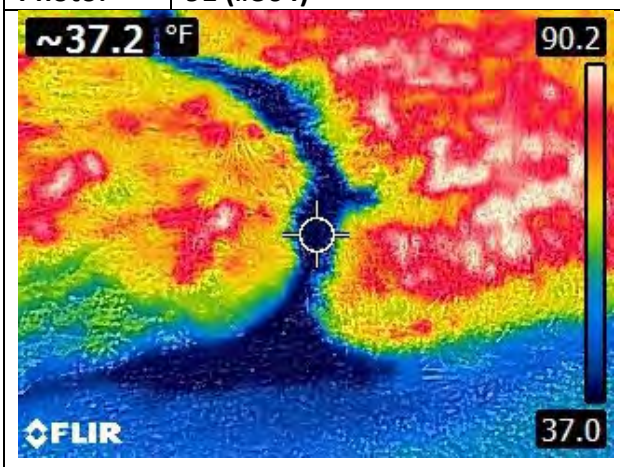
Photo:	**89 (#362)**	**Photo:**	**90 (#363)**
			
Direction:		Direction:	
Description: Iron staining in wetland above stream.		Description: Iron staining in wetland above stream.	

Photo:	**91 (#364)**	**Photo:**	**92 (#365)**
			
Direction:		Direction:	
Description: Wetland source for flow on right bank. Inflow 37°, stream 54°. Approximately 50 gpm from multiple inflows		Description: Wetland source for flow on right bank. Inflow 37°, stream 54°. Approximately 50 gpm from multiple inflows	

Appendix I

Passive Flux Meter Results Report

Use or disclosure of data contained on this sheet is restricted.

Table 3. Mass discharge per unit width for aquifer of each well

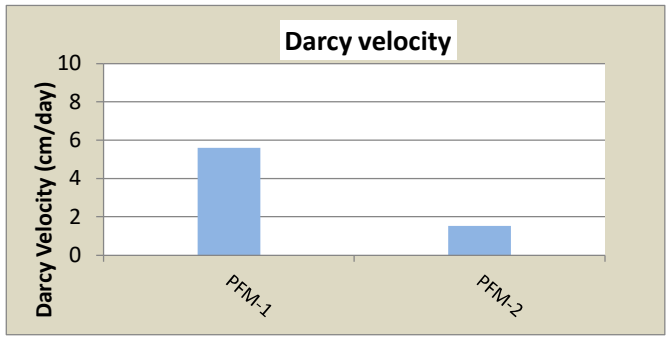
Well	Darcy Velocity (cm/day)	Zinc (mg/m/day)
PFM-1	5.6	7.0
PFM-2	1.5	10.6

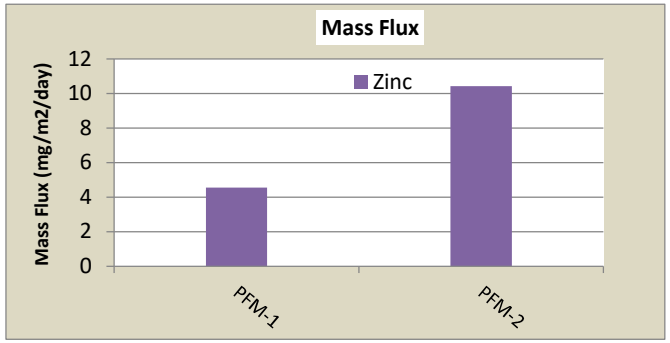
Table 4. Well average values of mass flux based on PFMs

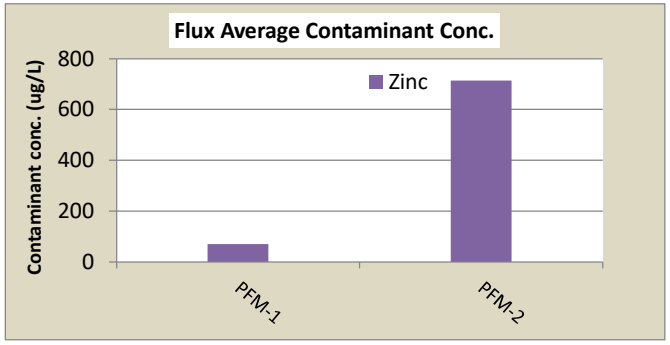
Well	Darcy Velocity (cm/day)	Zinc (mg/m^2/day)
PFM-1	5.6	4.6
PFM-2	1.5	10.4

Table 5. Flux average contaminant concentration on PFMs

Well	Darcy Velocity (cm/day)	Zinc (ug/L)
PFM-1	5.6	70
PFM-2	1.5	714







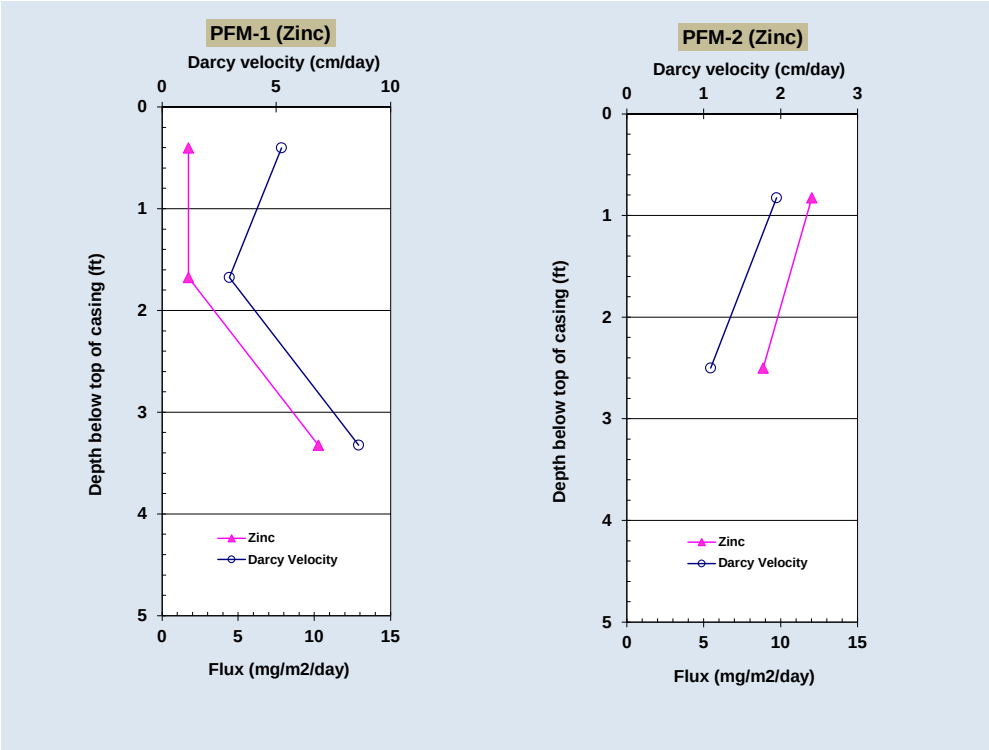
Herndon Group	
Project name:	Burrows Gulch
Project Manager	Roy Weindorf
Installation Date	7/8/2021
Sampling Date	7/26/2021
Reporting Date	8/31/2021

Table1. Summary of flux values for each well

Well_ID	Sample_ID	Depth below top of well casing (ft)	Darcy Velocity (cm/day)	Zinc (mg/m^2/day)
PFM-1	PFM1-5	0.4	5.2	1.7
	PFM1-3/PFM1-4	1.7	2.9	1.7
	PFM1-1/PFM1-2	3.3	8.6	10.3
PFM-2	PFM2-3/PFM2-4	0.8	1.9	12.0
	PFM2-1/PFM2-2	2.5	1.1	8.8

Table2. Summary of flux average contaminant concentration

Well_ID	Sample_ID	Depth below top of well casing (ft)	Darcy Velocity (cm/day)	Zinc (ug/L)
PFM-1	PFM1-5	0.4	5.2	33
	PFM1-3/PFM1-4	1.7	2.9	58
	PFM1-1/PFM1-2	3.3	8.6	119
PFM-2	PFM2-3/PFM2-4	0.8	1.9	617
	PFM2-1/PFM2-2	2.5	1.1	811



Mountain Studies Institute
SAN JUAN MOUNTAINS, COLORADO

Bonita Peak Mining District
2016 Benthic Macroinvertebrate Assessment



August, 2017

Prepared For:
Environmental Protection Agency
Region 8
1595 Wynkoop Street
Denver, Colorado 80202

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Table of Contents

1. Executive Summary 1

2. Introduction 3

3. Methods 3

3.1 Monitoring Locations 3

3.2 Field Survey Methodology 4
3.2.1 BMI Community Samples 4
3.2.2 BMI Tissue Sampling 4
3.2.3 Physical Habitat Evaluation 5

3.3 Laboratory Methods 5
3.3.1 BMI Community Samples 5
3.3.2 BMI Tissue Samples 5

3.4 Data Analysis 6
3.4.1 BMI Metrics 6
3.4.2 Ecological Data Application System (EDAS) 6
3.4.3 Standardizing Sample Size 6
3.4.4 Statistical Analysis 6
3.4.5 EPA chemistry data 7

4. Results 7

4.1 Physical Habitat 7
4.1.1 Substrate 7
4.1.2 Aquatic vegetative cover 7
4.1.3 Bank stability and riparian zone 7

4.2 BMI Community Composition 8
4.2.1 Spatial overview 8
4.2.2 Metal-sensitive BMI families 8
4.2.3 Functional Feeding Groups 9
4.2.4 Multi-metric Index (MMI) 10

4.3 BMI Tissue Metal Concentrations 10

4.4 Relationship between physical habitat metrics, BMI metrics, and concentrations of metals and minerals in surface water, pore water, and sediment. 10

4.5 Relationship between BMI metrics and concentrations of metal and mineral concentrations in BMI tissue, sediment, pore water, and surface water. 11

4.6 Non-metric multidimensional scaling ordination (NMS) 12

5. Conclusions, Research Recommendations, and Further Questions 13

6. Works Cited 17

7. Tables 21

8. Figures 49

Appendix A – Maps 87

Appendix B – Field Photos 102

Appendix C – Physical Habitat Field Data Sheet 103

Appendix D – Benthic macroinvertebrate taxa observed in 2016 105

Appendix E – EPA BPMD data collected in fall 2016 106

List of Tables

Table 1. Benthic macroinvertebrate monitoring sites surveyed in 2016. 22
Table 2. BMI metrics. 23
Table 3. Physical habitat results – substrate size, embeddedness, and vegetative cover. 25
Table 4. Physical habitat results – habitat evaluation. 26
Table 5. Average metal or mineral concentration of BMI tissue among sites with the same metal-sensitive family richness. 27
Table 6. Average metal or mineral concentration of sediment among sites with the same metal-sensitive family richness. 28
Table 7. Average metal or mineral concentration of pore water among sites with the same metal-sensitive family richness. 29
Table 8. Average metal or mineral concentration of surface water among sites with the same metal-sensitive family richness. 30
Table 9. BMI tissue metal concentrations. 31
Table 10. Spearman correlation coefficients for BMI and physical habitat metrics. Yellow highlight indicates statistically significant correlations at $p<0.05$. 32
Table 11. Spearman correlation coefficients between percent embeddedness and metal concentrations in sediment, pore water, and surface water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 33
Table 12. Spearman correlation coefficients for BMI metrics and concentrations in BMI tissue. Yellow highlight indicates statistically significant correlations at $p<0.05$. 34
Table 13. Spearman correlation coefficients for BMI metrics and concentrations in sediment. Yellow highlight indicates statistically significant correlations at $p<0.05$. 35
Table 14. Spearman correlation coefficients for BMI metrics and total concentrations in pore water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 36
Table 15. Spearman correlation coefficients for BMI metrics and dissolved concentrations in pore water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 37
Table 16. Spearman correlation coefficients for BMI metrics and total concentrations in surface water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 38
Table 17. Spearman correlation coefficients for BMI metrics and dissolved concentrations in surface water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 39
Table 18. Percent of variation explained by Axis one and Axis two for each ordination group. Since environmental variables were not consistently sampled at all sites, ordination had to be performed separately for each environmental variable using the group of sites where that variable was sampled consistently. 40
Table 19. Correlation of environmental variables with NMS axes ($r^2>=0.4$ reported). Direction of relationship noted in parenthesis. Correlations with Axis two were all below r^2 of 0.4. 41
Table 20. Spearman correlation coefficients between metal concentrations in BMI tissue. Yellow highlight indicates statistically significant correlations at $p<0.05$. 42
Table 21. Spearman correlation coefficients between metal concentrations in sediment. Yellow highlight indicates statistically significant correlations at $p<0.05$. 43
Table 22. Spearman correlation coefficients between total metal concentrations in pore water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 44
Table 23. Spearman correlation coefficients between dissolved metal concentrations in pore water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 45
Table 24. Spearman correlation coefficients between total metal concentrations in surface water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 46
Table 25. Spearman correlation coefficients between dissolved metal concentrations in surface water. Yellow highlight indicates statistically significant correlations at $p<0.05$. 47
Table 26. Hazard quotients for metals. 48

List of Figures

Figure 1: Taxa richness – Upper Animas Group A 50
Figure 2: Taxa richness – Upper Animas Group B 51
Figure 3: Taxa richness – Mineral Creek Group 52
Figure 4: EPT (Ephemeroptera, Plecoptera, and Trichoptera) richness – Upper Animas Group A 53
Figure 5: EPT (Ephemeroptera, Plecoptera, and Trichoptera) richness – Upper Animas Group B 54
Figure 6: EPT (Ephemeroptera, Plecoptera, and Trichoptera) richness – Mineral Creek Group 55
Figure 7: Hilsenhoff Biotic Index (HBI) – Upper Animas Group A 56
Figure 8: Hilsenhoff Biotic Index (HBI) – Upper Animas Group B 57
Figure 9: Hilsenhoff Biotic Index (HBI) – Mineral Creek Group 58
Figure 10: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Upper Animas Group A 59
Figure 11: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Upper Animas Group B 60
Figure 12: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Mineral Creek Group 61
Figure 13: Relative abundance of functional feeding groups – Upper Animas Group A 62
Figure 14: Relative abundance of functional feeding groups – Upper Animas Group B 63
Figure 15: Relative abundance of functional feeding groups – Mineral Creek Group 64
Figure 16: Multi-metric Index (MMI) – Upper Animas Group A 65
Figure 17: Multi-metric Index (MMI) – Upper Animas Group B 66
Figure 18: Multi-metric Index (MMI) – Mineral Creek Group 67
Figure 19: Density (#/m^2) – Upper Animas Group A 68
Figure 20: Density (#/m^2) – Upper Animas Group B 69
Figure 21: Density (#/m^2) – Mineral Creek Group 70
Figure 22: Concentration of aluminum in BMI tissue along a gradient of decreasing metal sensitive family richness 71
Figure 23: Concentration of dissolved copper in pore water along a gradient of decreasing metal sensitive family richness 72
Figure 24: Concentration of dissolved copper in surface water along a gradient of decreasing metal sensitive family richness 73
Figure 25: Concentration of dissolved zinc in surface water along a gradient of decreasing metal sensitive family richness 74
Figure 26: Correlations for each media between BMI metrics and metals and minerals 75
Figure 27: Correlations between BMI metrics and each metal and mineral across all media 76
Figure 28: Correlations between BMI metrics and metals and minerals for each BMI metric 77
Figure 29: NMS ordination. Sites grouped by watershed (Animas River, Mineral Cr). See Table 13 for ordination details 78
Figure 30: NMS ordination. Sites grouped by reference (Ref) and non-reference (NR). See Table 13 for ordination details 79
Figure 31: NMS ordination. Sites grouped by aquatic life use attainment (Attain) and impairment (Imp) of class two waters based on MMI scores. The assessment of attainment/impairment is for illustration only since it is based on a theoretical assumption that all sites are designated as having a class two aquatic life use designation. See Table 13 for ordination details 80
Figure 32: NMS ordination. Sites grouped by richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae. See Table 13 for ordination details 81
Figure 33: NMS ordination with orthogonal vector lines for physical habitat variables (r^2 correlation greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. See Table 13 for ordination details 82

Figure 34: NMS ordination with orthogonal vector lines for metal and mineral concentrations in sediment (r^2 correlations greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. See Table 13 for ordination details. This ordination is based on the subset of sites where sediment samples were collected.....83
Figure 35: NMS ordination with orthogonal vector lines for metal and mineral concentrations in pore water (r^2 correlations greater than 0.4). The angle and length of the red lines reflect the direction and strength of the relationship between the variable and ordination axes. This ordination is based on the subset of sites where pore water samples were collected. See Table 13 for ordination details 84
Figure 36: NMS ordination with orthogonal vector lines for metal and mineral concentrations in surface water (r^2 correlations greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. This ordination is based on the subset of sites where surface water samples were collected. See Table 13 for ordination details.....85
Figure 37: NMS ordination with orthogonal vector lines for metal and mineral concentrations in BMI tissue (r^2 correlations greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. This ordination is based on the subset of sites where BMI tissue samples were collected. See Table 13 for ordination details.....86

List of Abbreviations and Acronyms

BMI	Benthic Macroinvertebrate
CCU	Cumulative Criteria Unit *(see table 26)*
CDPHE	Colorado Department of Public Health and Environment
EDAS	Ecological Data Application System
EPA	Environmental Protection Agency
EPT	Ephemeroptera, Plecoptera, and Trichoptera *(see table 2)*
HBI	Hilsenhoff Biotic Index *(see table 2)*
HQ	Hazard Quotients
MetalSensRA	Relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families *(see table 2)*
MetalSensRich	Richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families *(see table 2)*
MMI	Multi-metric index *(see table 2)*
MSI	Mountain Studies Institute
NMS	Non-metric multi-dimensional scaling ordination
SWDI	Shannon-Weaver Diversity Index *(see table 2)*

<u>Metals and Minerals:</u>

Al	aluminum
Sb	antimony
As	arsenic
Ba	barium
Be	beryllium
Cd	cadmium
Ca	calcium
Cl-	chloride
Cr	chromium
Cu	copper
Fe	iron
F-	fluoride
Hg	mercury
Pb	lead
Mo	molybdenum
Mg	magnesium
Mn	manganese
Ni	nickel
Se	selenium
SiO_2	silica
SO_4	sulfate
Ag	silver
Sr	strontium
Tl	thallium
U	uranium
V	vanadium
Zn	zinc

1. Executive Summary

The Bonita Peak Mining District (BPMD) was designated by the Environmental Protection Agency (EPA) as a Superfund site on the National Priorities List in 2016. The EPA identified 48 distinct contaminant sources related to mining activities that warrant further investigation. The 48 sources are scattered throughout the Upper Animas River and tributaries in San Juan County, Colorado. BPMD is located in a highly-mineralized zone of the San Juan Mountains where high metal concentrations from natural and mine-related sources have contributed to a long history of degraded water quality in the Upper Animas River and tributaries. Numerous studies have documented the impacts to benthic macroinvertebrates (BMI) from metal contamination in this region, particularly for the Animas River and its tributaries, but the last spatially comprehensive evaluation of BMI distribution in the Upper Animas watershed was conducted in the mid-1990s by Anderson (2007a). While this historical information is valuable, an updated evaluation was warranted, given that remediation projects that have been completed in the watershed during the past 20 years. Furthermore, several of the contaminant sources identified by the EPA for inclusion in the Superfund site are located in subwatersheds where benthic communities were not surveyed by Anderson in the mid-1990s.

For this research, we conducted surveys throughout the Upper Animas River and Mineral Creek watersheds across a gradient of metal exposure to BMI through water and sediment to accomplish the following objectives: 1) Provide a spatially comprehensive evaluation of the current condition of BMI communities throughout BPMD; 2) Document metal concentrations of BMI tissue, which are reflective of overall metal bioavailability; 3) Characterize the physical habitat for aquatic life at surveyed sites; and 4) Examine what environmental factors are most responsible for differences in benthic communities across BPMD.

Data from our 2016 surveys suggest the following conclusions:

- BMI communities within BPMD vary from reach to reach, ranging from sparsely populated sites with substantial metal contamination to sites with abundant, diverse communities that reflect minimal exposure to metal contamination.

- The most robust, diverse benthic communities were observed at sites located on tributaries (Cunningham Creek, Maggie Gulch, Picayne Gulch, Bear Creek, and Mill Creek), on the South Fork of Mineral Creek, and on the uppermost reaches of the South and North Forks of the Animas River. We observed the lowest benthic diversity and abundance in two general areas: 1) at sites on Mineral Creek from the Middle Fork of Mineral Creek to the Animas River; 2) on the South Fork of the Animas River immediately upstream of the confluence with Eureka Gulch; and 3) at sites near Animas Forks and throughout the West Fork of the Animas River.

- In some locations, healthy BMI communities sharply decline in diversity and abundance over a relatively short distance.

- Several sites that currently do not have an aquatic life use designation had benthic communities that, based on Multi-metric index (MMI) (CDPHE 2010b) scores, would be in attainment of a class two aquatic life use designation. Many sites in BPMD have benthic communities that would not meet an aquatic life use designation.

- We found a gradient of sensitivity among the three metal-sensitive BMI families that directly corresponds with increases in several metals and minerals in BMI tissue, pore water, and surface water. The loss or addition of each of the three metal-sensitive families over time could be a valuable indicator for assessing the successfulness of remediation efforts.

- We used statistical correlation and non-metric multi-dimensional scaling ordination (NMS) to examine the correlations between environmental factors and benthic communities in BPMD. There was broad agreement between the two methods that surface water and pore water metal and mineral concentrations more strongly influenced BMI communities than other environmental parameters. There was a weaker relationship between BMI communities and concentrations of metals and minerals in sediment.

- Multiple lines of evidence, including statistical correlation, NMS, and hazard quotients, suggest that surface water concentrations of Al, Cd, Cu, and Zn likely shape the distribution and community composition of BMI populations across BPMD. Further research, such as experimental bioassays, could confirm if these and other metals that correlated with BMI metrics have a direct causative effect on BMI communities.

Long-term monitoring of benthic communities has been demonstrated as an effective tool for detecting improvements in water quality and the health of aquatic life following mining-related remediation efforts (Clements et al. 2010). To assess the success of remediation efforts in BPMD, we recommend an annual, long-term monitoring program that targets a subset of the 2016 sites across a gradient of metal exposure. BMI monitoring programs that are long-term, and ideally occur on an annual frequency, are more effective at isolating the direct effects of anthropogenic activities from natural variability of communities. Sites selected for continued monitoring should be located in close downstream proximity to remedial actions. In addition, we recommend that Animas River sites downstream of Silverton be included in a long-term monitoring plan to determine if remediation efforts translate to down-canyon improvement in the health of aquatic life. Monitoring assessment should focus on BMI metrics that most strongly correlated with metal exposure, which include total richness, density, EPT, MMI, and the richness of metal sensitive families.

2. Introduction

In 2016, the Environmental Protection Agency (EPA) designated the Bonita Peak Mining District (BPMD) as a Superfund site on the National Priorities List. The EPA identified 48 distinct contaminant sources related to mining activities that warrant further investigation. The 48 sources are scattered throughout the Upper Animas River and tributaries in San Juan County, Colorado. BPMD is located in a highly-mineralized zone of the San Juan Mountains where high metal concentrations from natural and mine-related sources have contributed to a long history of degraded water quality. The extent to which metal contamination impacts aquatic life varies throughout the district with some stream reaches supporting abundant and diverse aquatic life while other stream reaches are largely devoid of aquatic life (Besser, Finger, and Church 2007).

Numerous studies have documented the impacts to benthic macroinvertebrates (BMI) from metal contamination in the Animas River and tributaries (Anderson 2007a; Anderson 2007b; Besser and Brumbaugh 2007; Courtney and Clements 2002; EPA 2015; Roberts 2015; Roberts 2016; Smith 1976; etc.), but the bulk of this research has focused on the Animas River downstream of Silverton, Colorado. The last spatially comprehensive evaluation of BMI distribution in the Upper Animas watershed was conducted in the mid-1990s by Anderson (2007a). While this historic information is valuable, an updated evaluation is warranted, given the number of significant remediation projects that have been completed in the watershed during the past 20 years. Furthermore, several of the contaminant sources identified by the EPA for inclusion in the Superfund site are located in subwatersheds where benthic communities were not surveyed by Anderson in the mid-1990s.

Therefore, we conducted surveys throughout the Upper Animas River and Mineral Creek watersheds across a gradient of metal contamination to accomplish the following objectives:

1) Provide a spatially comprehensive evaluation of the current condition of BMI communities throughout BPMD.
2) Document metal concentrations of BMI tissue, which are reflective of overall metal bioavailability.
3) Characterize the physical habitat for aquatic life at surveyed sites.
4) Examine what environmental factors are most responsible for differences in benthic communities across BPMD.

3. Methods

3.1 Monitoring Locations

EPA designated nineteen exposure units and six reference areas along streams in the Mineral Creek and upper Animas watersheds within BPMD (EPA 2016). We collected BMI community composition data, BMI tissue data (when available), and physical

habitat data in each of the 19 exposure units and at five reference locations – a total of 28 locations (Table 1 and Maps 1-2 in Appendix A).

3.2 Field Survey Methodology

3.2.1 BMI Community Samples

To allow direct comparison to historical BMI data from the Animas River watershed, we replicated a BMI sampling method (to the greatest extent possible) that was developed by Chester Anderson and used previously within the Animas River watershed (Anderson 2007a; personal communication). Anderson's method utilized and modified protocols developed by the EPA (Barbour et al. 1999) and CDPHE (CDPHE 2010a). Anderson (2000) assessed a variety of BMI sampling methods and determined that the most appropriate method for use in the Animas River was a targeted riffle method that utilized a modified rectangular dip net coupled with a dolphin bucket. We altered Anderson's (2007a) methodology by increasing the amount of habitat sampled per site to 1.15 m^2, which more closely follows the methodology outlined by CDPHE (2010a) and provides a better representation of the spatial heterogeneity of BMI communities.

At each site we collected ten samples at equal intervals along a 150-meter-long stream reach. We collected each sample by placing the net securely on the bottom of the river with the net opening facing upstream. Standing downstream of the net, we disturbed the substrate on the river bottom that is immediately upstream of the net. We lifted and scrubbed rocks and gravel by hand for approximately 30 seconds to ensure that BMIs were dislodged and drifted downstream into the net opening. For each sample, we disturbed an area of approximately 0.115 m^2 of substrate, which was estimated in the field by using the size of the net opening as a guide (*net opening is 46 cm by 25 cm; area of 0.115 m^2*). We then composited the ten samples into a single sample container representing 1.15 m^2 (1782 in^2) of habitat at each site.

3.2.2 BMI Tissue Sampling

After community sampling was complete, we collected a second BMI sample from each site to analyze for tissue metal concentrations. We collected specimens in a similar manner as described in section 3.2.1. Using forceps and a fine mesh net, we triple rinsed each specimen in deionized water before combining all specimens into a community composite sample for each site. To meet laboratory analysis requirements, we attempted to collect at least four grams of wet weight BMI tissue for each site. To accommodate laboratory quality control procedures, we increased the BMI tissue mass at 10% of the sites to at least eight grams of wet weight BMI tissue. We kept samples cold (between 2-6 degrees Celsius) in DigiTube™ sample containers and shipped them on ice for analysis at the Environmental Services Assistance Team (ESAT) Analytical Chemistry Department within the EPA Region 8 laboratory. We delivered samples within specified hold times of 180 days for total recoverable metal analysis and 28 days for mercury analysis.

3.2.3 Physical Habitat Evaluation

We evaluated physical habitat using CDPHE's (2015) "105-Count Procedure" along twenty-one cross-sectional transects equidistantly located within the 150-meter reach delineated for BMI community sampling. At five points along each of the twenty-one cross-section transects, we selected a substrate at random and measured the intermediate axis length in millimeters, estimated percent embeddedness, and noted the presence/absence of algae, moss, or other vegetative cover. In total, we evaluated 105 substrates at each site. We estimated embeddedness as the percent surface area of cobble sized substrate (i.e., substrate with intermediate axix longer than 64 mm in length) that was covered by fine sediment or biofilm mats.

We evaluated the condition of habitat using a habitat assessment protocol developed for high-gradient streams by Barbour and others (1999) in which the following habitat parameters were visually assessed and given a numerical score: epifaunal substrate/available cover; embeddedness; velocity/depth regime; sediment deposition; channel flow status; channel alteration; frequency of riffles; bank stability; vegetation; and riparian vegetative zone.

At each site we photographed the downstream and upstream perspective at 50m intervals along the reach (0m, 50m, 100m, and 150m). We also photographed typical substrate at each site for reference. These photos can be used to ensure that subsequent surveys are conducted within the same reach.

Site photos are included in Appendix B and the physical habitat field data sheet is included in Appendix C.

3.3 Laboratory Methods

3.3.1 BMI Community Samples

Samples were identified by Scott Roberts (aquatic ecologist, Mountain Studies Institute) and Dr. Michael Bogan (University of Arizona). We sub-sampled each field sample using a rotating drum splitter until a minimum of 500 organisms was obtained. Using a 10x microscope, we identified organisms to the lowest practical taxonomic level based on Merrit and Cummings (1996). Dr. Bogan identified all Chironomidae and Acari taxa and served as a second taxonomist for our quality assurance program by independently verifying at least 10% of all taxa.

3.3.2 BMI Tissue Samples

Tissue metal concentrations were analyzed by the EPA Region 8 laboratory in Golden, Colorado using EPA analytical methods EPA 200.2, 200.7, and 200.8. The entire body of BMIs were analyzed, including metals in internal organs, on gill surfaces, and elsewhere in the body.

3.4 Data Analysis

3.4.1 BMI Metrics

Several metrics have been developed to assess the composition and health of BMI communities (Table 2). Many of these metrics can also be used as evidence of the overall condition of the habitat and water quality of an aquatic system. Table 2 presents BMI metrics in order of their applicability to BMI communities that are exposed to elevated metal concentrations.

3.4.2 Ecological Data Application System (EDAS)

We utilized the Ecological Data Application System (EDAS) developed by CDPHE to calculate the Colorado Multi-metric index (MMI). MMI scores are based on a fixed count of 300 individuals per sample.

3.4.3 Standardizing Sample Size

To eliminate potential bias from differing sample sizes, we employed an algorithm to subsample all samples to a fixed count of 500 individuals. All metrics discussed in this report are based on the 500 count subsampled data, except MMI, which is based on a fixed count of 300 organisms per sample (see section 3.4.2).

3.4.4 Statistical Analysis

Using JMP statistical software (JMP 2013), we calculated spearman correlation coefficients between BMI metrics, physical habitat variables, and metal and mineral concentrations in BMI tissue, sediment, surface water, and pore water.

We applied non-metric multi-dimensional scaling ordination (NMS) within PC-ORD software (McCune & Mefford 1999) to assess differences in benthic communities across BPMD and to determine which environmental explanatory variables (e.g., embeddedness; dissolved aluminum concentrations in surface water) may drive the variability in community composition among sites. Our NMS analysis was based on Bray-Curtis distance measures of species abundance per site. To eliminate bias from rare taxa in the NMS, we only used species that occurred in more than 5% of samples. Two sites had benthic communities that were substantially different from all other sites. Hermosa Creek had different community composition due to it being located at a lower elevation than all other sites. Burrows Creek was unique in that it's benthic community was dominated by Chironomidae taxa, perhaps due to a smaller substrate size distribution than all other sites. We excluded these two sites from NMS analysis because, as outliers, they skewed ordination results and obscured interpretation. The approach of excluding outliers is consistent with NMS procedures (Peck 2016).

3.4.5 EPA chemistry data

In the fall of 2016, EPA collected sediment, pore water, and surface water samples from numerous sites within BPMD, including most of the same sites where BMI samples were collected (Table 1). Samples were analyzed for metal and mineral concentrations. We acquired the data from EPA's online SADIE database and have included data source information and chemistry data as Appendix E.

4. Results

Note: Sites are referred to by site IDs found in Table 1.

4.1 Physical Habitat

4.1.1 Substrate

Physical habitat surveys revealed relative differences among sites (Tables 3 and 4). While most sites were dominated by cobble sized substrates, a few sites had abundant gravel and pebble (BUaNFA; SFMbC; MILaM; and BEaM). Conversely, several higher elevation sites had abundant boulder sized substrate (AaEU; NFAaBU; WFAaA; WFAaPL). Fine and sand sized particles made up a small proportion of habitat at all sites; only five sites had more than 5% of substrate that was fine and sand. There was a large gradient of embeddedness across sites, mostly driven by metal precipitates and biofilm mats. Embeddedness ranged from 50% at the MFMaM to less than 1% at the AaARR.

4.1.2 Aquatic vegetative cover

We report aquatic vegetative cover as the proportion of the 105 substrates observed during pebble counts that had algae, moss, other aquatic vegetation present (Table 3). Aquatic vegetation was relatively sparse at most sites; 23 of the 28 sites had less than 10% cover of algae, moss, or other aquatic vegetation. Exceptions include MaBG, AaMINN, and MILaM, which had abundant algae, and HERaD and BUaNFA, which had abundant algae and moss.

4.1.3 Bank stability and riparian zone

Most sites had stable banks and intact, undisturbed riparian zones (Table 4). A few sites had eroding banks and/or sparsely vegetated riparian zones (e.g., BEaM; SFMaM; MaMFM) that could be the result of the flood plain geomorphology or metal contamination of overbank sediments. We found that in these high gradient systems, the presence of eroding banks and/or sparsely vegetated riparian zones did not appear to translate to in-channel sediment storage (i.e., sites with low scoring bank stability did not have higher embeddedness or higher percent fines than sites with high scoring bank stability) (Tables 3 and 4).

4.2 BMI Community Composition

4.2.1 Spatial overview

Benthic community composition and abundance varied greatly across BPMD. Metrics of benthic community health and structure revealed high spatial heterogeneity among sites, ranging from sites with diverse communities comprised of more than 25 species (e.g., BEaM) to sparsely populated sites inhabited by only a couple of benthic species (e.g., PLaWFA) (Figures 1-21; Maps 3-10). The Hermosa Creek site (HERaD) will be discussed in a forthcoming EPA document focusing on aquatic risk of the lower reach of the Animas River.
Most BMI metrics, including taxa richness, EPT richness, Hilsenhoff Biotic Index, and density generally depicted a similar spatial pattern. The most robust, diverse benthic communities were observed at sites located on tributaries (Cunningham Creek, Maggie Gulch, Picayne Gulch, Bear Creek, and Mill Creek), on the South Fork of Mineral Creek, and on the uppermost reaches of the South and North Forks of the Animas River. We observed the lowest benthic diversity and abundance in three general areas: 1) at sites on Mineral Creek from the Middle Fork of Mineral Creek to the Animas River; 2) at sites near Animas Forks including the AaEU, NFAaWFA, WFAaA, WFAaPL, PLaWFA, and BUaNFA; and 3) at SFAaEU.

In some cases, we detected large changes in the benthic community within short distances. For example, the benthic community in the South Fork of the Animas River above the Avalanche Zone had sixteen EPT taxa (members of the Ephemeroptera, Plecoptera, and Trichoptera orders, see Table 2), but approximately ½ a mile downstream, immediately above the confluence with Eureka Gulch, there were only eight EPT taxa (Figures 4-6).

4.2.2 Metal-sensitive BMI families

Three families of BMI have been documented as being particularly sensitive to elevated metals: Heptageniidae, Ephemerellidae, and Taeniopterygidae (Courtney and Clements 2002) (Table 2). The presence and diversity of these families varied across sites in BPMD. At some sites, multiple species of the three metal-sensitive families were present (e.g., AaCU) while other sites had no representation by any of the metal-sensitive families (e.g., NFAaWFA) (Figures 10-12; Maps 5-6).

Data revealed a pattern that may indicate a gradient of sensitivity among the three metal-sensitive families. Across all sites, when Ephemerellidae was present, Heptageniidae and Taeniopterygidae were also present. Taeniopterygidae was always present if Heptageniidae was present, but Taeniopterygidae could be present when Heptageniidae was absent (Figures 10-12). This pattern suggests that within BPMD, Ephemerellidae may be more sensitive than Heptageniidae and Heptageniidae may be more sensitive than Taeniopterygidae. There appears to be a strong relationship between the richness of metal sensitive families and the concentration of some metals and minerals across environmental media. We examined patterns of metal concentrations along the following gradient of metal sensitive family richness:

a) *Richness of 5: Sites where all three metal sensitives families are present with some families represented by more than one species;*

b) *Richness of 3: Sites where all three metal sensitive families are present, but each family is only represented by one species;*

c) *Richness of 2: Sites where only two of the three metal sensitive families are present (Heptageniidae and Taeniopterygidae);*

d) *Richness of 1: Sites where only one of the three metal sensitive families are present (Taeniopterygidae);*

e) *Richness of 0: Sites where none of the three metal sensitive families are present.*

We calculated the average metal concentration among sites that shared the same richness of metal sensitive families and found a distinct corresponding increase in the concentration of several metals with each reduction in metal sensitive family richness. For example, we found that aluminum in BMI tissue, dissolved copper in pore water, and dissolved copper in surface water all increase with decreasing metal sensitive family richness (Figures 22-24). Metals and minerals that had higher concentrations with each reduction of metal sensitive family richness included Al, Sb, Be, Hg, Ni, SiO_2, Ag, and Tl in BMI tissue; dissolved Cu, total Fl-, and total and dissolved Mn in pore water; and total and dissolved Al, dissolved Cu, total Fl-, and dissolved Ni in surface water (Tables 5-8). Although we observed this pattern for many metals, it is possible that only a subset of metals that exhibit this pattern are directly causing the reduction in metal sensitive family richness. Several other metals and minerals, such as dissolved zinc in surface water, did not consistently increase with metal sensitive family richness but did increase substantially between a richness of 1 and a richness of 0 (Figure 25), which is consistent with previous research that documented a non-linear relationship between zinc concentrations and BMI community composition (Clements and Kiffney 1995). There was a much weaker relationship between metals and minerals in sediment and metal sensitive family richness.

4.2.3 Functional Feeding Groups

The feeding behaviors exhibited by members of a benthic community can be an indicator of habitat conditions. For example, the absence of 'scraper' taxa (insects that feed on biofilm and/or algae using mouthparts to scrap material from the surface of rocks) can be an indication of metal precipitates coating rock surfaces, preventing growth of algae, and reducing food availability (Clements et al 2000; Hogsden and Harding 2012a). We found higher relative abundances of scrapers at sites located on tributaries (Picayne Gulch, Bear Creek, and Mill Creek), on the Animas River above Cunningham, and on the uppermost reaches of the South and North Forks of the Animas River (Figure 13-15).

4.2.4 Multi-metric Index (MMI)

The MMI was developed by CDPHE to assess the extent to which biological communities may have been altered by environmental stressors and to evaluate whether a water body is in attainment or impairment of designated aquatic life use (CDPHE 2010b). Of the twenty-eight sites where BMI surveys were conducted in 2016, only ten sites are located on reaches that currently have an aquatic life use designation (CDPHE 2016). 2016 MMI scores indicate that three of these sites may be in impairment of their aquatic life use designation: AaARR; MaA; and SFMaM (Figure 16-18 and Maps 7-8). Using MMI scores we can assess whether the eighteen sites that are located on reaches that currently do not have an aquatic life use designation would be in attainment or impairment, if theoretically, they did have a designation. Three of these sites had MMI scores that would indicate attainment of a class one or class two designation (NFAaBU; EUaSFA; and SFAaAV). Four sites had MMI scores that would indicate attainment of a class two designation, but not a class one designation (AaMINN; SFAaA; MaBG; and MaMIL). The remaining eleven sites had MMI scores that would indicate impairment if they had an aquatic life use designation.

4.3 BMI Tissue Metal Concentrations

The level of metals in macroinvertebrate tissue reflect the overall bioavailability of metals in a system (Kiffney and Clements 1993). Benthic tissue concentrations varied greatly across BPMD, indicating an uneven spatial distribution of metal bioavailability (Table 9). For most metals and minerals, we found the highest concentrations in benthic tissue from the following sites: PLaWFA; SFAaA; BUaNFA; and MaSFM. There were also high levels of Cd at CUaA and at NFAaBU, and high levels of Cu at MaMIL and at EUaSFA. Lead concentrations were highest in benthic tissue from MaMIL, EUaSFA, and MaBG. Zinc concentrations were highest in benthic tissue from SFAaA, AaCU, and AaMINN. Concentrations of metals and minerals were lowest in benthic tissue from SFAaAV, MAGaA, and AaARR.

4.4 Relationship between physical habitat metrics, BMI metrics, and concentrations of metals and minerals in surface water, pore water, and sediment.

We calculated Spearman correlation coefficients between BMI metrics and physical habitat characteristics, such as substrate size distribution and embeddedness (Table 10). Most measures of substrate size distribution (e.g., average substrate size, D50, percent cobble) were poorly correlated with BMI metrics. Exceptions included the percent of substrate composed of fines size class, which had a strong positive correlation with HBI, and the percent of substrate composed of boulder size class, which had a strong negative correlation with collector-gatherers (cg) and a strong positive correlation with shredders (sh).

Several BMI metrics had significant negative correlations with percent embeddedness. Embeddedness of reaches within BPMD was often associated with the visible presence of metal precipitates and biofilm mats, which covered substrate, filled interstitial spaces, and altered benthic habitat (see images 10, 79, 80, 129, 130, 160, 169, 170, 179, 180,

199, 200, 209, 210 in Appendix B). Although metal concentrations of biofilm were not measured in this study, Farag (2007) suggests that biofilm serves as an important exposure pathway for metal uptake by aquatic life.

We found significant positive correlations between percent embeddedness and total and dissolved concentrations of several metals and minerals in surface water, but weaker relationships between percent embeddedness and metals and minerals in sediment and pore water (Table 11). This suggest that one source of embeddedness at these sites could be metal precipitates or biofilm mats derived from surface water metal concentrations.

4.5 Relationship between BMI metrics and concentrations of metal and mineral concentrations in BMI tissue, sediment, pore water, and surface water.

We observed wide variability in BMI community composition throughout BPMD. Although the specific environmental drivers of this variability are unknown, BMI communities are known to be influenced by metal concentrations (Hogsden and Harding 2012b). We calculated Spearman correlation coefficients between BMI metrics and metal concentrations observed in BMI tissue, stream sediment, pore water, and surface water (Tables 12-17). We examined the overall strength of these relationships using cumulative measures across media, such as the average strength of correlations and the number of statistically significant correlations. We assessed which BMI metrics were most strongly correlated with metal conditions, which media (e.g., pore water, surface water, sediment, tissue) were most strongly correlated with BMI metrics, and which metals or minerals were most strongly correlated with BMI metrics (Figures 26-28).

We found statistically significant correlations between BMI metrics and several different metals in BMI tissue, sediment, pore water, and surface water. Although most metals and minerals were negatively correlated with BMI metrics, there were a few exceptions that were positively correlated with BMI metrics (e.g., calcium in sediment was positively correlated with total richness). The strength of correlations differed among the different media and metals. Metals in pore water and surface water were more strongly correlated with BMI metrics than metals in BMI tissue or stream sediment. Similarly, researchers have documented that the primary mode of impairment to BMI communities in the Upper Powell River in Virginia (Schmidt et al. 2002) and the Animas River (Courtney and Clements 2002) was from metals in surface water rather than metal contaminated sediments.

Results from correlation analysis also revealed that some BMI metrics were more strongly correlated with metals in BMI tissue, stream sediment, pore water, and surface water than others. The strongest correlations with metals and minerals across environmental media were found with the following BMI metrics: Total richness, density, MMI, EPT, Metal sensitive family richness, and relative abundance of scraper taxa. We found that HBI, SWDI, and Functional Feeding Groups other than scrapers (cf, cg, o, p, and sh) had weaker correlations with metals.

Of the 17 metals and minerals that were consistently analyzed across all media, Al, Cd, Cu, Fe, Mn, Ni, Pb, and Zn had the strongest correlations with BMI metrics. Silica also had strong correlations with BMI metrics in tissue, pore water, and surface water, but was not analyzed in sediment samples.

4.6 Non-metric multidimensional scaling ordination (NMS)

To further examine the variability in benthic communities across BPMD, we used non-metric multidimensional scaling ordination (NMS), a statistical technique that plots each sample along axes in ordination space that represent gradients in community composition. Thus, points closer together in the plot represent samples that have more similar communities than points further apart. Not all environmental variables were collected at every site, so we produced separate NMS ordinations for each group of sites where an environmental measure was collected consistently. For example, benthic tissue was collected at a subset of sites due to low BMI abundance, so for plots that include benthic tissue concentrations as orthogonal vector lines, we only included those sites where BMI tissue was collected (Table 1; Table 18). For all ordinations, we found that a two-dimensional solution provided the optimal ordination. NMS ordination revealed similarities and differences in benthic community composition among sampled sites (Figures 29-37). It is apparent from ordination that some benthic communities are quite similar in composition despite being located in different watersheds (e.g., MaBG is plotted in close proximity to several Upper Animas sites) (Figure 29). Conversely, benthic communities at some Upper Animas sites are clearly distinct from any Mineral Creek sites (e.g., WFAaWFA, WFAaPL, and NFAaWFA).

Reference sites (BaM, PICaA, MAGaA, MILaM, and NAaBU), thought to be minimally influenced by mining-related metals, were clustered in the lower left corner of the NMS plot, indicating similarity in benthic community composition (Figure 30). Interestingly, SAaAV and MaBG are plotted closer to the reference sites than to other South Fork Animas or Mineral Creek sites. This suggests that the benthic communities of these two locations are more similar to benthic communities found at the reference sites than to the benthic communities found just downstream at SAaEU or MaMF. Of the mainstem Animas River sites, AaCU had a benthic community most similar to those found at the reference sites. Benthic communities at Cunningham Creek, CUaA, were also similar to those from reference sites.

As discussed in section 4.2.4, not all sites sampled are located within reaches that are designated for aquatic life use. However, coding the sample sites in ordination space by whether they would or would not meet MMI attainment of class two aquatic life use indicates a relatively clear separation between sites. Benthic communities from impaired sites, except for SMaM, are clearly dissimilar to those from attainment sites, as evidenced by the separation between the groups in ordination space (Figure 31). Ordination plots also reveal that sites with less than two taxa from metal sensitive families have benthic communities that differ from sites with two or more taxa from metal sensitive families (Figure 32).

Environmental variables, such as surface water metal concentrations, can be added to ordination plots as orthogonal vector lines to visualize correlations between these variables and benthic community composition (Figures 33-37). The angle and length of the orthogonal vector lines reflect the direction and strength of the relationship between the variable and ordination axes (Peck 2016). The orientation of vector lines can reveal the relationship between environmental variables. Vector lines that are parallel to one another and are pointing in the same direction as one another are likely correlated.

Several environmental variables had strong correlations (>=0.4 r^2) with NMS ordination, which suggests that these factors may be directly or indirectly responsible for the differences in benthic communities we observed in BPMD (Figures 33-37; Table 19). Among physical habitat variables, only embeddedness had a strong correlation with NMS ordination (Figure 33). The concentration of calcium in sediment had a strong correlation with NMS ordination, and the orthogonal vector line indicates that higher calcium in sediment was more associated with the healthier benthic communities that are depicted on the left-hand side of the ordination plot (Figure 34). There were several metals and minerals in surface water, pore water, and BMI tissue that correlated strongly with NMS ordination, separating most of the impaired sites from all other sites along axis one (Figures 35-37). Interestingly, copper and cadmium had strong correlations with BMI community composition in surface water and pore water, but not in BMI tissue. This could either indicate that BMI uptake of copper and cadmium is limited or that the copper and cadmium body burden of individuals does not scale up to population level effects that could shift the composition of benthic communities.

In summary, NMS ordination described the differences in benthic communities across BPMD along two axes. Most of the observed variability among benthic communities was explained by axis one (Table 18), which was strongly correlated with vectors of several environmental parameters (Table 19; Figures 33-37). Axis two accounted for a much smaller proportion of the variability in benthic communities and the separation of sites along axis two was not correlated with any measured environmental parameter (Table 18).

5. Conclusions, Research Recommendations, and Further Questions

We found that BMI communities within BPMD vary from reach to reach, ranging from sparsely populated sites with substantial metal contamination to sites with abundant, diverse communities that reflect minimal exposure to metal contamination. In several locations, we documented a shift from a healthy BMI community to a community diminished in diversity and abundance, occurring over a relatively short distance. For example, BMI metrics and NMS indicate, respectively, that there is an abrupt decline in the health of BMI communities and an abrupt shift in community composition from SFAaAV to SFAaEU, from MaBG to MaMFM, and from NFAaBU to NFAaWFA.

We used two approaches to examine the influence of environmental factors on benthic communities in BPMD. The first approach assessed statistical correlations between BMI

metrics and measured environmental variables (e.g. physical habitat, metal and mineral concentrations of BMI tissue, sediment, pore water, and surface water). The second approach used NMS ordination to examine the relationship between benthic community composition (taxa counts per site) and the same set of measured environmental variables. There was broad overlap in the results between the two approaches. We found that both approaches suggested that metal and mineral concentrations in surface water were more strongly correlated with benthic communities than other environmental variables, suggesting that of the variables we assessed, surface water may be the most important exposure pathway to BMIs. Concentrations of several metal and minerals in pore water were correlated with BMI metrics, but NMS analysis indicated that only pore water concentrations of cadmium and copper were strongly correlated with BMI community composition. Both approaches indicated that metal and mineral concentrations in sediment may be less influential on benthic communities than surface water or pore water, which is consistent with previous research (Courtney and Clements 2002; Schmidt et al 2002). The two approaches indicated that the concentrations of metals in BMI tissue were strongly tied with BMI metrics and benthic community composition. Among physical habitat variables, both approaches indicated that embeddedness may have the greatest influence on benthic community composition.

Through NMS and statistical correlation, we found strong relationships between the concentration of several metals and minerals and the composition of BMI communities. However, we also found strong correlations among metals within each media, suggesting that many metals co-occur with one another (Tables 20-25). The co-occurrence of metals may limit our ability to determine which metals are driving the distribution and structure of benthic communities. For example, in surface water, both cadmium and nickel were strongly correlated with BMI metrics (Tables 16-17) and BMI community composition (Table 19 and Figure 36), but were also strongly correlated to one another (Tables 24-25). This suggests a number of possible scenarios including: a) cadmium and nickel are both occurring at levels that negatively affect benthic communities; b) cadmium and nickel are co-occurring, but only cadmium is occurring at levels that negatively affect benthic communities; or c) cadmium and nickel are co-occurring, but only nickel is occurring at levels that negatively affect benthic communities. One approach that can be used to determine whether a metal is occurring at a level that has potential ecological consequence is to compare the observed concentration to water quality standards. CDPHE has developed water quality standards that are designed to protect aquatic life from acute (brief, short-term) and chronic (persistent, long-term) exposure to many metals in surface water (CDPHE 2017). In table 26, we present a comparison of observed metal concentrations to water quality standards for each site, expressed as a hazard quotient (HQ). We calculated HQs as the ratio of measured exposure (observed metal concentration) to CDPHE basic water quality standards. HQ values equal to or greater than 1.0 indicate a potential for ecological risk and HQ values below 1.0 indicate a low probability of ecological risk. The results of HQ analysis suggest that there is potential for ecological risk at several sites for Al, Cd, Cu, Fe, Pb, Mn, and Zn, but not for As, Cr, Ni, Ag, or Tl. When considered in conjunction with results from statistical correlation and NMS, it appears that surface water concentrations of Al, Cd, Cu, and Zn likely shape the distribution and community

composition of BMI populations in BPMD. Surface water concentrations of Fe, Mn, and Pb were correlated with BMI metrics, and at some sites had HQ values indicating a potential for ecological risk, but were not identified by NMS as having as strong a relationship with BMI community composition as Al, Cd, Cu, and Zn did. Maps depicting summed acute and chronic hazard quotients for each site are included as Maps 11-14.

The use of hazard quotients to determine whether a metal that correlated with BMI metrics may be ecological significant is a limited approach in that CDPHE water quality standards for aquatic life have only been developed for surface water and do not include all parameters assessed in this study (e.g., Be, F-, and SiO_2). Further research, such as experimental bioassays, could confirm if these and other metals that correlated with BMI metrics have a direct causative effect on BMI communities.
The potential sensitivity gradient of metal sensitive families (Heptageniidae, Ephemerellidae, and Taeniopterygidae), as discussed in Section 4.2.2 of this report, may have implications for future monitoring. The loss or addition of each of the three metal-sensitive families over time could be a valuable indicator for assessing the successfulness of remediation efforts. For example, Ephemerellidae and Heptageniidae were absent from MaMFM in 2016, but Taeniopterygidae was present. If future surveys found that Heptageniidae was present in addition to Taenipterygidae, it would suggest improving conditions. However, if future surveys found that Taeniopterygidae was no longer present, it would suggest deteriorating conditions.

Monitoring of BMI communities across a gradient of metal exposure will be an important component of assessing the successfulness of remediation efforts. Long-term, annual monitoring of BMI communities is essential in order to differentiate the direct effects of remediation from natural variability of communities (Anderson 2007a; Chapman 1999; Mazor et al. 2009; Resh et al. 2013). Clements and others (2010) documented the ability to use long-term monitoring to detect improvements in the health of benthic communities following the implementation of remediation projects designed to reduce metal exposure to aquatic life. We recommend an annual, long-term monitoring program in BPMD that targets a subset of the 2016 sites across a gradient of metal exposure. Sites selected for continued monitoring should be located in close downstream proximity to substantial remediation activities. In addition, we recommend that Animas River sites downstream of Silverton be included in a long-term monitoring plan to determine if remediation efforts translate to down-canyon improvement in the health of aquatic life. Monitoring assessment should focus on BMI metrics that most strongly correlated with metal exposure, which include total richness, density, EPT, MMI, and the richness of metal sensitive families.

In Summary:

- BMI communities within BPMD vary from reach to reach, ranging from sparsely populated sites with substantial metal contamination to sites with abundant, diverse communities that reflect minimal exposure to metal contamination.

- The most robust, diverse benthic communities were observed at sites located on tributaries (Cunningham Creek, Maggie Gulch, Picayne Gulch, Bear Creek, and Mill Creek), on the South Fork of Mineral Creek, and on the uppermost reaches of the South and North Forks of the Animas River. We observed the lowest benthic diversity and abundance in three general areas: 1) at sites on Mineral Creek from the Middle Fork of Mineral Creek to the Animas River; 2) on the South Fork of the Animas River immediately upstream of the confluence with Eureka Gulch; and 3) at sites near Animas Forks and throughout the West Fork of the Animas River.

- In some locations, healthy BMI communities sharply decline in diversity and abundance over a relatively short distance.

- Several sites that currently do not have an aquatic life use designation had benthic communities that, based on MMI scores, would be in attainment of a class two aquatic life use designation. Many sites in BPMD have benthic communities that would not meet an aquatic life use designation.

- We found a gradient of sensitivity among the three metal-sensitive BMI families that directly corresponds with increases in several metals and minerals in BMI tissue, pore water, and surface water. The loss or addition of each of the three metal-sensitive families over time could be a valuable indicator for assessing the successfulness of remediation efforts.

- We used statistical correlation and NMS to examine the correlations between environmental factors and benthic communities in BPMD. There was broad agreement between the two methods that surface water and pore water metal and mineral concentrations more strongly influenced BMI communities than other environmental parameters. There was a weaker relationship between BMI communities and concentrations of metals and minerals in sediment.

- Multiple lines of evidence, including statistical correlation, NMS, and hazard quotients, suggest that surface water concentrations of Al, Cd, Cu, and Zn likely shape the distribution and community composition of BMI populations across BPMD. Further research, such as experimental bioassays, could confirm if these and other metals that correlated with BMI metrics have a direct causative effect on BMI communities.

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7. Tables

Table 1. Benthic macroinvertebrate monitoring sites surveyed in 2016.

ID	EU	Stream Name	Site Name	Lat	Long	Date Collected	BMI Sample Type	2016 EPA Data
Mineral Cr								
MaA	EU1	Mineral Cr	Above Animas River	37.80289	-107.6724994	10/12/16	C+T	SW, PW, Sed
MaSFM	EU2	Mineral Cr	Above SF Mineral	37.82191	-107.7194105	10/13/16	C+T	SW, PW, Sed
MaMFM	EU3	Mineral Cr	Above MF Mineral	37.84647	-107.7285496	10/14/16	C+T	SW, PW, Sed
MaBG	EU3	Mineral Cr	Above Browns Gulch	37.85640	-107.72626	10/17/16	C+T	-
MaMIL	EU4	Mineral Cr	Above Mill Creek	37.87201	-107.7239838	10/17/16	C+T	SW, PW, Sed
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	37.81831	-107.7194105	10/13/16	C+T	SW, PW, Sed
SFMbC	EU5	SF Mineral Cr	Below Campground	37.80470	-107.76956	10/13/16	C+T	-
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	37.84529	-107.7413355	10/14/16	C	SW, PW, Sed
Upper Animas								
AaARR	EU7	Animas River	Above Arrastra Creek	37.82765	-107.624209	10/2/16	C+T	SW, PW, Sed
CUaA	EU8	Cunningham Creek	Above Animas River	37.83516	-107.595011	10/4/16	C+T	SW, PW, Sed
AaCU	EU9	Animas River	Above Cunningham	37.84303	-107.589894	10/4/16	C+T	SW, PW, Sed
AaMINN	EU10	Animas River	Above Minnie Gulch	37.86332	-107.571627	10/11/16	C+T	SW, PW, Sed
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	37.88293	-107.592597	10/8/16	C	SW, PW, Sed
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	37.87758	-107.59838	10/8/16	C+T	SW
EUaSFA	EU12	Eureka Gulch	Above SF Animas	37.88483	-107.591341	10/6/16	C+T	SW, PW, Sed
SFAaA	EU13	SF Animas River	Above Animas River	37.87948	-107.567451	10/6/16	C+T	SW, PW, Sed
AaEU	EU14	Animas River	Above Eureka	37.88174	-107.564966	10/11/16	C+T	SW, PW, Sed
WFAaA	EU15	WF Animas River	Above Animas River	37.93191	-107.570513	10/7/16	C	SW, PW, Sed
PLaWFA	EU16	Placer Gulch	Above WF Animas River	37.92819	-107.58869	10/10/16	C+T	SW, PW, Sed
WFAaPL	EU17	WF Animas River	Above Placer Gulch	37.93148	-107.589986	10/10/16	C	SW, PW, Sed
NFAaWFA	EU18	NF Animas River	Above WF Animas River	37.93179	-107.569852	10/7/16	C	SW, PW, Sed
BUaNFA	EU19	Burrows Creek	Above NF Animas River	37.94568	-107.575561	10/7/16	C+T	SW, PW, Sed
Reference Sites								
MILaM	-	Mill Creek	Above Mineral Creek	37.87266	-107.7360692	10/17/16	C+T	SW, PW, Sed
BEaM	-	Bear Creek	Above Mineral Creek	37.81317	-107.6964562	10/12/16	C+T	SW, PW, Sed
MAGaA	-	Maggie Gulch	Above Animas River	37.85424	-107.57163	10/4/16	C+T	SW, PW, Sed
PICaA	-	Picayne Gulch	Above Animas River	37.91139	-107.555845	10/5/16	C+T	SW, PW, Sed
NFAaBU	-	NF Animas River	Above Burrows Creek	37.94917	-107.573613	10/7/16	C+T	SW, PW, Sed
HERaD	-	Hermosa Creek	Above Ditch	37.42196	-107.845217	9/30/16	C+T	SW, PW, Sed

Note: ID = Site ID used in this document based on Stream Name and Site Name; EU = Exposure Unit; Lat/Long in NAD83; C+T = indicates sites where BMI community and tissue data was collected; C = sites where BMI community data was collected and tissue data was not collected; SW=surface water, PW=pore water, and Sed=sediment data was collected by EPA in the fall of 2016 (see Appendix E). Physical habitat data was collected at all sites.

Table 2. BMI metrics.

BMI Metric	Metric Description	Justification and Source
Metal Sensitive Families	Heptageniidae Richness : Total # of unique taxa units (richness) that are members of the Heptageniidae family of mayflies.	Heptageniid mayflies are particularly sensitive to elevated metals in the Animas River (Courtney and Clements 2002) and elsewhere in Colorado and the Rocky Mountains (Kiffney and Clements 1993; Clements and Kiffney 1995; Clements et al. 2000; Besser and Leib 2007; Carlisle and Clements 2003). *Epeorus* occurs at lower abundances on contaminated substrate from the Animas River (Courtney and Clements 2002).
	Ephemerellidae Richness: Total # of unique taxa units (richness) that are members of the Ephemerellidae family of mayflies.	Ephemerellid mayflies are particularly sensitive to elevated metals in Animas River water and contaminated substrate, especially *Drunella doddsi* (Courtney and Clements 2002), and at other locations (Kiffney and Clements 1993; Besser and Leib 2007; Clark and Clements 2006).
	Taeniopterygidae Richness: Total # of unique taxa units (richness) that are members of the Taeniopterygidae family of winter stoneflies.	Taeniopterygid stoneflies are particularly sensitive to elevated metals in Animas River water and contaminated substrate (Courtney and Clements 2002) and elsewhere in Colorado (Carlisle and Clements 2005).
EPT Richness	Total # of unique taxa units that are members of the orders Ephemeroptera (mayfly), Plecoptera (stonefly), and Trichoptera (caddisfly).	EPT taxa are generally considered to be sensitive to degraded water quality, including elevated metals (Maret et al. 2003). Ephemeroptera are more sensitive to metals than Plecoptera or Trichoptera (Clements et al. 2000).
Taxa Richness	Total # of distinct taxa units.	Taxa richness has been found to be reduced in streams with elevated metal concentrations (Maret et al. 2003).

Table 2 (cont.)

BMI Metric	Metric Description, Justification, and Source	
Functional Feeding Groups - *Relative abundance of scraper taxa*	Proportion of BMI community composed of scraper taxa	Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh). The absence of scraper taxa, insects that feed on biofilm and/or algae using mouthparts to scrap material from the surface of rocks, can be an indication of metal precipitates that coat rock surfaces, prevent the growth of algae, and reduce food availability (Carlisle and Clements 2005; Clements et al 2000; Hogsden and Harding 2012a).
Multi-metric Index (MMI)	MMI is a bioassessment tool developed by Colorado Water Quality Control Division and the Environmental Protection Agency (CDPHE 2010b). MMI quantifies the extent to which biological communities may have been altered by environmental stressors. MMI scores are evaluated in context to MMI scores from known reference sites and stressed sites in Colorado. CDPHE (2010b) provides MMI thresholds that can be used to evaluate whether a water body is in attainment or impairment of designated aquatic life use. A MMI score that is below the attainment threshold is evidence that the site is not supportive of aquatic life use. Additional metrics (e.g., HBI) are used to determine whether a site with a MMI score that falls between the attainment and impairment threshold should be considered impaired. The attainment threshold varies according to the biotype and class that the water body is located in. See CDPHE 2010b for more details.	
Hilsenhoff Biotic Index (HBI)	HBI is an index of the overall tolerance of a community to degraded water quality and is based on taxon-specific tolerance values and their relative abundance within the sample (Hilsenhoff 1987). The index value ranges from 0 (more sensitive) to 10 (more tolerant).	
Shannon-Weaver Diversity Index (SWDI)	SWDI is a measure of the diversity and evenness of a community (Shannon 1948).	

Table 3. Physical habitat results – substrate size, embeddedness, and vegetative cover.

Site				Substate Size (mm)						Substrate Class Size (%)						Embeddedness	Proportion of substrates with vegetative cover (%)		
ID	EU	Stream Name	Site Name	Average size	Standard Deviation	25th Percentile	50th Percentile	75th Percentile	90th Percentile	Fines	Sand	Gravel	Pebble	Cobble	Boulder	Average Embeddedness	Algae	Moss	Veg
Mineral Cr																			
MaA	EU1	Mineral Cr	Above Animas River	130.81	84.66	70	105	190	250	0.00	0.00	0.00	22.86	67.62	9.52	19.25	0.00	0.00	0.00
MaSFM	EU2	Mineral Cr	Above SF Mineral	112.93	80.57	50	100	180	210	10.48	0.00	0.95	16.19	65.71	6.67	40.43	0.00	0.00	0.00
MaMFM	EU3	Mineral Cr	Above MF Mineral	191.48	164.70	80	130	250	399	0.95	0.00	2.86	15.24	57.14	23.81	11.10	0.00	0.00	0.00
MaBG	EU3	Mineral Cr	Above Browns	202.15	201.24	70	140	290	410	0.95	0.00	4.76	18.10	50.48	25.71	1.83	52.38	0.00	0.00
MaMIL	EU4	Mineral Cr	Above Mill Creek	101.87	71.50	50	80	130	200	2.86	0.00	3.81	22.86	66.67	3.81	23.47	0.00	0.00	0.00
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	123.99	101.78	45	95	180	290	2.86	0.00	5.71	23.81	53.33	14.29	23.93	0.00	0.00	0.00
SFMbC	EU5	SF Mineral Cr	Blw Campground	99.31	84.98	45	80	125	190	0.00	0.00	4.95	32.67	57.43	4.95	10.69	0.00	0.00	0.00
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	104.08	75.83	45	100	150	210	8.57	0.00	4.76	21.90	61.90	2.86	50.00	0.00	0.00	0.00
Upper Animas																			
AaARR	EU7	Animas River	Above Arrastra Creek	161.29	118.22	80	130	210	346	1.90	0.00	0.95	18.10	61.90	17.14	0.49	5.71	0.00	0.00
CUaA	EU8	Cunningham Creek	Above Animas River	198.67	163.49	80	145	300	396	0.00	0.00	3.81	15.24	51.43	29.52	9.07	0.95	0.00	0.95
AaCU	EU9	Animas River	Above Cunningham	92.67	49.19	60	90	120	150	1.90	0.00	2.86	20.95	73.33	0.95	2.81	5.71	0.00	0.95
AaMINN	EU10	Animas River	Above Minnie Gulch	131.16	96.73	60	110	200	246	13.33	0.00	0.00	12.38	64.76	9.52	30.14	33.33	0.00	0.00
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	203.06	143.64	110	180	290	380	5.71	0.00	0.00	11.43	52.38	30.48	22.98	0.00	0.00	0.00
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	155.86	121.14	70	130	200	306	0.00	0.00	5.71	17.14	61.90	15.24	0.91	0.00	0.00	0.00
EUaSFA	EU12	Eureka Gulch	Above SF Animas	262.06	277.79	90	170	320	648	6.67	0.00	0.95	7.62	52.38	32.38	15.98	0.95	0.00	0.00
SFAaA	EU13	SF Animas River	Above Animas River	131.86	79.93	75	120	180	250	1.90	0.00	0.00	16.19	72.38	9.52	16.76	0.00	0.00	0.00
AaEU	EU14	Animas River	Above Eureka Gulch	271.43	216.89	100	210	350	573	0.00	0.00	0.00	6.67	51.43	41.90	35.45	0.00	0.00	0.00
WFAaA	EU15	WF Animas River	Above Animas River	302.15	321.27	80	160	330	1000	1.90	0.00	0.00	10.48	48.57	39.05	26.76	0.00	0.00	0.00
PLaWFA	EU16	Placer Gulch	Above WF Animas River	179.57	232.28	50	95	200	342	1.90	0.00	4.76	28.57	44.76	20.00	38.20	0.00	0.00	0.00
WFAaPL	EU17	WF Animas River	Above Placer Gulch	358.00	396.51	70	140	1000	1000	0.95	0.00	1.90	14.29	45.71	37.14	26.94	0.00	0.00	0.00
NFAaWFA	EU18	NF Animas River	Above WF Animas River	294.33	357.31	70	110	290	1000	0.95	0.00	0.95	19.05	49.52	29.52	28.07	0.00	0.00	0.95
BUaNFA	EU19	Burrows Creek	Above NF Animas River	46.14	34.32	20	35	60	90	0.00	0.00	14.29	60.95	24.76	0.00	3.75	46.67	10.48	0.00
Reference Sites																			
MILaM	-	Mill Creek	Above Mineral Creek	113.69	91.51	45	90	160	250	0.00	0.00	7.62	29.52	54.29	8.57	6.36	21.90	0.00	0.00
BEaM	-	Bear Creek	Above Mineral Creek	114.36	84.57	45	100	170	226	0.00	0.00	9.52	24.76	58.10	7.62	2.02	0.00	0.00	0.00
MAGaA	-	Maggie Gulch	Above Animas River	224.76	162.27	90	190	330	420	0.00	0.00	0.95	12.38	50.48	36.19	0.98	0.00	0.00	0.00
PICaA	-	Picayne Gulch	Above Animas River	192.95	131.24	70	170	290	376	0.95	0.00	0.00	16.19	51.43	31.43	3.63	0.00	0.00	0.00
NFAaBU	-	NF Animas River	Above Burrows Creek	451.20	640.99	85	140	1000	1000	3.81	0.00	0.95	15.24	40.00	40.00	4.02	5.71	0.00	0.00
HERaD	-	Hermosa Creek	Above Ditch	164.93	106.19	100	140	220	292	4.76	0.95	0.00	4.76	77.14	12.38	22.06	47.62	30.48	0.00

Table 4. Physical habitat results – habitat evaluation.

Site				Habitat Evaluation Parameters										
				Available Cover	Embedded-ness	Velocity/ Depth	Sediment	Channel Flow	Channel Alteration	Riffle Frequency	Bank Stability	Vegetative Protection	Riparian Zone	Average Score
ID	EU	Stream Name	Site Name	1	2	3	4	5	6	7	8	9	10	-
Mineral Cr														
MaA	EU1	Mineral Cr	Above Animas River	15	14	12	15	15	18	19	18	18	10	15
MaSFM	EU2	Mineral Cr	Above SF Mineral	17	7	14	10	12	18	19	16	16	10	14
MaMFM	EU3	Mineral Cr	Above MF Mineral	17	16	16	17	15	19	19	10	12	18	16
MaBG	EU3	Mineral Cr	Above Browns	17	19	19	19	16	19	18	15	16	17	18
MaMIL	EU4	Mineral Cr	Above Mill Creek	14	15	10	15	10	19	18	14	14	14	14
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	19	14	19	16	11	20	19	9	16	16	16
SFMbC	EU5	SF Mineral Cr	Blw Campground	17	18	16	18	11	16	19	16	14	11	16
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	15	11	16	15	14	14	19	18	18	18	16
Upper Animas														
AaARR	EU7	Animas River	Above Arrastra Creek	16	18	13	18	18	20	18	16	16	15	17
CUaA	EU8	Cunningham Creek	Above Animas River	13	18	8	18	18	18	18	14	11	8	14
AaCU	EU9	Animas River	Above Cunningham	17	16	18	15	12	18	18	13	15	15	16
AaMINN	EU10	Animas River	Above Minnie Gulch	10	10	11	10	10	18	18	12	12	12	12
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	17	11	16	16	14	20	19	20	18	18	17
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	17	20	16	19	17	20	19	14	12	20	17
EUaSFA	EU12	Eureka Gulch	Above SF Animas	8	15	8	16	17	18	13	14	10	18	14
SFAaA	EU13	SF Animas River	Above Animas River	13	20	11	13	20	20	13	20	20	20	17
AaEU	EU14	Animas River	Above Eureka Gulch	16	15	18	18	14	20	19	18	16	16	17
WFAaA	EU15	WF Animas River	Above Animas River	17	12	15	16	15	19	17	18	18	20	17
PLaWFA	EU16	Placer Gulch	Above WF Animas River	16	12	15	16	14	19	17	18	18	20	17
WFAaPL	EU17	WF Animas River	Above Placer Gulch	15	9	10	16	15	19	19	18	18	20	16
NFAaWFA	EU18	NF Animas River	Above WF Animas River	15	11	12	13	9	19	18	20	18	16	15
BUaNFA	EU19	Burrows Creek	Above NF Animas River	16	19	15	18	16	20	15	18	20	16	17
Reference Sites														
MILaM	-	Mill Creek	Above Mineral Creek	18	18	16	17	15	19	18	10	17	14	16
BEaM	-	Bear Creek	Above Mineral Creek	19	20	15	19	15	20	19	4	16	20	17
MAGaA	-	Maggie Gulch	Above Animas River	13	18	13	18	18	18	13	20	18	20	17
PICaA	-	Picayne Gulch	Above Animas River	16	16	16	15	15	20	19	17	20	19	17
NFAaBU	-	NF Animas River	Above Burrows Creek	15	16	18	16	16	20	20	20	20	20	18
HERaD	-	Hermosa Creek	Above Animas River	16	13	14	10	10	20	18	17	20	16	15

Note: See Barbour and others (1999) for a definition of habitat evaluation parameters. Numerical scores are scaled from 1 (poor) to 20 (good).

Table 5. Average metal or mineral concentration of BMI tissue among sites with the same metal-sensitive family richness.

		Average metal or mineral concentration of sites with a metal-sensitive family richness of…					Was there an incremental increase in concentration with each reduction of metal-sensitive family richness?
		5	3	2	1	0	
Tissue (mg/kg)	Aluminum	232.32	323.32	548.83	640.00	960.50	**Yes**
	Antimony	0.11	0.13	0.16	0.69	1.26	**Yes**
	Arsenic	0.80	0.37	0.75	1.50	2.48	-
	Beryllium	0.53	0.63	0.75	3.45	6.29	**Yes**
	Cadmium	0.76	0.45	0.63	0.20	0.32	-
	Calcium	329.00	548.67	176.33	131.00	314.00	-
	Chromium	0.55	0.58	0.49	1.54	2.51	-
	Copper	11.32	12.60	31.35	9.78	17.85	-
	Iron	325.67	741.28	613.47	3520.50	735.50	-
	Lead	5.12	6.79	36.19	8.11	14.20	-
	Magnesium	214.17	233.08	146.83	260.00	318.50	-
	Manganese	114.97	43.93	86.09	25.40	171.55	-
	Mercury	0.05	0.05	0.07	0.28	0.50	**Yes**
	Nickel	0.21	0.24	0.34	0.69	1.26	**Yes**
	Selenium	0.57	0.48	0.35	1.41	2.51	-
	Silica (SiO2)	306.83	334.38	398.33	836.00	1288.50	**Yes**
	Silver	0.13	0.14	0.16	0.69	1.12	**Yes**
	Strontium	2.52	4.85	2.15	7.29	12.59	-
	Thallium	0.20	0.28	0.32	1.38	2.51	**Yes**
	Uranium	0.08	0.04	0.17	0.15	2.35	-
	Zinc	120.38	129.32	122.45	37.70	45.15	-

Note: Number of sites with metal-sensitive family richness of 5 (n=6); 4 (n=1, so not included); 3 (n= 6); 2 (n= 7); 1 (n= 3); and 0 (n= 5).

Table 6. Average metal or mineral concentration of sediment among sites with the same metal-sensitive family richness.

		Average metal or mineral concentration of sites with a metal-sensitive family richness of…					Was there an incremental increase in concentration with each reduction of metal-sensitive family richness?
		5	3	2	1	0	
Sediment (mg/kg)	Aluminum	10501.67	12587.50	14948.33	10593.33	13714.00	-
	Antimony	1.34	1.20	5.44	0.76	3.70	-
	Arsenic	28.43	9.55	43.53	42.60	37.68	-
	Barium	79.22	71.50	79.33	40.93	53.64	-
	Beryllium	0.85	0.67	1.53	0.29	1.94	-
	Cadmium	3.73	2.71	5.30	1.09	8.08	-
	Calcium	3443.33	11712.50	2728.33	1386.67	1402.00	-
	Chromium	2.95	8.83	4.23	1.93	2.74	-
	Cobalt	9.75	10.63	11.55	8.33	18.80	-
	Copper	67.58	75.75	200.60	47.43	204.22	-
	Iron	23566.67	27000.00	36933.33	60866.67	24040.00	-
	Lead	425.13	345.43	764.00	174.40	1370.40	-
	Magnesium	5203.33	6867.50	5630.00	4346.67	4220.00	-
	Manganese	3441.00	2398.25	5980.83	895.33	9428.00	-
	Mercury	0.08	0.23	0.04	0.03	0.20	-
	Molybdenum	3.87	3.10	7.27	3.77	7.50	-
	Nickel	5.22	9.93	5.75	2.23	4.58	-
	Selenium	1.47	1.80	2.90	1.60	2.01	-
	Silver	1.21	1.00	7.56	0.71	2.35	-
	Thallium	0.55	0.68	0.52	0.65	1.08	-
	Vanadium	15.42	18.28	20.13	18.63	14.42	-
	Zinc	709.83	754.98	2397.83	619.00	1641.60	-

Note: Number of sites with metal-sensitive family richness of 5 (n=6); 4 (n=1, so not included); 3 (n= 6); 2 (n= 7); 1 (n= 3); and 0 (n= 5).

Table 7. Average metal or mineral concentration of pore water among sites with the same metal-sensitive family richness.

		Average metal or mineral concentration of sites with a metal-sensitive family richness of…					Was there an incremental increase in concentration with each reduction of metal-sensitive family richness?
		5	3	2	1	0	
Pore Water (total) (ug/L)	Aluminum	1469.00	2279.55	682.10	12466.67	7088.00	-
	Arsenic	3.73	2.50	2.74	13.55	4.19	-
	Beryllium	2.00	2.00	2.00	2.00	5.20	-
	Cadmium	1.25	1.05	1.50	1.29	8.82	-
	Calcium	39983.33	74925.00	47283.33	75966.67	28540.00	-
	Chloride	0.50	1.50	0.72	1.43	0.42	-
	Copper	16.76	8.10	14.84	64.02	48.50	-
	Fluoride	0.23	0.40	0.47	0.90	2.22	**Yes**
	Iron	2009.67	7367.25	1036.17	41233.33	1943.00	-
	Lead	76.31	14.14	17.13	165.80	122.12	-
	Magnesium	3878.33	6935.00	3670.00	7986.67	4520.00	-
	Manganese	386.50	640.10	945.87	1446.67	6708.00	**Yes**
	Nickel	2.50	4.31	2.50	7.94	7.50	-
	Nitrate/Nitrite as N	0.12	0.15	0.12	0.30	0.18	-
	Silica (SiO2)	9071.67	21207.50	6706.67	39166.67	10946.00	-
	Strontium	391.38	830.75	494.33	830.00	134.08	-
	Sulfate as SO4	78.80	144.25	119.00	315.00	120.78	-
	Thallium	6.07	7.16	6.61	6.27	5.00	-
	Total Alkalinity	34.47	52.58	18.46	5.45	6.98	-
	Zinc	190.88	263.25	439.43	374.33	1998.00	-
Pore Water (dissolved) (ug/L)	Aluminum	26.35	1788.65	34.95	6905.70	4451.80	-
	Arsenic	0.52	0.50	0.50	1.17	0.50	-
	Beryllium	2.00	2.00	2.00	2.00	4.71	-
	Cadmium	0.29	0.81	1.34	0.91	7.97	-
	Calcium	37366.67	70550.00	44766.67	70600.00	27200.00	-
	Chromium	1.09	1.49	1.00	2.33	1.00	-
	Copper	0.97	2.74	4.59	8.40	23.19	**Yes**
	Hardness	107.17	203.00	126.00	205.67	85.00	-
	Iron	100.00	6148.00	100.00	25366.67	101.80	-
	Lead	0.14	1.62	0.51	29.40	6.19	-
	Magnesium	3340.00	6497.50	3495.00	7213.33	4174.00	-
	Manganese	17.51	517.17	808.63	1013.77	6151.80	**Yes**
	Nickel	0.50	2.52	0.64	5.58	5.60	-
	Silica (SiO2)	4840.00	20350.00	5960.00	31860.00	7354.00	-
	Strontium	363.73	775.50	474.67	778.33	129.66	-
	Thallium	1.00	1.26	1.00	2.33	1.00	-
	Zinc	70.28	227.50	399.12	247.33	1879.80	-

Note: Number of sites with metal-sensitive family richness of 5 (n=6); 4 (n=1, so not included); 3 (n= 6); 2 (n= 7); 1 (n= 3); and 0 (n= 5).

Table 8. Average metal or mineral concentration of surface water among sites with the same metal-sensitive family richness.

		Average metal or mineral concentration of sites with a metal-sensitive family richness of…					Was there an incremental increase in concentration with each reduction of metal-sensitive family richness?
		5	3	2	1	0	
Surface Water (total) (ug/L)	Aluminum	122.67	190.00	707.77	5166.67	6449.20	**Yes**
	Beryllium	2.00	2.60	2.00	2.00	6.68	-
	Cadmium	0.65	0.68	1.50	0.88	9.61	-
	Calcium	38733.33	55200.00	45250.00	74600.00	35020.00	-
	Chloride	0.45	0.60	0.63	1.20	0.42	-
	Copper	2.88	4.65	15.00	12.88	30.72	-
	Fluoride	0.22	0.32	0.50	0.60	2.88	**Yes**
	Iron	100.00	206.40	498.33	7493.67	155.00	-
	Lead	0.88	0.79	7.28	6.00	6.55	-
	Magnesium	3475.00	4972.00	3588.33	6396.67	5302.00	-
	Manganese	129.36	123.49	895.67	563.00	8856.00	-
	Nickel	2.50	3.00	2.50	2.76	7.44	-
	Nitrate/Nitrite as N	0.12	0.14	0.12	0.23	0.10	-
	Silica (SiO2)	4868.33	6326.00	6193.33	14586.67	7930.00	-
	Strontium	372.50	676.60	467.17	817.67	166.86	-
	Sulfate as SO4	76.12	110.50	113.15	247.67	148.36	-
	Thallium	5.00	6.00	6.35	6.05	5.77	-
	Total Alkalinity	36.00	57.48	19.48	6.19	5.00	-
	Zinc	90.67	102.54	421.70	187.67	2300.00	-
Surface Water (dissolved) (ug/L)	Aluminum	36.00	54.24	57.20	3119.00	5235.20	**Yes**
	Arsenic	0.51	0.80	0.50	1.17	0.50	-
	Beryllium	2.00	2.60	2.00	2.00	5.94	-
	Cadmium	0.37	0.34	1.36	0.98	9.08	-
	Calcium	36866.67	52680.00	43133.33	70066.67	33260.00	-
	Chromium	1.18	1.52	1.00	2.33	1.00	-
	Copper	1.12	1.79	4.91	8.05	25.91	**Yes**
	Hardness	105.83	151.20	121.83	200.33	104.40	-
	Iron	100.00	168.80	312.50	5885.33	119.80	-
	Lead	0.19	0.13	2.05	2.03	5.22	-
	Magnesium	3346.67	4728.00	3490.00	6116.67	5158.00	-
	Manganese	116.96	120.07	792.67	546.00	8698.20	-
	Nickel	0.50	0.60	0.66	1.35	7.13	**Yes**
	Silica (SiO2)	4803.33	6248.00	5968.33	13986.67	7828.00	-
	Strontium	353.15	640.00	449.50	771.33	162.30	-
	Zinc	87.90	98.36	393.43	189.67	2280.00	-

Note: Number of sites with metal-sensitive family richness of 5 (n=6); 4 (n=1, so not included); 3 (n= 6); 2 (n= 7); 1 (n= 3); and 0 (n= 5).

Table 9. BMI tissue metal concentrations.

Site				BMI Tissue																				
				Al	Sb	As	Be	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Hg	Ni	Se	SiO_2	Ag	Sr	Tl	U	Zn
ID	EU	Stream Name	Site Name	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Mineral Cr																								
MaA	EU1	Mineral Cr	Above Animas River	580	0.13	0.18	0.63	0.11	124	0.50	11.40	1790	1.67	120	7.8	0.05	0.07	0.40	744	0.13	1.4	0.15	0.17	40
MaSFM	EU2	Mineral Cr	Above SF Mineral Cr	558	1.26	2.52	6.3	0.25	135	2.52	5.46	6400	8.20	315	23	0.5	1.26	2.52	1260	1.26	13	2.52	0.25	24
MaMFM	EU3	Mineral Cr	Above MF Mineral	722	0.12	0.48	0.61	0.14	127	0.57	14.10	641	8.02	205	28	0.05	0.11	0.30	412	0.12	2	0.24	0.05	52
MaBG	EU3	Mineral Cr	Above Browns Gulch	378	0.06	0.73	0.58	0.24	190	0.54	18.90	415	28.50	145	25	0.05	0.10	0.31	298	0.12	2.8	0.23	0.03	99
MaMIL	EU4	Mineral Cr	Above Mill Cr	304	0.14	2.55	0.67	0.37	170	0.44	58.70	646	166.00	134	49	0.05	0.20	0.18	285	0.07	3.7	0.27	0.07	110
SFMaM	EU5	SF Mineral Cr	Above Mineral Cr	471	0.12	0.35	0.58	0.11	243	0.79	7.92	1510	0.70	156	10	0.05	0.27	0.49	508	0.12	1.8	0.23	0.04	42
SFMbC	EU5	SF Mineral Cr	Below CG, Below Clear Lake Cr	569	0.22	0.34	1.12	0.32	252	0.51	3.91	216	1.62	151	72	0.09	0.88	0.54	377	0.22	1.7	0.45	0.09	91
Upper Animas																								
AaARR	EU7	Animas River	Above Arrastra Cr	171	0.12	0.18	0.14	0.59	142	0.55	11.60	160	3.46	157	64	0.05	0.19	0.41	159	0.12	1.8	0.24	0.05	196
CUaA	EU8	Cunningham Gulch	Above Animas River	197	0.12	0.43	0.62	1.34	276	0.53	29.00	545	8.52	266	39	0.05	0.10	0.67	309	0.28	2.6	0.25	0.02	134
AaCU	EU9	Animas River	Above Cunningham	334	0.13	0.45	0.21	0.97	181	0.62	19.70	304	10.60	206	167	0.05	0.25	0.35	248	0.10	2	0.25	0.12	213
AaMINN	EU10	Animas River	Above Minnie	952	0.08	0.90	0.79	1.12	177	0.58	30.70	324	10.50	185	133	0.05	0.30	0.23	528	0.11	1.9	0.27	0.40	212
SFAaAV	EU11	SF Animas River	Above Avalanche	17.1	0.12	0.08	0.6	0.12	150	0.31	1.89	57.7	0.33	89	8.9	0.05	0.17	0.48	43.3	0.12	1.5	0.24	0.02	47
EUaSFA	EU12	Eureka Gulch	Above SF Animas River	319	0.12	0.33	0.61	1.09	190	0.48	57.20	620	34.40	188	224	0.05	0.34	0.23	254	0.19	2.9	0.24	0.01	199
SFAaA	EU13	SF Animas River	Above Animas River	840	0.25	0.75	1.24	1.62	687	0.72	31.50	2220	7.64	519	147	0.1	0.62	0.32	807	0.25	8.6	0.50	0.04	345
AaEU	EU14	Animas River	Above Eureka	569	0.27	0.21	0.68	0.77	145	0.41	26.20	84.8	2.96	103	31	0.11	0.27	0.53	202	0.27	1.3	0.53	0.30	83
PLAaWF	EU16	Placer Gulch	Above WF Animas River	1200	1.92	3.83	9.59	0.34	479	3.83	19.80	241	15.10	479	35	0.77	1.92	3.83	1920	1.92	19	3.83	1.32	52
BUaNFA	EU19	Burrow Creek	Above NF Animas River	721	0.60	1.12	2.98	0.31	149	1.19	15.90	1230	13.30	158	308	0.24	0.60	1.19	657	0.31	6	1.19	3.37	39
Reference Sites																								
MILaM	-	Mill Cr	Above Mineral Cr	370	0.13	0.31	0.63	0.26	222	0.49	5.18	157	4.42	161	76	0.05	0.15	0.34	279	0.13	4.1	0.13	0.15	56
BEaM	-	Bear Cr	Above Mineral Cr	96.9	0.12	0.29	0.62	0.29	722	0.46	5.16	118	0.20	180	42	0.05	0.25	1.10	190	0.12	2.7	0.25	0.14	62
MAGaA	-	Maggie Gulch	Above Animas River	51.5	0.12	0.23	0.61	0.22	205	0.50	4.27	96.6	0.54	193	30	0.05	0.11	0.90	136	0.12	2.5	0.24	0.00	71
PICaA	-	Picayne Gulch	Above Animas River	128	0.10	1.26	0.48	0.18	225	0.55	3.43	291	1.02	201	290	0.04	0.24	0.54	246	0.06	2.5	0.19	0.02	72
NFAaBU	-	NF Animas River	Above Burrow Creek	268	0.07	2.07	0.63	1.52	348	0.67	5.46	539	5.97	271	76	0.05	0.27	0.42	569	0.09	1.2	0.16	0.05	185
HERaD	-	Hermosa Cr	Above Ditch	62.8	0.12	0.14	0.61	0.03	1880	0.56	3.78	85	0.08	333	8.4	0.03	0.12	0.86	191	0.12	13	0.25	0.02	48

Note: BMI tissue was not collected for 5 sites due to very low BMI abundance: MFMaM; NFAaWFA; WFAaPLA; WFAaaA; and SFAaEU.

Table 10. Spearman correlation coefficients for BMI and physical habitat metrics. Yellow highlight indicates statistically significant correlations at p<0.05.

BMI Metric	Phab													
	AvgSubSize	StDevSubSize	D25	D50	D75	D90	Fines(%)	Sand(%)	Gravel(%)	Pebble(%)	Cobble(%)	Boulder(%)	Embeddedness(%)	AvgHabitatScore
Total Richness	-0.09	-0.10	0.13	0.09	-0.02	-0.11	-0.05	0.30	0.17	-0.08	0.26	-0.06	-0.63	0.04
Density (#/m^2)	-0.12	-0.20	0.10	0.16	-0.06	-0.12	-0.32	0.11	0.18	0.02	0.14	-0.05	-0.81	0.39
HBI	-0.25	-0.27	-0.27	-0.29	-0.24	-0.26	0.54	0.25	0.00	0.03	0.14	-0.34	0.29	-0.32
MMI	-0.04	-0.04	0.15	0.12	0.02	-0.04	-0.17	0.32	0.17	-0.09	0.27	-0.01	-0.62	0.07
SWDI	-0.03	0.01	-0.02	-0.05	0.01	0.00	0.05	0.13	0.24	-0.02	0.21	-0.05	-0.34	-0.20
EPT	-0.09	-0.08	0.10	0.12	-0.02	-0.09	-0.24	0.17	0.18	0.00	0.23	-0.01	-0.66	0.11
MetalSensRA	-0.16	-0.18	-0.04	0.04	-0.10	-0.13	-0.32	-0.18	0.22	0.15	0.21	-0.07	-0.68	0.27
MetalSensRich	-0.08	-0.15	0.12	0.14	-0.02	-0.08	-0.20	0.10	0.07	0.01	0.25	0.00	-0.67	0.26
cf	0.04	-0.03	0.25	0.22	0.12	0.02	-0.09	0.35	-0.03	-0.14	-0.08	0.06	-0.56	0.12
cg	-0.33	-0.33	-0.35	-0.28	-0.29	-0.30	0.20	0.25	0.28	0.12	0.13	-0.38	0.00	-0.24
o	-0.15	-0.09	-0.19	-0.28	-0.16	-0.15	-0.06	0.26	0.32	0.16	-0.11	-0.20	-0.17	-0.07
p	0.29	0.25	0.29	0.26	0.30	0.30	-0.03	-0.12	-0.22	-0.34	-0.01	0.25	0.17	-0.35
sc	-0.07	-0.11	0.14	0.10	-0.04	-0.09	-0.15	0.18	0.06	-0.01	0.31	-0.03	-0.70	0.25
sh	0.33	0.33	0.20	0.25	0.27	0.30	-0.15	-0.32	-0.26	-0.03	-0.25	0.38	0.05	0.30

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh). AvgSubSize = average substrate size; StDevSubSize = standard deviation of substrate size; D25 = 25th percentile of substrate size; D50 = 50th percentile of substrate size; D75 = 75th percentile of substrate size; D90 = 90th percentile of substrate size; AvgHabitatScore = based on Barbour et al. 1999.

Table 11. Spearman correlation coefficients between percent embeddedness and metal concentrations in sediment, pore water, and surface water. Yellow highlight indicates statistically significant correlations at p<0.05.

	Sediment	Pore Water (Total)	Pore Water (Dissolved)	Surface Water (Total)	Surface Water (Dissolved)
Alkalinity	-	-0.09	-	-0.62	-
Hardness	-	-	-0.23	-	0.25
Al	0.14	0.00	-0.03	0.64	0.62
Sb	-0.03	-	-	-	-
As	0.35	-0.24	0.07	-	-0.08
Ba	-0.24	-	-	-	-
Be	-0.06	-0.10	-0.11	-0.05	-0.05
Cd	-0.02	0.23	0.20	0.39	0.56
Ca	-0.47	-0.18	-0.19	0.18	0.19
Cl-	-	-	-0.15	0.07	-
Cr	-0.07	-	0.08	-	-0.18
Co	-0.16	-	-	-	-
Cu	0.22	-0.01	0.17	0.54	0.52
F-	-	0.09	-	0.44	-
Fe	0.24	-0.19	-0.09	0.43	0.45
Pb	0.16	-0.03	0.23	0.33	0.51
Mg	-0.12	-0.18	-0.19	0.50	0.51
Mn	-0.02	0.14	0.05	0.54	0.55
Hg	-0.02	-	-	-	-
Mo	0.34	-	-	-	-
Ni	-0.25	0.05	0.19	0.24	0.49
Nitrate/ Nitrite	-	-0.10	-	0.24	-
Se	0.23	-	-	-	-
SiO_2	-	-0.19	-0.26	0.41	0.38
Ag	0.12	-	-	-	-
Sr	-	-0.15	-0.15	0.03	0.02
SO4	-	-0.31	-	0.46	-
Tl	0.07	-0.10	0.18	-0.12	0.04
V	0.10	-	-	-	-
Zn	0.27	0.07	0.12	0.47	0.47

Table 12. Spearman correlation coefficients for BMI metrics and concentrations in BMI tissue. Yellow highlight indicates statistically significant correlations at p<0.05.

BMI Metric	BMI Tissue																			
	Al	Sb	As	Be	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Hg	Ni	Se	SiO_2	Ag	Sr	Tl	U	Zn
Total Richness	-0.75	-0.44	-0.27	-0.37	0.09	0.52	-0.34	-0.39	-0.40	-0.33	0.10	0.15	-0.51	-0.18	-0.01	-0.54	-0.39	-0.15	-0.30	-0.60	0.33
Density (#/m^2)	-0.70	-0.45	-0.34	-0.57	-0.04	0.32	-0.33	-0.36	-0.46	-0.31	-0.02	0.22	-0.58	-0.48	0.00	-0.64	-0.35	0.00	-0.50	-0.55	0.23
HBI	0.02	-0.04	0.15	0.03	-0.11	-0.14	0.43	-0.01	0.37	0.06	0.12	0.10	-0.04	0.30	0.04	0.16	-0.15	0.19	0.17	0.21	-0.16
MMI	-0.72	-0.40	-0.38	-0.39	0.04	0.51	-0.43	-0.41	-0.49	-0.37	0.06	0.06	-0.52	-0.32	-0.08	-0.57	-0.34	-0.15	-0.41	-0.58	0.29
SWDI	-0.64	-0.39	-0.29	-0.30	0.23	0.32	-0.46	-0.15	-0.32	-0.19	-0.08	0.20	-0.38	-0.07	-0.27	-0.53	-0.41	-0.19	-0.28	-0.40	0.42
EPT	-0.72	-0.44	-0.36	-0.47	0.05	0.53	-0.37	-0.46	-0.46	-0.48	0.00	0.12	-0.55	-0.24	0.09	-0.58	-0.35	-0.32	-0.37	-0.59	0.31
MetalSensRA	-0.47	-0.42	-0.14	-0.53	0.10	0.28	-0.35	-0.21	-0.26	-0.16	-0.11	0.21	-0.42	-0.38	-0.22	-0.43	-0.42	-0.19	-0.52	-0.50	0.41
MetalSensRich	-0.67	-0.47	-0.26	-0.56	0.08	0.48	-0.24	-0.34	-0.35	-0.40	0.12	0.15	-0.54	-0.41	-0.02	-0.50	-0.46	-0.21	-0.56	-0.50	0.35
cf	-0.57	-0.22	-0.21	-0.36	0.08	0.22	0.05	-0.18	-0.22	-0.16	0.28	0.31	-0.42	-0.18	0.34	-0.42	-0.07	0.10	-0.12	-0.37	0.13
cg	-0.33	-0.02	-0.16	-0.12	-0.10	0.07	0.21	-0.28	-0.01	-0.16	0.15	0.18	-0.15	0.13	0.24	-0.18	0.02	0.26	0.01	0.03	-0.19
o	-0.04	0.14	0.06	0.12	0.07	0.15	-0.06	0.00	-0.02	0.28	-0.08	0.36	0.08	0.09	-0.16	-0.01	-0.01	0.25	-0.01	0.06	0.06
p	-0.04	-0.14	-0.17	0.00	0.40	-0.13	-0.57	0.41	-0.09	0.15	-0.25	0.13	0.00	-0.23	-0.51	-0.25	-0.14	-0.33	0.00	-0.14	0.52
sc	-0.67	-0.43	-0.34	-0.44	0.13	0.45	-0.36	-0.36	-0.45	-0.35	0.07	0.24	-0.48	-0.23	-0.17	-0.54	-0.42	-0.16	-0.49	-0.48	0.39
sh	0.40	-0.09	0.22	0.05	-0.07	0.13	0.16	0.01	0.17	-0.03	0.05	-0.19	0.07	-0.01	-0.01	0.39	0.02	-0.24	-0.12	-0.08	0.02

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh).

Table 13. Spearman correlation coefficients for BMI metrics and concentrations in sediment. Yellow highlight indicates statistically significant correlations at p<0.05.

BMI Metric	Sediment																					
	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
Total Richness	-0.08	-0.08	-0.44	0.37	-0.19	-0.09	0.73	0.17	-0.25	-0.37	-0.12	-0.28	0.47	-0.17	0.01	-0.43	0.15	-0.09	-0.13	-0.06	0.07	-0.27
Density (#/m^2)	-0.16	0.08	-0.49	0.43	-0.06	-0.06	0.65	0.17	0.00	-0.32	-0.22	-0.21	0.33	-0.02	0.10	-0.28	0.24	-0.06	-0.10	-0.10	0.00	-0.29
HBI	0.16	-0.29	-0.03	-0.42	-0.20	-0.30	-0.23	-0.21	-0.38	-0.15	0.03	-0.26	0.02	-0.23	-0.28	0.04	-0.27	-0.11	-0.26	0.17	-0.09	-0.17
MMI	-0.13	-0.07	-0.49	0.35	-0.13	-0.07	0.76	0.16	-0.23	-0.37	-0.25	-0.23	0.47	-0.13	0.12	-0.47	0.15	-0.11	-0.17	-0.19	0.06	-0.23
SWDI	-0.19	-0.31	-0.44	-0.04	-0.21	-0.12	0.50	-0.11	-0.48	-0.29	-0.31	-0.15	0.32	-0.13	-0.09	-0.59	-0.20	-0.38	-0.41	-0.29	-0.13	-0.08
EPT	-0.13	-0.03	-0.47	0.42	-0.10	-0.10	0.82	0.24	-0.12	-0.39	-0.22	-0.26	0.50	-0.11	0.11	-0.38	0.26	-0.07	-0.11	-0.11	0.09	-0.27
MetalSensRA	-0.31	-0.03	-0.32	0.36	-0.16	0.00	0.64	0.04	-0.02	-0.25	-0.11	-0.03	0.25	0.01	0.18	-0.39	0.12	-0.14	-0.11	-0.37	-0.04	-0.06
MetalSensRich	-0.21	-0.02	-0.40	0.48	-0.10	-0.07	0.78	0.20	-0.06	-0.38	-0.20	-0.19	0.38	-0.10	0.20	-0.31	0.26	0.00	-0.07	-0.20	0.05	-0.22
cf	0.18	0.22	-0.40	0.26	0.17	0.00	0.47	0.15	-0.04	-0.24	-0.23	-0.21	0.29	-0.03	0.10	-0.24	0.27	-0.16	-0.08	0.24	0.05	-0.29
cg	0.12	-0.31	-0.38	-0.31	-0.21	-0.39	0.04	-0.31	-0.33	-0.38	-0.18	-0.39	0.16	-0.21	-0.17	-0.16	-0.27	-0.17	-0.42	0.12	-0.10	-0.31
o	0.24	0.02	-0.01	-0.13	0.17	0.14	0.09	-0.15	-0.14	0.05	-0.11	-0.04	0.02	0.11	-0.21	-0.20	-0.07	-0.18	-0.17	-0.05	-0.15	0.08
p	-0.38	-0.13	-0.07	-0.31	-0.18	0.07	0.01	-0.14	-0.34	0.12	-0.17	0.19	-0.04	-0.04	-0.31	-0.23	-0.40	-0.53	-0.09	-0.42	-0.08	0.11
sc	-0.11	0.09	-0.36	0.55	0.01	0.13	0.76	0.27	-0.07	-0.22	-0.25	-0.05	0.39	0.05	0.22	-0.26	0.29	-0.01	0.06	-0.21	0.03	-0.05
sh	0.11	0.25	0.28	0.36	0.25	0.13	-0.05	0.40	0.50	0.19	0.25	0.09	0.01	0.20	0.26	0.35	0.40	0.50	0.45	0.12	0.27	0.06

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh).

Table 14. Spearman correlation coefficients for BMI metrics and total concentrations in pore water. Yellow highlight indicates statistically significant correlations at p<0.05.

BMI Metric	Pore Water (Total)																		
	Al	As	Be	Cd	Ca	Cl-	Cu	F-	Fe	Pb	Mg	Mn	Ni	Nitrate/Nitrite	SiO_2	Sr	SO4	Tl	Alkalinity	Zn
Total Richness	-0.50	-0.05	-0.37	-0.49	0.13	0.05	-0.62	-0.53	-0.16	-0.43	-0.08	-0.64	-0.53	-0.17	-0.17	0.28	-0.27	0.42	0.75	-0.58
Density (#/m^2)	-0.52	-0.18	-0.31	-0.55	0.01	-0.10	-0.62	-0.41	-0.27	-0.47	-0.25	-0.62	-0.57	-0.36	-0.30	0.17	-0.29	0.05	0.75	-0.61
HBI	0.40	-0.04	0.41	0.26	0.27	0.34	0.15	0.48	0.34	0.10	0.37	0.41	0.52	0.36	0.51	0.11	0.49	0.23	-0.32	0.20
MMI	-0.55	-0.04	-0.38	-0.48	0.08	-0.02	-0.62	-0.57	-0.27	-0.46	-0.09	-0.64	-0.58	-0.19	-0.27	0.24	-0.32	0.33	0.72	-0.56
SWDI	-0.33	-0.11	-0.14	-0.15	-0.03	0.06	-0.41	-0.34	-0.21	-0.33	-0.13	-0.40	-0.30	-0.10	-0.13	0.08	-0.32	0.38	0.40	-0.23
EPT	-0.48	-0.06	-0.47	-0.50	0.14	0.03	-0.63	-0.54	-0.18	-0.44	-0.07	-0.58	-0.60	-0.19	-0.22	0.21	-0.33	0.33	0.79	-0.62
MetalSensRA	-0.44	0.00	-0.51	-0.50	0.07	0.05	-0.50	-0.48	-0.18	-0.35	-0.23	-0.57	-0.56	-0.24	-0.28	0.24	-0.35	0.16	0.59	-0.55
MetalSensRich	-0.49	-0.01	-0.52	-0.58	0.12	0.02	-0.64	-0.54	-0.16	-0.41	-0.12	-0.60	-0.64	-0.16	-0.24	0.21	-0.34	0.19	0.72	-0.67
cf	-0.20	-0.07	0.00	-0.16	-0.04	0.07	-0.26	-0.18	-0.06	-0.15	-0.06	-0.25	-0.30	-0.17	-0.05	-0.02	-0.24	0.20	0.66	-0.25
cg	0.31	-0.12	0.30	0.05	0.16	0.12	-0.10	0.36	0.23	-0.08	0.27	0.25	0.42	0.23	0.35	0.09	0.30	0.14	-0.14	-0.06
o	-0.12	-0.04	0.42	0.17	-0.22	-0.18	-0.01	-0.09	-0.21	-0.12	0.00	-0.08	0.06	-0.12	-0.13	-0.06	0.04	0.22	-0.05	0.13
p	-0.16	-0.02	-0.03	0.17	-0.25	-0.03	0.11	-0.13	-0.30	-0.07	-0.25	-0.12	-0.29	-0.04	-0.22	-0.12	-0.37	0.02	0.15	0.16
sc	-0.65	-0.08	-0.44	-0.55	0.00	-0.13	-0.66	-0.57	-0.35	-0.48	-0.22	-0.68	-0.73	-0.23	-0.41	0.14	-0.40	0.23	0.73	-0.59
sh	0.03	0.27	-0.16	-0.13	0.02	-0.25	0.07	-0.15	0.15	0.18	-0.03	0.00	-0.10	-0.11	-0.08	-0.14	-0.06	-0.20	-0.06	-0.05

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh).

Table 15. Spearman correlation coefficients for BMI metrics and dissolved concentrations in pore water. Yellow highlight indicates statistically significant correlations at p<0.05.

BMI Metric	Pore Water (Dissolved)																
	Al	As	Be	Cd	Ca	Cr	Cu	Hardness	Fe	Pb	Mg	Mn	Ni	SiO_2	Sr	Tl	Zn
Total Richness	-0.67	0.02	-0.22	-0.62	0.13	0.30	-0.65	0.11	-0.11	-0.66	-0.12	-0.65	-0.68	-0.37	0.28	-0.11	-0.65
Density (#/m^2)	-0.67	0.03	-0.15	-0.66	0.00	0.21	-0.72	-0.04	-0.17	-0.73	-0.24	-0.63	-0.65	-0.41	0.17	-0.21	-0.67
HBI	0.54	0.09	0.41	0.33	0.27	0.08	0.36	0.32	0.65	0.38	0.44	0.46	0.47	0.66	0.09	0.33	0.29
MMI	-0.73	-0.03	-0.24	-0.60	0.09	0.29	-0.69	0.05	-0.20	-0.69	-0.14	-0.62	-0.69	-0.46	0.25	-0.15	-0.63
SWDI	-0.43	-0.04	-0.05	-0.19	-0.02	0.12	-0.30	-0.04	-0.15	-0.37	-0.13	-0.36	-0.39	-0.25	0.09	0.00	-0.23
EPT	-0.69	0.07	-0.34	-0.65	0.13	0.32	-0.74	0.09	-0.19	-0.68	-0.13	-0.67	-0.68	-0.43	0.21	-0.05	-0.71
MetalSensRA	-0.67	0.13	-0.41	-0.56	0.05	0.12	-0.62	0.01	-0.27	-0.60	-0.28	-0.62	-0.62	-0.46	0.24	-0.01	-0.60
MetalSensRich	-0.73	0.06	-0.42	-0.70	0.09	0.22	-0.80	0.06	-0.20	-0.72	-0.16	-0.70	-0.69	-0.44	0.21	-0.06	-0.75
cf	-0.36	0.06	0.10	-0.35	-0.04	0.36	-0.39	-0.06	0.04	-0.44	-0.08	-0.42	-0.35	-0.16	-0.03	-0.23	-0.35
cg	0.29	0.11	0.39	0.07	0.15	0.22	0.10	0.18	0.64	0.14	0.30	0.25	0.38	0.39	0.09	0.31	0.01
o	-0.15	-0.20	0.57	0.13	-0.20	-0.05	0.09	-0.16	0.08	-0.14	0.03	0.08	0.02	-0.07	-0.04	-0.20	0.16
p	-0.15	-0.07	-0.16	0.18	-0.22	-0.05	0.13	-0.26	-0.43	0.04	-0.32	-0.06	-0.24	-0.30	-0.11	-0.11	0.16
sc	-0.75	-0.02	-0.35	-0.65	-0.01	0.12	-0.79	-0.03	-0.30	-0.82	-0.19	-0.68	-0.76	-0.52	0.15	-0.23	-0.65
sh	0.01	-0.01	-0.28	-0.16	0.00	-0.21	-0.11	0.01	-0.38	-0.04	-0.06	-0.13	-0.09	-0.16	-0.15	-0.05	-0.12

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh).

Table 16. Spearman correlation coefficients for BMI metrics and total concentrations in surface water. Yellow highlight indicates statistically significant correlations at p<0.05.

BMI Metric	Surface Water (Total)																		
	Al	Be	Cd	Ca	Cl-	Cu	F-	Fe	Pb	Mg	Mn	Ni	Nitrate /Nitrite	SiO_2	Sr	SO4	Tl	Alkalinity	Zn
Total Richness	-0.89	-0.22	-0.51	0.07	0.08	-0.74	-0.64	-0.50	-0.52	-0.33	-0.78	-0.47	0.11	-0.50	0.24	-0.47	0.10	0.79	-0.64
Density (#/m^2)	-0.77	-0.18	-0.60	-0.04	-0.10	-0.73	-0.53	-0.54	-0.59	-0.47	-0.69	-0.45	-0.07	-0.54	0.16	-0.49	0.05	0.82	-0.68
HBI	0.40	0.23	0.24	0.18	0.21	0.22	0.38	0.22	0.09	0.45	0.35	0.29	0.12	0.58	0.05	0.44	0.17	-0.29	0.22
MMI	-0.88	-0.18	-0.49	0.05	0.07	-0.73	-0.66	-0.54	-0.52	-0.36	-0.78	-0.44	0.13	-0.58	0.22	-0.50	0.03	0.77	-0.62
SWDI	-0.58	-0.02	-0.15	-0.11	0.14	-0.45	-0.41	-0.46	-0.24	-0.28	-0.42	-0.17	0.08	-0.39	0.04	-0.46	0.14	0.41	-0.27
EPT	-0.90	-0.29	-0.59	0.02	0.00	-0.82	-0.65	-0.56	-0.58	-0.41	-0.79	-0.53	0.07	-0.57	0.15	-0.58	-0.02	0.88	-0.73
MetalSensRA	-0.69	-0.35	-0.56	-0.06	-0.05	-0.72	-0.60	-0.42	-0.46	-0.52	-0.61	-0.57	-0.07	-0.60	0.19	-0.60	-0.08	0.70	-0.60
MetalSensRich	-0.80	-0.41	-0.68	-0.03	-0.10	-0.86	-0.66	-0.53	-0.60	-0.39	-0.73	-0.65	0.01	-0.56	0.14	-0.60	-0.21	0.82	-0.74
cf	-0.52	-0.10	-0.33	-0.06	-0.02	-0.48	-0.22	-0.61	-0.29	-0.09	-0.36	-0.22	-0.06	-0.22	0.01	-0.28	0.12	0.64	-0.36
cg	0.14	0.22	-0.01	0.06	0.07	-0.15	0.20	-0.08	-0.21	0.14	0.02	0.25	0.20	0.32	0.01	0.15	0.32	-0.03	-0.08
o	0.02	0.28	0.18	-0.21	-0.04	0.06	-0.09	-0.26	0.02	0.05	0.04	0.14	-0.02	-0.09	-0.10	-0.01	0.22	-0.07	0.24
p	0.02	-0.11	0.21	-0.15	0.05	0.28	-0.03	-0.23	0.27	-0.03	0.16	-0.11	-0.08	-0.21	-0.01	-0.15	-0.03	-0.03	0.22
sc	-0.84	-0.22	-0.50	0.01	-0.11	-0.73	-0.59	-0.54	-0.50	-0.38	-0.71	-0.48	0.07	-0.61	0.14	-0.51	0.02	0.76	-0.59
sh	0.07	-0.14	-0.13	0.07	-0.30	0.02	-0.05	0.24	-0.07	0.02	-0.01	-0.12	-0.28	-0.03	-0.14	0.04	-0.39	-0.04	-0.02

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh).

Table 17. Spearman correlation coefficients for BMI metrics and dissolved concentrations in surface water. Yellow highlight indicates statistically significant correlations at p<0.05.

BMI Metric	Surface Water (Dissolved)															
	Al	As	Be	Cd	Ca	Cr	Cu	Hardness	Fe	Pb	Mg	Mn	Ni	SiO_2	Sr	Zn
Total Richness	-0.78	0.13	-0.22	-0.70	0.08	0.39	-0.71	-0.01	-0.49	-0.52	-0.33	-0.80	-0.70	-0.49	0.26	-0.64
Density (#/m^2)	-0.65	0.16	-0.18	-0.74	-0.02	0.38	-0.72	-0.11	-0.52	-0.57	-0.46	-0.71	-0.66	-0.53	0.18	-0.67
HBI	0.41	-0.05	0.23	0.30	0.16	-0.10	0.27	0.19	0.18	0.25	0.46	0.34	0.30	0.58	0.03	0.23
MMI	-0.80	0.14	-0.18	-0.69	0.06	0.40	-0.72	-0.02	-0.50	-0.52	-0.36	-0.78	-0.67	-0.57	0.25	-0.62
SWDI	-0.49	0.06	-0.02	-0.31	-0.10	0.15	-0.38	-0.16	-0.42	-0.16	-0.27	-0.42	-0.36	-0.37	0.07	-0.26
EPT	-0.82	0.19	-0.29	-0.78	0.04	0.42	-0.83	-0.05	-0.48	-0.61	-0.40	-0.80	-0.74	-0.56	0.16	-0.73
MetalSensRA	-0.64	0.21	-0.35	-0.67	-0.05	0.26	-0.69	-0.13	-0.40	-0.51	-0.52	-0.63	-0.68	-0.58	0.20	-0.61
MetalSensRich	-0.76	0.09	-0.41	-0.79	-0.02	0.29	-0.84	-0.09	-0.46	-0.69	-0.39	-0.75	-0.79	-0.55	0.14	-0.74
cf	-0.44	-0.05	-0.10	-0.41	-0.05	0.33	-0.37	-0.11	-0.58	-0.30	-0.10	-0.39	-0.38	-0.23	0.02	-0.35
cg	0.19	0.09	0.22	-0.01	0.06	0.17	-0.04	0.05	0.00	0.12	0.14	0.03	0.15	0.33	0.03	-0.07
o	0.05	-0.24	0.28	0.17	-0.21	-0.13	0.16	-0.21	-0.36	0.10	0.05	0.03	0.07	-0.09	-0.05	0.25
p	-0.10	-0.17	-0.11	0.24	-0.12	-0.10	0.25	-0.12	-0.34	0.27	-0.03	0.17	-0.04	-0.25	0.01	0.23
sc	-0.79	0.16	-0.22	-0.68	0.01	0.25	-0.74	-0.05	-0.49	-0.63	-0.38	-0.72	-0.67	-0.58	0.15	-0.58
sh	0.00	-0.05	-0.14	-0.08	0.04	-0.16	-0.07	0.10	0.30	-0.31	0.02	-0.02	-0.12	-0.03	-0.17	-0.04

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae families; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh).

Table 18. Percent of variation explained by Axis one and Axis two for each ordination group. Since environmental variables were not consistently sampled at all sites, ordination had to be performed separately for each environmental variable using the group of sites where that variable was sampled consistently.

Ordination Group	# of sites	% of variation		Coresponding Figure #s
		Axis 1	Axis 2	
All sites*	26	67.1	16.8	25-29
Sediment	23	65.8	14.1	30
Pore Water	23	65.8	14.1	31
Surface Water	24	66.3	14.5	32
BMI Tissue	21	70.7	13.5	33

Table 19. Correlation of environmental variables with NMS axes (r^2>=0.4 reported). Direction of relationship noted in parenthesis. Correlations with Axis two were all below r^2 of 0.4.

Environmental Media	Variable	Axis 1	Axis 2
Physical Habitat	Embeddedness	(+) 0.48	-
Sediment	Calcium	(-) 0.40	-
Pore Water	Dissolved copper	(+) 0.53	-
	Dissolved cadmium	(+) 0.44	-
	Total cadmium	(+) 0.40	-
Surface Water	Dissolved copper	(+) 0.72	-
	Dissolved cadmium	(+) 0.64	-
	Total aluminum	(+) 0.64	-
	Total cadmium	(+) 0.60	-
	Dissolved nickel	(+) 0.59	-
	Dissolved aluminum	(+) 0.56	-
	Total zinc	(+) 0.54	-
	Dissolved zinc	(+) 0.54	-
	Total alkalinity	(+) 0.50	-
	Dissolved magnesium	(+) 0.45	-
	Total copper	(+) 0.44	-
	Total magnesium	(+) 0.44	-
BMI Tissue	Silica	(+) 0.60	-
	Thallium	(+) 0.58	-
	Mercury	(+) 0.58	-
	Antimony	(+) 0.57	-
	Silver	(+) 0.57	-
	Beryllium	(+) 0.57	-
	Chromium	(+) 0.55	-
	Nickel	(+) 0.50	-
	Selenium	(+) 0.50	-
	Aluminum	(+) 0.40	-

Table 20. Spearman correlation coefficients between metal concentrations in BMI tissue. Yellow highlight indicates statistically significant correlations at p<0.05.

	BMI Tissue																				
	Al	Sb	As	Be	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Hg	Ni	Se	SiO_2	Ag	Sr	Tl	U	Zn
Al	-	0.42	0.46	0.61	0.23	-0.22	0.48	0.52	0.51	0.48	0.09	0.13	0.68	0.46	-0.17	0.80	0.40	0.13	0.44	0.65	-0.02
Sb	0.42	-	0.16	0.69	0.13	-0.06	0.11	0.21	0.15	0.18	0.13	0.04	0.77	0.43	0.38	0.35	0.74	0.43	0.71	0.57	-0.27
As	0.46	0.16	-	0.44	0.35	0.08	0.58	0.39	0.56	0.65	0.42	0.40	0.48	0.50	-0.01	0.67	-0.05	0.39	0.36	0.27	0.12
Be	0.61	0.69	0.44	-	0.33	0.08	0.26	0.27	0.28	0.27	0.20	0.11	0.87	0.62	0.25	0.67	0.63	0.33	0.66	0.62	-0.17
Cd	0.23	0.13	0.35	0.33	-	0.16	0.10	0.66	0.14	0.54	0.28	0.65	0.47	0.42	-0.25	0.21	0.11	-0.02	0.37	0.15	0.79
Ca	-0.22	-0.06	0.08	0.08	0.16	-	0.14	-0.16	-0.23	-0.25	0.49	0.16	-0.16	0.19	0.29	-0.03	0.03	0.31	0.04	-0.31	0.22
Cr	0.48	0.11	0.58	0.26	0.10	0.14	-	0.11	0.49	0.26	0.64	0.15	0.27	0.48	0.27	0.67	0.14	0.33	0.30	0.27	-0.09
Cu	0.52	0.21	0.39	0.27	0.66	-0.16	0.11	-	0.47	0.80	0.08	0.31	0.41	0.19	-0.48	0.38	0.14	0.19	0.40	0.22	0.52
Fe	0.51	0.15	0.56	0.28	0.14	-0.23	0.49	0.47	-	0.51	0.20	0.10	0.30	0.22	-0.23	0.77	0.11	0.22	0.10	0.13	-0.04
Pb	0.48	0.18	0.65	0.27	0.54	-0.25	0.26	0.80	0.51	-	0.13	0.40	0.43	0.24	-0.40	0.47	0.09	0.35	0.32	0.26	0.36
Mg	0.09	0.13	0.42	0.20	0.28	0.49	0.64	0.08	0.20	0.13	-	0.22	0.12	0.29	0.27	0.34	0.20	0.53	0.26	-0.13	0.17
Mn	0.13	0.04	0.40	0.11	0.65	0.16	0.15	0.31	0.10	0.40	0.22	-	0.26	0.44	-0.19	0.06	-0.10	0.12	0.17	0.09	0.58
Hg	0.68	0.77	0.48	0.87	0.47	-0.16	0.27	0.41	0.30	0.43	0.12	0.26	-	0.64	0.14	0.62	0.55	0.18	0.70	0.73	-0.02
Ni	0.46	0.43	0.50	0.62	0.42	0.19	0.48	0.19	0.22	0.24	0.29	0.44	0.64	-	0.23	0.47	0.34	0.23	0.66	0.43	0.08
Se	-0.17	0.38	-0.01	0.25	-0.25	0.29	0.27	-0.48	-0.23	-0.40	0.27	-0.19	0.14	0.23	-	0.01	0.50	0.23	0.33	0.14	-0.55
SiO_2	0.80	0.35	0.67	0.67	0.21	-0.03	0.67	0.38	0.77	0.47	0.34	0.06	0.62	0.47	0.01	-	0.37	0.25	0.31	0.48	-0.14
Ag	0.40	0.74	-0.05	0.63	0.11	0.03	0.14	0.14	0.11	0.09	0.20	-0.10	0.55	0.34	0.50	0.37	-	0.40	0.55	0.35	-0.34
Sr	0.13	0.43	0.39	0.33	-0.02	0.31	0.33	0.19	0.22	0.35	0.53	0.12	0.18	0.23	0.23	0.25	0.40	-	0.41	0.05	-0.16
Tl	0.44	0.71	0.36	0.66	0.37	0.04	0.30	0.40	0.10	0.32	0.26	0.17	0.70	0.66	0.33	0.31	0.55	0.41	-	0.47	0.03
U	0.65	0.57	0.27	0.62	0.15	-0.31	0.27	0.22	0.13	0.26	-0.13	0.09	0.73	0.43	0.14	0.48	0.35	0.05	0.47	-	-0.25
Zn	-0.02	-0.27	0.12	-0.17	0.79	0.22	-0.09	0.52	-0.04	0.36	0.17	0.58	-0.02	0.08	-0.55	-0.14	-0.34	-0.16	0.03	-0.25	-

Table 21. Spearman correlation coefficients between metal concentrations in sediment. Yellow highlight indicates statistically significant correlations at p<0.05.

Sediment																						
	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
Al	-	0.41	0.14	0.28	0.56	0.12	0.09	0.46	0.41	0.13	0.43	-0.20	0.30	0.13	0.07	0.24	0.53	0.60	0.25	0.47	0.55	0.05
Sb	0.41	-	0.27	0.60	0.79	0.60	-0.03	0.48	0.25	0.62	0.00	0.47	0.06	0.63	0.31	0.53	0.34	0.36	0.72	0.12	0.19	0.43
As	0.14	0.27	-	-0.01	0.27	0.50	-0.51	-0.20	0.24	0.50	0.34	0.37	-0.58	0.24	-0.19	0.54	-0.13	0.11	0.35	0.16	-0.19	0.56
Ba	0.28	0.60	-0.01	-	0.38	0.33	0.46	0.62	0.26	0.13	0.09	0.07	0.21	0.25	0.37	0.24	0.55	0.58	0.62	0.13	0.30	0.09
Be	0.56	0.79	0.27	0.38	-	0.43	0.04	0.43	0.43	0.46	-0.14	0.23	0.00	0.57	0.21	0.42	0.44	0.37	0.43	0.22	0.18	0.36
Cd	0.12	0.60	0.50	0.33	0.43	-	-0.15	-0.03	0.30	0.74	-0.12	0.78	-0.28	0.72	0.16	0.38	0.12	-0.08	0.63	0.01	-0.42	0.80
Ca	0.09	-0.03	-0.51	0.46	0.04	-0.15	-	0.44	0.05	-0.43	-0.16	-0.36	0.55	-0.15	0.15	-0.32	0.52	0.16	-0.03	-0.04	0.25	-0.26
Cr	0.46	0.48	-0.20	0.62	0.43	-0.03	0.44	-	0.28	0.16	0.20	-0.11	0.64	0.15	0.18	0.16	0.73	0.67	0.47	0.09	0.73	-0.09
Co	0.41	0.25	0.24	0.26	0.43	0.30	0.05	0.28	-	0.19	0.15	-0.01	-0.11	0.26	0.14	0.22	0.72	0.38	0.28	0.44	0.11	0.18
Cu	0.13	0.62	0.50	0.13	0.46	0.74	-0.43	0.16	0.19	-	0.12	0.81	-0.18	0.70	-0.04	0.37	0.01	0.08	0.59	-0.12	-0.14	0.80
Fe	0.43	0.00	0.34	0.09	-0.14	-0.12	-0.16	0.20	0.15	0.12	-	-0.18	0.05	-0.25	-0.25	0.02	0.15	0.49	0.10	0.14	0.55	0.02
Pb	-0.20	0.47	0.37	0.07	0.23	0.78	-0.36	-0.11	-0.01	0.81	-0.18	-	-0.30	0.63	0.27	0.22	-0.18	-0.27	0.46	-0.37	-0.46	0.82
Mg	0.30	0.06	-0.58	0.21	0.00	-0.28	0.55	0.64	-0.11	-0.18	0.05	-0.30	-	0.09	0.09	-0.14	0.40	0.29	0.07	0.09	0.58	-0.29
Mn	0.13	0.63	0.24	0.25	0.57	0.72	-0.15	0.15	0.26	0.70	-0.25	0.63	0.09	-	0.10	0.46	0.14	0.00	0.57	0.06	-0.27	0.61
Hg	0.07	0.31	-0.19	0.37	0.21	0.16	0.15	0.18	0.14	-0.04	-0.25	0.27	0.09	0.10	-	-0.09	0.29	0.15	0.12	-0.06	0.01	0.20
Mo	0.24	0.53	0.54	0.24	0.42	0.38	-0.32	0.16	0.22	0.37	0.02	0.22	-0.14	0.46	-0.09	-	0.09	0.33	0.68	0.43	-0.01	0.22
Ni	0.53	0.34	-0.13	0.55	0.44	0.12	0.52	0.73	0.72	0.01	0.15	-0.18	0.40	0.14	0.29	0.09	-	0.62	0.37	0.41	0.44	-0.05
Se	0.60	0.36	0.11	0.58	0.37	-0.08	0.16	0.67	0.38	0.08	0.49	-0.27	0.29	0.00	0.15	0.33	0.62	-	0.42	0.43	0.63	-0.06
Ag	0.25	0.72	0.35	0.62	0.43	0.63	-0.03	0.47	0.28	0.59	0.10	0.46	0.07	0.57	0.12	0.68	0.37	0.42	-	0.21	0.13	0.37
Tl	0.47	0.12	0.16	0.13	0.22	0.01	-0.04	0.09	0.44	-0.12	0.14	-0.37	0.09	0.06	-0.06	0.43	0.41	0.43	0.21	-	0.13	-0.16
V	0.55	0.19	-0.19	0.30	0.18	-0.42	0.25	0.73	0.11	-0.14	0.55	-0.46	0.58	-0.27	0.01	-0.01	0.44	0.63	0.13	0.13	-	-0.37
Zn	0.05	0.43	0.56	0.09	0.36	0.80	-0.26	-0.09	0.18	0.80	0.02	0.82	-0.29	0.61	0.20	0.22	-0.05	-0.06	0.37	-0.16	-0.37	-

Table 22. Spearman correlation coefficients between total metal concentrations in pore water. Yellow highlight indicates statistically significant correlations at p<0.05.

Pore Water (Total)																				
	Al	As	Be	Cd	Ca	Cl-	Cu	F-	Fe	Pb	Mg	Mn	Ni	Nitrate/ Nitrite	SiO_2	Sr	SO4	Tl	Alkalinity	Zn
Al	-	0.50	0.47	0.56	-0.01	0.18	0.68	0.53	0.76	0.72	0.37	0.80	0.76	0.33	0.73	-0.30	0.32	-0.19	-0.67	0.51
As	0.50	-	0.22	0.12	-0.06	0.28	0.50	-0.04	0.62	0.67	0.18	0.26	0.08	0.22	0.46	-0.10	-0.04	-0.15	-0.11	0.15
Be	0.47	0.22	-	0.51	-0.32	-0.20	0.49	0.48	0.22	0.29	-0.04	0.52	0.37	0.08	0.29	-0.49	0.10	-0.23	-0.35	0.52
Cd	0.56	0.12	0.51	-	-0.28	-0.12	0.75	0.58	0.08	0.53	0.10	0.74	0.46	0.06	0.18	-0.54	0.04	-0.25	-0.53	0.94
Ca	-0.01	-0.06	-0.32	-0.28	-	0.49	-0.21	0.25	0.28	-0.18	0.69	0.05	0.15	0.25	0.31	0.78	0.77	0.41	0.12	-0.30
Cl-	0.18	0.28	-0.20	-0.12	0.49	-	0.15	-0.06	0.45	0.30	0.31	0.02	0.14	0.32	0.53	0.61	0.34	0.31	-0.02	-0.14
Cu	0.68	0.50	0.49	0.75	-0.21	0.15	-	0.50	0.42	0.83	0.02	0.70	0.44	0.04	0.48	-0.35	0.11	-0.41	-0.52	0.82
F-	0.53	-0.04	0.48	0.58	0.25	-0.06	0.50	-	0.25	0.24	0.30	0.73	0.52	0.26	0.38	-0.12	0.49	-0.31	-0.36	0.59
Fe	0.76	0.62	0.22	0.08	0.28	0.45	0.42	0.25	-	0.68	0.32	0.41	0.46	0.40	0.91	0.09	0.33	0.06	-0.33	0.06
Pb	0.72	0.67	0.29	0.53	-0.18	0.30	0.83	0.24	0.68	-	0.00	0.50	0.34	0.09	0.61	-0.28	0.00	-0.30	-0.45	0.58
Mg	0.37	0.18	-0.04	0.10	0.69	0.31	0.02	0.30	0.32	0.00	-	0.44	0.47	0.42	0.30	0.35	0.76	0.33	-0.23	-0.02
Mn	0.80	0.26	0.52	0.74	0.05	0.02	0.70	0.73	0.41	0.50	0.44	-	0.68	0.37	0.47	-0.37	0.38	-0.20	-0.62	0.67
Ni	0.76	0.08	0.37	0.46	0.15	0.14	0.44	0.52	0.46	0.34	0.47	0.68	-	0.22	0.51	-0.02	0.58	0.00	-0.81	0.44
Nitrate/Nitrite	0.33	0.22	0.08	0.06	0.25	0.32	0.04	0.26	0.40	0.09	0.42	0.37	0.22	-	0.40	0.14	0.23	0.35	-0.24	-0.03
SiO_2	0.73	0.46	0.29	0.18	0.31	0.53	0.48	0.38	0.91	0.61	0.30	0.47	0.51	0.40	-	0.12	0.42	-0.03	-0.34	0.16
Sr	-0.30	-0.10	-0.49	-0.54	0.78	0.61	-0.35	-0.12	0.09	-0.28	0.35	-0.37	-0.02	0.14	0.12	-	0.53	0.47	0.22	-0.50
SO4	0.32	-0.04	0.10	0.04	0.77	0.34	0.11	0.49	0.33	0.00	0.76	0.38	0.58	0.23	0.42	0.53	-	0.20	-0.38	0.06
Tl	-0.19	-0.15	-0.23	-0.25	0.41	0.31	-0.41	-0.31	0.06	-0.30	0.33	-0.20	0.00	0.35	-0.03	0.47	0.20	-	0.11	-0.37
Alkalinity	-0.67	-0.11	-0.35	-0.53	0.12	-0.02	-0.52	-0.36	-0.33	-0.45	-0.23	-0.62	-0.81	-0.24	-0.34	0.22	-0.38	0.11	-	-0.55
Zn	0.51	0.15	0.52	0.94	-0.30	-0.14	0.82	0.59	0.06	0.58	-0.02	0.67	0.44	-0.03	0.16	-0.50	0.06	-0.37	-0.55	-

Table 23. Spearman correlation coefficients between dissolved metal concentrations in pore water. Yellow highlight indicates statistically significant correlations at p<0.05.

Pore Water (Dissolved)																	
	Al	As	Be	Cd	Ca	Cr	Cu	Hardness	Fe	Pb	Mg	Mn	Ni	SiO_2	Sr	Tl	Zn
Al	-	0.21	0.43	0.60	0.17	-0.01	0.68	0.21	0.52	0.71	0.44	0.88	0.86	0.59	-0.12	0.35	0.54
As	0.21	-	-0.09	-0.14	0.43	0.71	-0.07	0.41	0.23	-0.02	0.37	0.11	0.07	0.06	0.41	0.50	-0.27
Be	0.43	-0.09	-	0.47	-0.15	-0.13	0.47	-0.09	0.15	0.23	0.21	0.47	0.50	0.35	-0.36	-0.09	0.47
Cd	0.60	-0.14	0.47	-	-0.21	-0.33	0.87	-0.19	0.11	0.73	0.11	0.71	0.70	0.24	-0.43	0.12	0.95
Ca	0.17	0.43	-0.15	-0.21	-	0.46	-0.11	0.99	0.45	-0.12	0.67	0.18	0.01	0.41	0.78	0.45	-0.23
Cr	-0.01	0.71	-0.13	-0.33	0.46	-	-0.27	0.41	0.34	-0.09	0.33	-0.03	-0.09	0.04	0.46	0.34	-0.47
Cu	0.68	-0.07	0.47	0.87	-0.11	-0.27	-	-0.08	0.23	0.83	0.11	0.69	0.78	0.30	-0.23	0.13	0.86
Hardness	0.21	0.41	-0.09	-0.19	0.99	0.41	-0.08	-	0.48	-0.12	0.74	0.20	0.07	0.44	0.74	0.45	-0.21
Fe	0.52	0.23	0.15	0.11	0.45	0.34	0.23	0.48	-	0.43	0.57	0.48	0.56	0.64	0.37	0.61	-0.03
Pb	0.71	-0.02	0.23	0.73	-0.12	-0.09	0.83	-0.12	0.43	-	0.10	0.68	0.80	0.40	-0.19	0.30	0.64
Mg	0.44	0.37	0.21	0.11	0.67	0.33	0.11	0.74	0.57	0.10	-	0.50	0.43	0.35	0.29	0.39	0.01
Mn	0.88	0.11	0.47	0.71	0.18	-0.03	0.69	0.20	0.48	0.68	0.50	-	0.80	0.46	-0.06	0.26	0.63
Ni	0.86	0.07	0.50	0.70	0.01	-0.09	0.78	0.07	0.56	0.80	0.43	0.80	-	0.51	-0.25	0.38	0.61
SiO_2	0.59	0.06	0.35	0.24	0.41	0.04	0.30	0.44	0.64	0.40	0.35	0.46	0.51	-	0.19	0.43	0.24
Sr	-0.12	0.41	-0.36	-0.43	0.78	0.46	-0.23	0.74	0.37	-0.19	0.29	-0.06	-0.25	0.19	-	0.29	-0.41
Tl	0.35	0.50	-0.09	0.12	0.45	0.34	0.13	0.45	0.61	0.30	0.39	0.26	0.38	0.43	0.29	-	-0.08
Zn	0.54	-0.27	0.47	0.95	-0.23	-0.47	0.86	-0.21	-0.03	0.64	0.01	0.63	0.61	0.24	-0.41	-0.08	-

Table 24. Spearman correlation coefficients between total metal concentrations in surface water. Yellow highlight indicates statistically significant correlations at p<0.05.

Surface Water (Total)																			
	Alkalinity	Al	Be	Cd	Ca	Cl-	Cu	F-	Fe	Pb	Mg	Mn	Ni	Nitrate/ Nitrite	SiO_2	Sr	SO4	Tl	Zn
Alkalinity	-	-0.88	-0.46	-0.73	0.15	-0.08	-0.72	-0.49	-0.61	-0.66	-0.31	-0.72	-0.70	-0.13	-0.45	0.31	-0.46	-0.20	-0.70
Al	-0.88	-	0.31	0.58	-0.02	-0.03	0.75	0.69	0.50	0.48	0.45	0.86	0.51	-0.05	0.62	-0.23	0.59	0.03	0.70
Be	-0.46	0.31	-	0.57	-0.01	0.01	0.43	0.48	0.23	0.11	0.18	0.34	0.80	0.00	0.29	-0.32	0.42	0.36	0.41
Cd	-0.73	0.58	0.57	-	-0.14	-0.08	0.80	0.64	0.12	0.67	0.33	0.76	0.70	0.13	0.15	-0.40	0.39	0.22	0.88
Ca	0.15	-0.02	-0.01	-0.14	-	0.49	-0.04	0.27	0.31	-0.30	0.51	-0.02	-0.06	0.41	0.32	0.76	0.70	0.09	-0.17
Cl-	-0.08	-0.03	0.01	-0.08	0.49	-	-0.01	-0.13	0.46	0.14	0.17	-0.09	0.02	0.38	0.23	0.66	0.31	0.12	-0.21
Cu	-0.72	0.75	0.43	0.80	-0.04	-0.01	-	0.67	0.35	0.70	0.30	0.81	0.50	-0.06	0.35	-0.18	0.55	0.12	0.87
F-	-0.49	0.69	0.48	0.64	0.27	-0.13	0.67	-	0.22	0.28	0.46	0.81	0.60	0.07	0.59	-0.16	0.66	0.21	0.68
Fe	-0.61	0.50	0.23	0.12	0.31	0.46	0.35	0.22	-	0.17	0.16	0.20	0.30	0.17	0.64	0.28	0.54	0.17	0.12
Pb	-0.66	0.48	0.11	0.67	-0.30	0.14	0.70	0.28	0.17	-	0.03	0.60	0.25	-0.04	0.06	-0.23	0.08	0.00	0.71
Mg	-0.31	0.45	0.18	0.33	0.51	0.17	0.30	0.46	0.16	0.03	-	0.46	0.31	0.42	0.35	0.13	0.72	-0.12	0.26
Mn	-0.72	0.86	0.34	0.76	-0.02	-0.09	0.81	0.81	0.20	0.60	0.46	-	0.51	-0.14	0.40	-0.28	0.51	-0.03	0.87
Ni	-0.70	0.51	0.80	0.70	-0.06	0.02	0.50	0.60	0.30	0.25	0.31	0.51	-	0.09	0.36	-0.37	0.46	0.44	0.52
Nitrate/Nitrite	-0.13	-0.05	0.00	0.13	0.41	0.38	-0.06	0.07	0.17	-0.04	0.42	-0.14	0.09	-	0.09	0.30	0.29	0.28	-0.17
SiO_2	-0.45	0.62	0.29	0.15	0.32	0.23	0.35	0.59	0.64	0.06	0.35	0.40	0.36	0.09	-	0.07	0.63	0.11	0.22
Sr	0.31	-0.23	-0.32	-0.40	0.76	0.66	-0.18	-0.16	0.28	-0.23	0.13	-0.28	-0.37	0.30	0.07	-	0.34	0.11	-0.36
SO4	-0.46	0.59	0.42	0.39	0.70	0.31	0.55	0.66	0.54	0.08	0.72	0.51	0.46	0.29	0.63	0.34	-	0.19	0.38
Tl	-0.20	0.03	0.36	0.22	0.09	0.12	0.12	0.21	0.17	0.00	-0.12	-0.03	0.44	0.28	0.11	0.11	0.19	-	0.09
Zinc	-0.70	0.70	0.41	0.88	-0.17	-0.21	0.87	0.68	0.12	0.71	0.26	0.87	0.52	-0.17	0.22	-0.36	0.38	0.09	-

Table 25. Spearman correlation coefficients between dissolved metal concentrations in surface water. Yellow highlight indicates statistically significant correlations at p<0.05.

Surface Water (Dissolved)																
	Al	As	Be	Cd	Ca	Cr	Cu	Hardness	Fe	Pb	Mg	Mn	Ni	SiO_2	Sr	Zn
Al	-	0.01	0.33	0.64	-0.03	-0.29	0.70	0.05	0.37	0.52	0.38	0.72	0.68	0.47	-0.12	0.58
As	0.01	-	0.17	-0.19	0.47	0.71	-0.24	0.46	0.32	-0.06	0.18	-0.13	0.17	0.02	0.39	-0.31
Be	0.33	0.17	-	0.40	-0.02	0.02	0.38	0.09	0.23	0.27	0.19	0.35	0.63	0.32	-0.29	0.41
Cd	0.64	-0.19	0.40	-	-0.12	-0.48	0.91	-0.05	0.13	0.77	0.37	0.90	0.73	0.30	-0.33	0.96
Ca	-0.03	0.47	-0.02	-0.12	-	0.45	-0.08	0.98	0.29	-0.22	0.51	-0.02	-0.10	0.29	0.75	-0.17
Cr	-0.29	0.71	0.02	-0.48	0.45	-	-0.46	0.43	0.07	-0.20	0.18	-0.47	-0.07	-0.11	0.47	-0.58
Cu	0.70	-0.24	0.38	0.91	-0.08	-0.46	-	-0.02	0.13	0.80	0.29	0.83	0.70	0.33	-0.14	0.90
Hardness	0.05	0.46	0.09	-0.05	0.98	0.43	-0.02	-	0.34	-0.21	0.63	0.06	0.01	0.34	0.67	-0.11
Fe	0.37	0.32	0.23	0.13	0.29	0.07	0.13	0.34	-	0.11	0.19	0.18	0.44	0.66	0.12	0.01
Pb	0.52	-0.06	0.27	0.77	-0.22	-0.20	0.80	-0.21	0.11	-	0.08	0.66	0.66	0.15	-0.14	0.71
Mg	0.38	0.18	0.19	0.37	0.51	0.18	0.29	0.63	0.19	0.08	-	0.42	0.43	0.32	0.13	0.25
Mn	0.72	-0.13	0.35	0.90	-0.02	-0.47	0.83	0.06	0.18	0.66	0.42	-	0.69	0.43	-0.28	0.87
Ni	0.68	0.17	0.63	0.73	-0.10	-0.07	0.70	0.01	0.44	0.66	0.43	0.69	-	0.45	-0.31	0.63
SiO_2	0.47	0.02	0.32	0.30	0.29	-0.11	0.33	0.34	0.66	0.15	0.32	0.43	0.45	-	0.05	0.24
Sr	-0.12	0.39	-0.29	-0.33	0.75	0.47	-0.14	0.67	0.12	-0.14	0.13	-0.28	-0.31	0.05	-	-0.35
Z	0.58	-0.31	0.41	0.96	-0.17	-0.58	0.90	-0.11	0.01	0.71	0.25	0.87	0.63	0.24	-0.35	-

Table 26. Hazard quotients for metals.

Site				HQ																							
				Aluminum		Arsenic		Cadmium			Chromium VI		Copper		Iron	Lead		Manganese		Nickel		Selenium		Silver	Thalium	Zinc		Cumulative Criteria Unit	
ID	EU	Stream Name	Site Name	Acute	Chronic	Acute	Chronic	Acute	Acute (trout)	Chronic	Acute	Chronic	Acute	Chronic	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute	Chronic
Mineral Cr																													
MaA	EU1	Mineral Cr	Above Animas River	0.38	2.63	0.00	0.00	0.14	0.23	0.95	0.06	0.09	0.10	0.15	2.04	0.00	0.03	0.07	0.13	0.00	0.01	0.05	0.22	0.18	0.07	0.52	0.69	1.75	7.01
MaSFM	EU2	Mineral Cr	Above SF Mineral	0.51	3.58	0.00	0.00	0.22	0.36	1.54	0.06	0.09	0.54	0.85	4.70	0.04	1.10	0.13	0.24	0.00	0.01	0.05	0.22	0.09	0.07	0.81	1.07	2.82	13.46
MaMFM	EU3	Mineral Cr	Above MF Mineral	0.23	1.59	0.00	0.00	0.27	0.44	1.81	0.06	0.09	0.43	0.66	0.58	0.01	0.13	0.07	0.12	0.00	0.01	0.05	0.22	0.18	0.07	1.15	1.52	2.89	6.79
MaMIL	EU4	Mineral Cr	Above Mill Creek	0.07	0.47	0.00	0.00	0.62	0.99	3.90	0.06	0.09	1.00	1.47	0.20	0.21	5.45	0.09	0.16	0.00	0.01	0.05	0.22	0.35	0.07	3.60	4.75	7.05	16.79
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	0.20	1.39	0.00	0.00	0.06	0.09	0.35	0.06	0.09	0.04	0.06	0.45	0.00	0.04	0.03	0.05	0.00	0.01	0.05	0.22	0.29	0.07	0.12	0.15	0.94	2.89
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	0.69	4.82	0.01	0.02	0.15	0.23	1.07	0.31	0.45	0.12	0.20	17.20	0.00	0.06	0.22	0.40	0.00	0.02	0.27	0.22	0.19	0.33	0.30	0.39	2.49	25.19
Upper Animas																													
AaARR	EU7	Animas River	Above Arrastra Creek	0.03	0.18	0.00	0.00	0.19	0.31	1.26	0.06	0.09	0.13	0.20	0.10	0.00	0.06	0.12	0.22	0.00	0.01	0.05	0.22	0.18	0.07	1.09	1.44	2.17	3.84
CUaA	EU8	Cunningham Creek	Above Animas River	0.01	0.07	0.00	0.00	0.06	0.10	0.38	0.07	0.10	0.10	0.15	0.10	0.01	0.19	0.00	0.00	0.00	0.01	0.05	0.22	0.26	0.07	0.17	0.22	0.82	1.51
AaCU	EU9	Animas River	Above Cunningham	0.05	0.32	0.00	0.00	0.25	0.41	1.68	0.06	0.09	0.13	0.20	0.10	0.00	0.03	0.15	0.27	0.00	0.01	0.05	0.22	0.17	0.07	1.57	2.07	2.84	5.06
AaMINN	EU10	Animas River	Above Minnie Gulch	0.14	0.97	0.00	0.00	0.55	0.89	3.69	0.06	0.09	0.18	0.28	0.10	0.01	0.18	0.35	0.64	0.00	0.01	0.05	0.22	0.15	0.07	2.75	3.63	5.14	9.88
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	0.07	0.46	0.00	0.00	0.05	0.09	0.38	0.06	0.09	0.13	0.20	0.45	0.00	0.02	0.04	0.07	0.00	0.01	0.05	0.22	0.11	0.07	0.18	0.24	0.79	2.20
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	0.01	0.04	0.01	0.01	0.06	0.05	0.19	0.06	0.09	0.05	0.08	0.10	0.00	0.06	0.00	0.00	0.00	0.01	0.05	0.22	0.15	0.07	0.18	0.23	0.61	1.09
EUaSFA	EU12	Eureka Gulch	Above SF Animas	0.02	0.14	0.00	0.00	0.19	0.30	1.23	0.06	0.09	0.33	0.51	0.10	0.00	0.09	0.03	0.06	0.00	0.01	0.05	0.22	0.19	0.07	1.35	1.78	2.53	4.29
SFAaA	EU13	SF Animas River	Above Animas River	0.03	0.20	0.00	0.00	0.17	0.27	1.14	0.06	0.09	0.24	0.37	0.13	0.00	0.02	0.04	0.07	0.00	0.01	0.05	0.22	0.12	0.07	0.95	1.25	1.93	3.58
AaEU	EU14	Animas River	Above Eureka Gulch	0.28	1.93	0.00	0.00	1.09	1.75	7.20	0.06	0.09	0.36	0.56	0.10	0.00	0.10	0.91	1.64	0.00	0.02	0.05	0.22	0.18	0.07	4.85	6.40	9.53	18.32
WFAaA	EU15	WF Animas River	Above Animas River	1.15	8.09	0.00	0.00	2.22	3.57	14.72	0.06	0.09	1.49	2.28	0.20	0.05	1.32	3.93	7.11	0.01	0.10	0.05	0.22	0.16	0.07	13.23	17.46	25.93	51.68
PLaWFA	EU16	Placer Gulch	Above WF Animas River	0.33	2.29	0.00	0.00	1.09	1.75	6.94	0.06	0.09	0.78	1.17	0.19	0.09	2.29	0.34	0.62	0.01	0.05	0.05	0.22	0.30	0.07	8.39	11.08	13.19	25.00
WFAaPL	EU17	WF Animas River	Above Placer Gulch	1.80	12.58	0.00	0.00	2.62	4.22	17.79	0.06	0.09	1.18	1.84	0.17	0.00	0.10	6.92	12.52	0.02	0.16	0.05	0.22	0.12	0.07	14.65	19.34	31.64	64.88
NFAaWFA	EU18	NF Animas River	Above WF Animas River	1.08	7.54	0.00	0.00	3.02	4.86	19.14	0.06	0.09	1.49	2.20	0.10	0.20	5.14	0.47	0.85	0.01	0.07	0.05	0.22	0.33	0.07	8.64	11.41	20.23	46.84
BUaNFA	EU19	Burrows Creek	Above NF Animas River	5.90	41.33	0.00	0.00	9.04	14.54	55.80	0.06	0.09	5.80	8.41	0.11	0.13	3.37	1.78	3.22	0.03	0.31	0.05	0.22	0.48	0.07	25.92	34.22	63.73	147.15
Reference Sites																													
MILaM	-	Mill Creek	Above Mineral Creek	0.17	1.20	0.00	0.00	0.13	0.21	0.80	0.06	0.09	0.13	0.18	0.10	0.01	0.19	0.03	0.06	0.00	0.02	0.05	0.22	0.67	0.07	0.39	0.52	1.86	3.44
BEaM	-	Bear Creek	Above Mineral Creek	0.03	0.22	0.00	0.00	0.05	0.08	0.30	0.06	0.09	0.05	0.08	0.10	0.00	0.06	0.00	0.00	0.00	0.01	0.05	0.22	0.42	0.07	0.08	0.11	0.84	1.25
MAGaA	-	Maggie Gulch	Above Animas River	0.02	0.15	0.00	0.00	0.04	0.06	0.24	0.07	0.11	0.07	0.10	0.10	0.00	0.04	0.00	0.00	0.00	0.01	0.05	0.22	0.25	0.07	0.06	0.08	0.63	1.12
PICaA	-	Picayne Gulch	Above Animas River	0.01	0.07	0.00	0.00	0.02	0.03	0.15	0.12	0.18	0.03	0.05	0.10	0.00	0.02	0.03	0.06	0.00	0.01	0.05	0.22	0.09	0.07	0.04	0.05	0.44	0.98
NFAaBU	-	NF Animas River	Above Burrows Creek	0.02	0.16	0.00	0.00	0.28	0.45	1.81	0.06	0.09	0.07	0.10	0.10	0.00	0.04	0.00	0.00	0.00	0.01	0.05	0.22	0.25	0.07	0.85	1.12	2.04	3.72
HERaD	-	Hermosa Creek	Above Animas River	0.00	0.02	0.00	0.00	0.02	0.03	0.12	0.16	0.23	0.02	0.03	0.10	0.00	0.01	0.00	0.00	0.00	0.00	0.05	0.22	0.05	0.07	0.03	0.03	0.36	0.84

Note: CDPHE water quality standards for aquatic life are based on dissolved concentrations, except for aluminum and iron, which are based on total concentrations (CDPHE 2017). Surface water samples were not collected at Mineral Creek above Browns and SF Mineral Cr below campground, and are excluded from this table. We were unable to calculate a chronic HQ for silver since the silver CDPHE chronic water qualitly standard was below the method detection limit. The Cumulative Criteria Unit (CCU) is the sum of HQs for each site (Clements 2000).

8. Figures

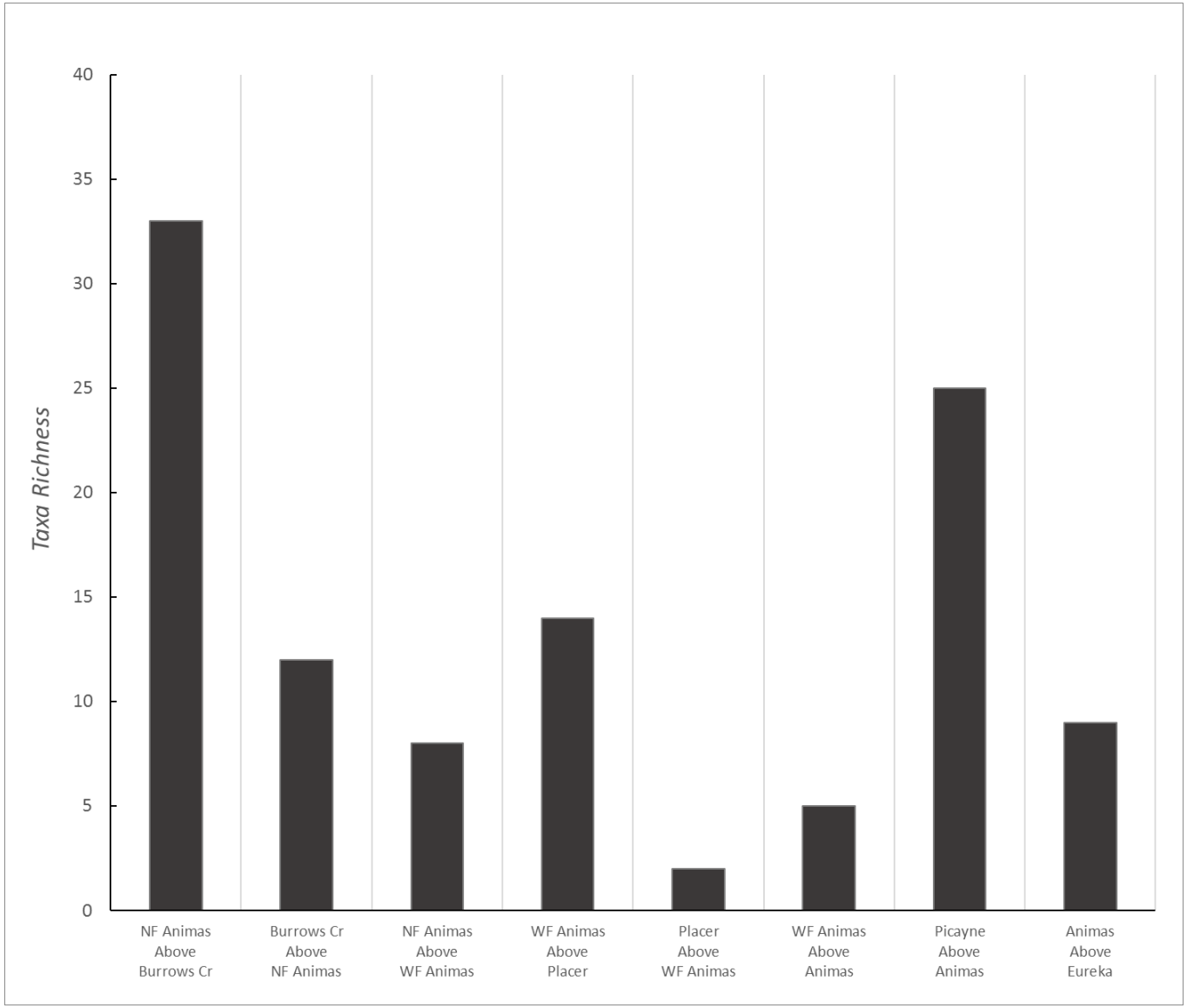


Figure 1: Taxa richness – Upper Animas Group A
Note: see table 2 for an explanation of BMI metrics.

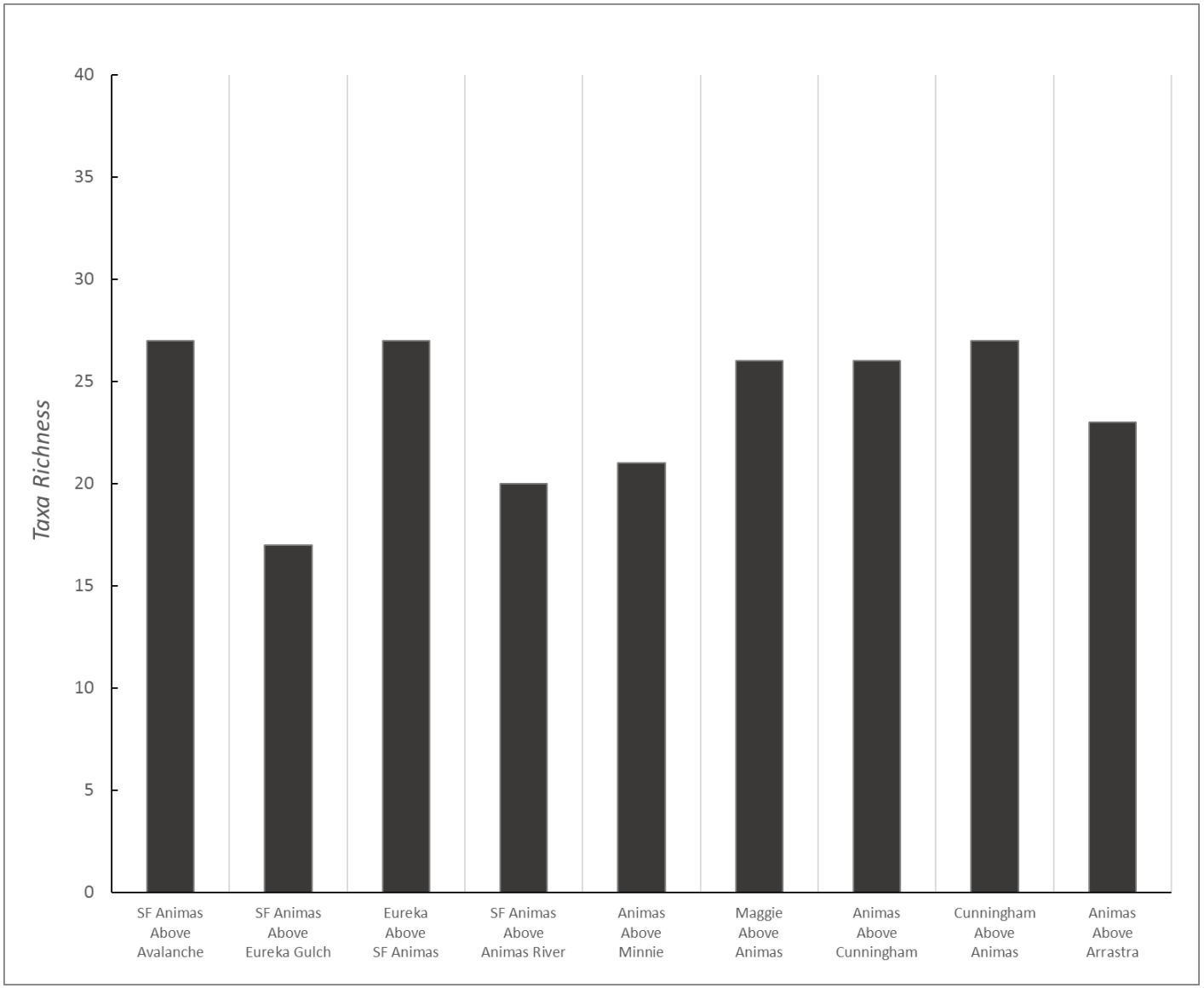


Figure 2: Taxa richness – Upper Animas Group B

Note: see table 2 for an explanation of BMI metrics.

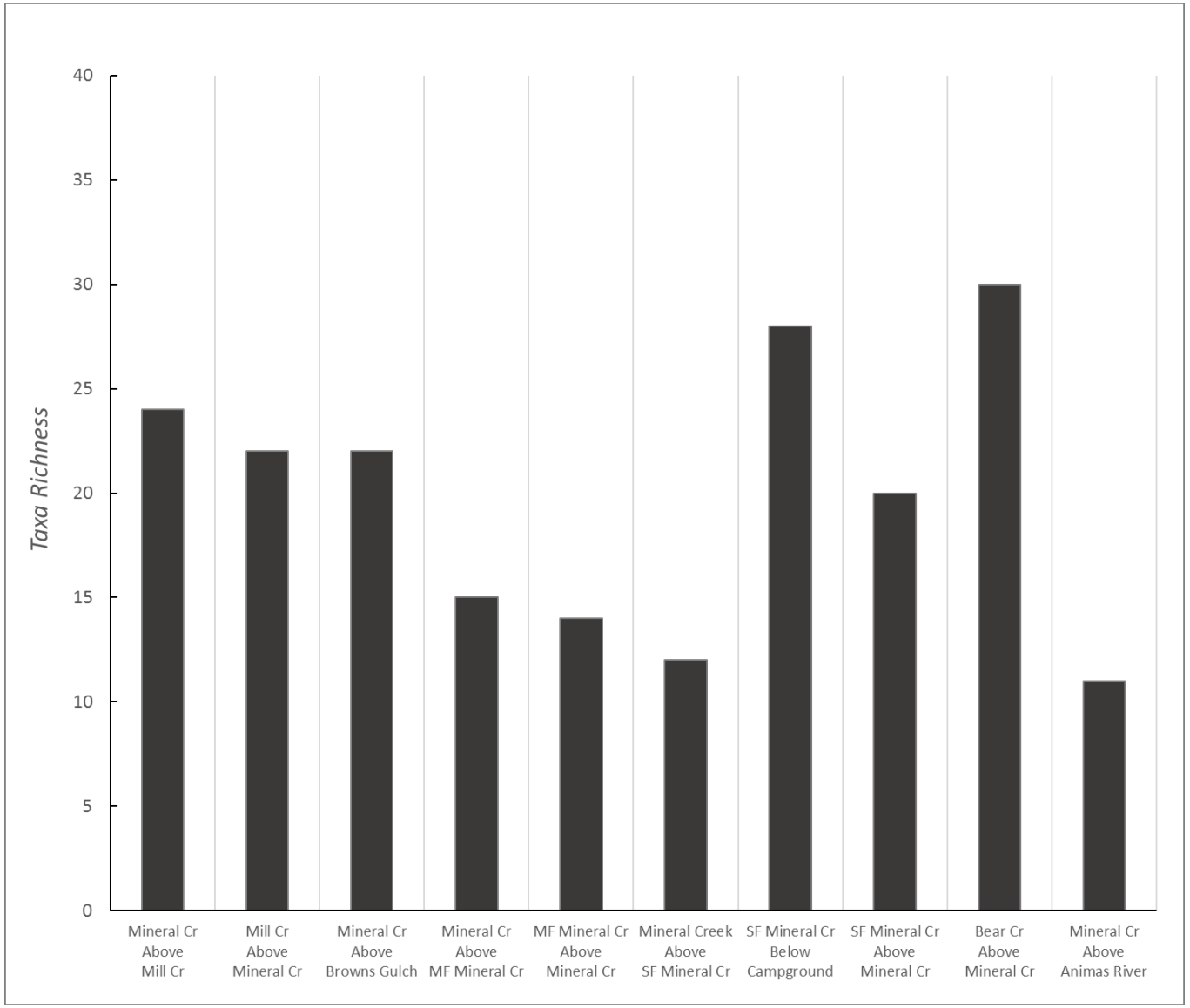


Figure 3: Taxa richness – Mineral Creek Group

Note: see table 2 for an explanation of BMI metrics.

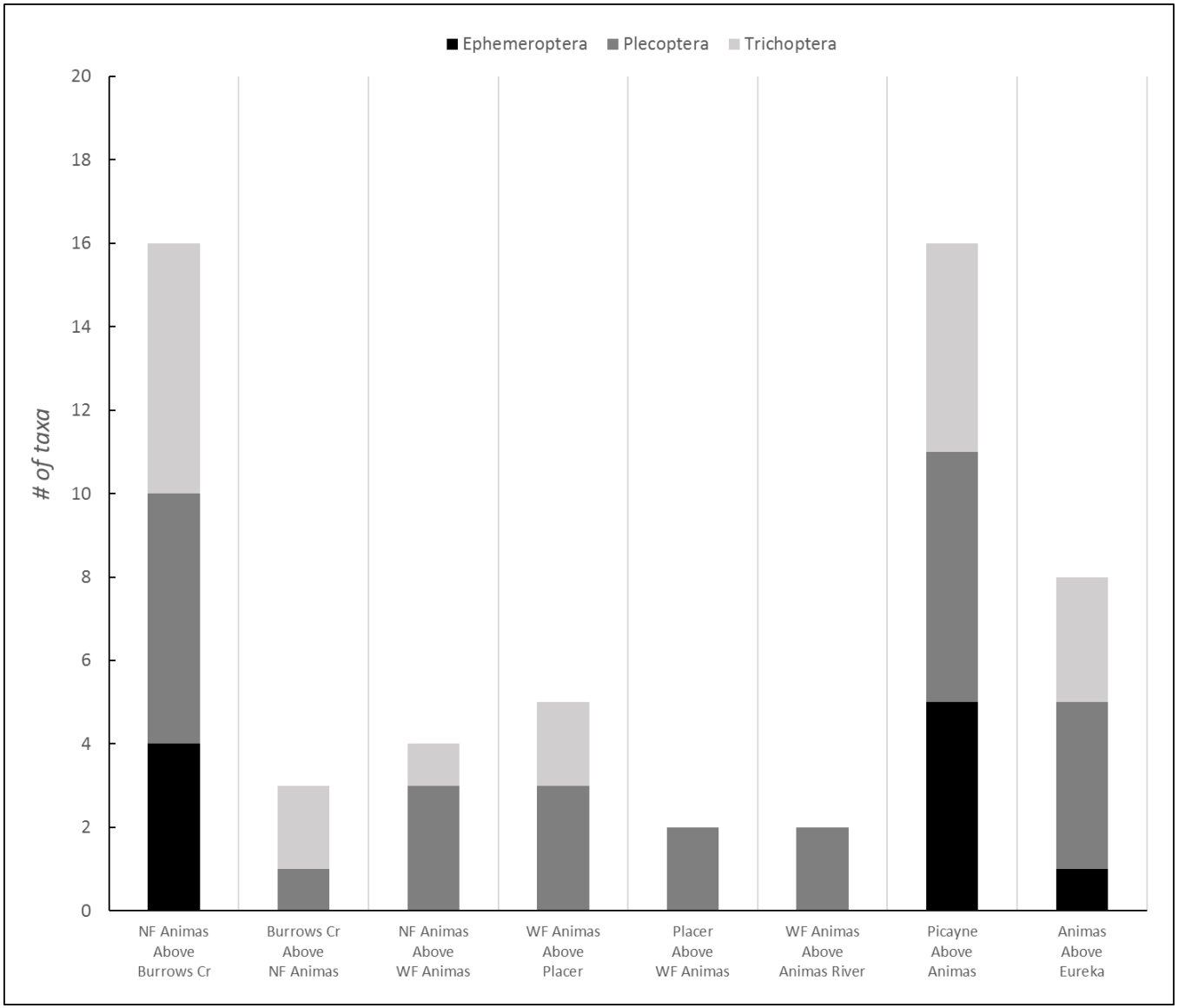


Figure 4: EPT (Ephemeroptera, Plecoptera, and Trichoptera) richness – Upper Animas Group A

Note: see table 2 for an explanation of BMI metrics.

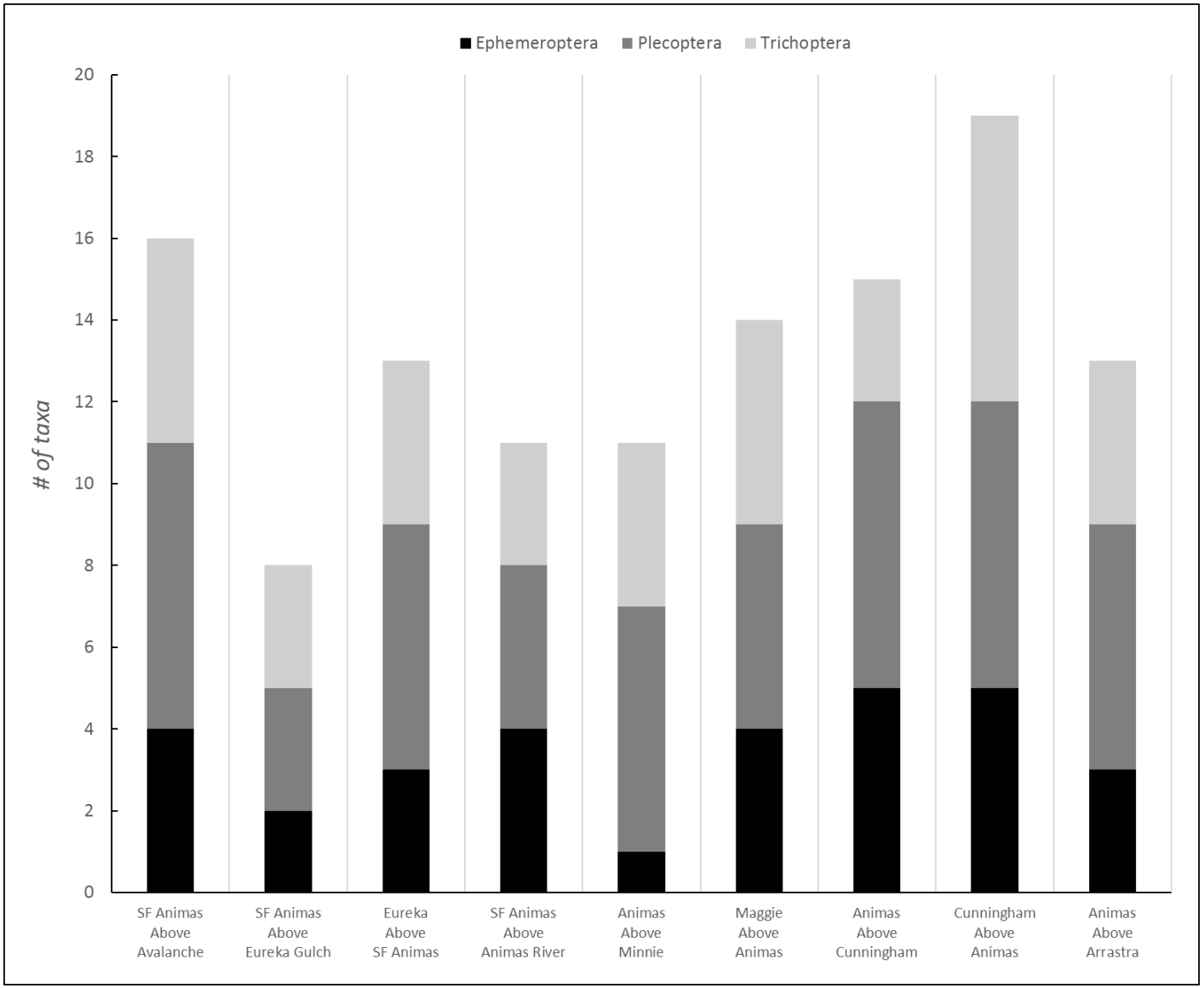


Figure 5: EPT (Ephemeroptera, Plecoptera, and Trichoptera) richness – Upper Animas Group B

Note: see table 2 for an explanation of BMI metrics.

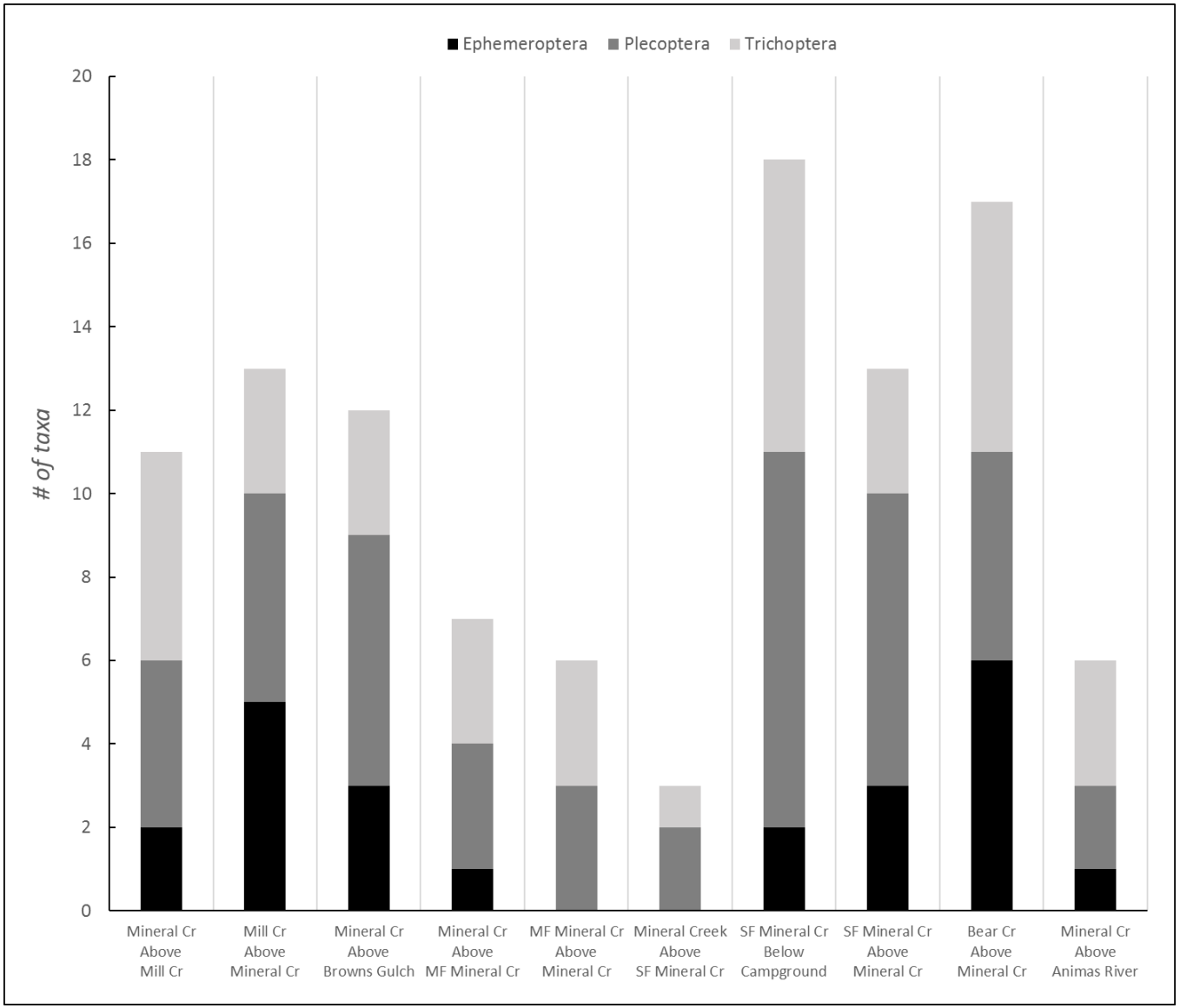


Figure 6: EPT (Ephemeroptera, Plecoptera, and Trichoptera) richness – Mineral Creek Group

Note: see table 2 for an explanation of BMI metrics.

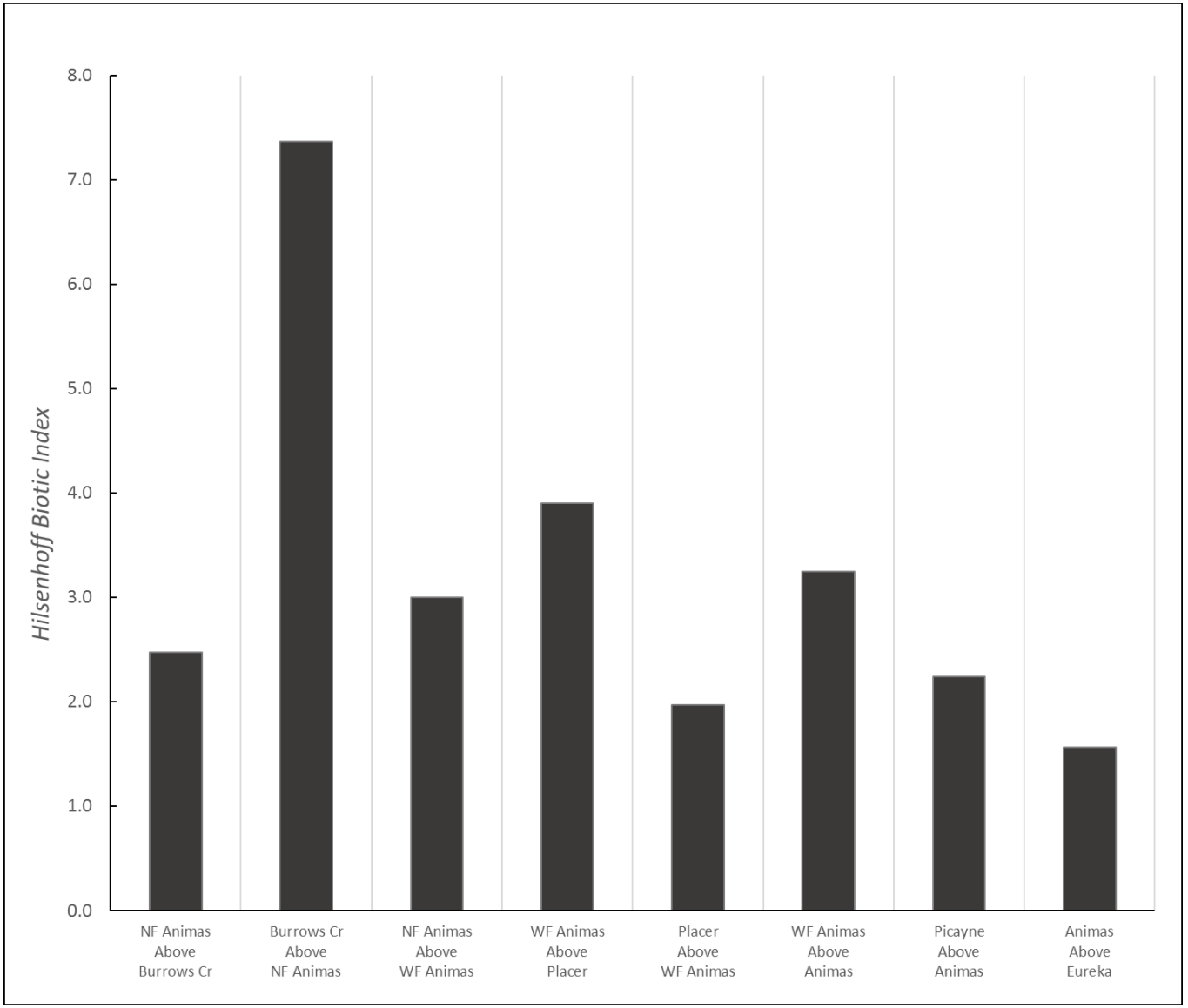


Figure 7: Hilsenhoff Biotic Index (HBI) – Upper Animas Group A

Note: see table 2 for an explanation of BMI metrics.

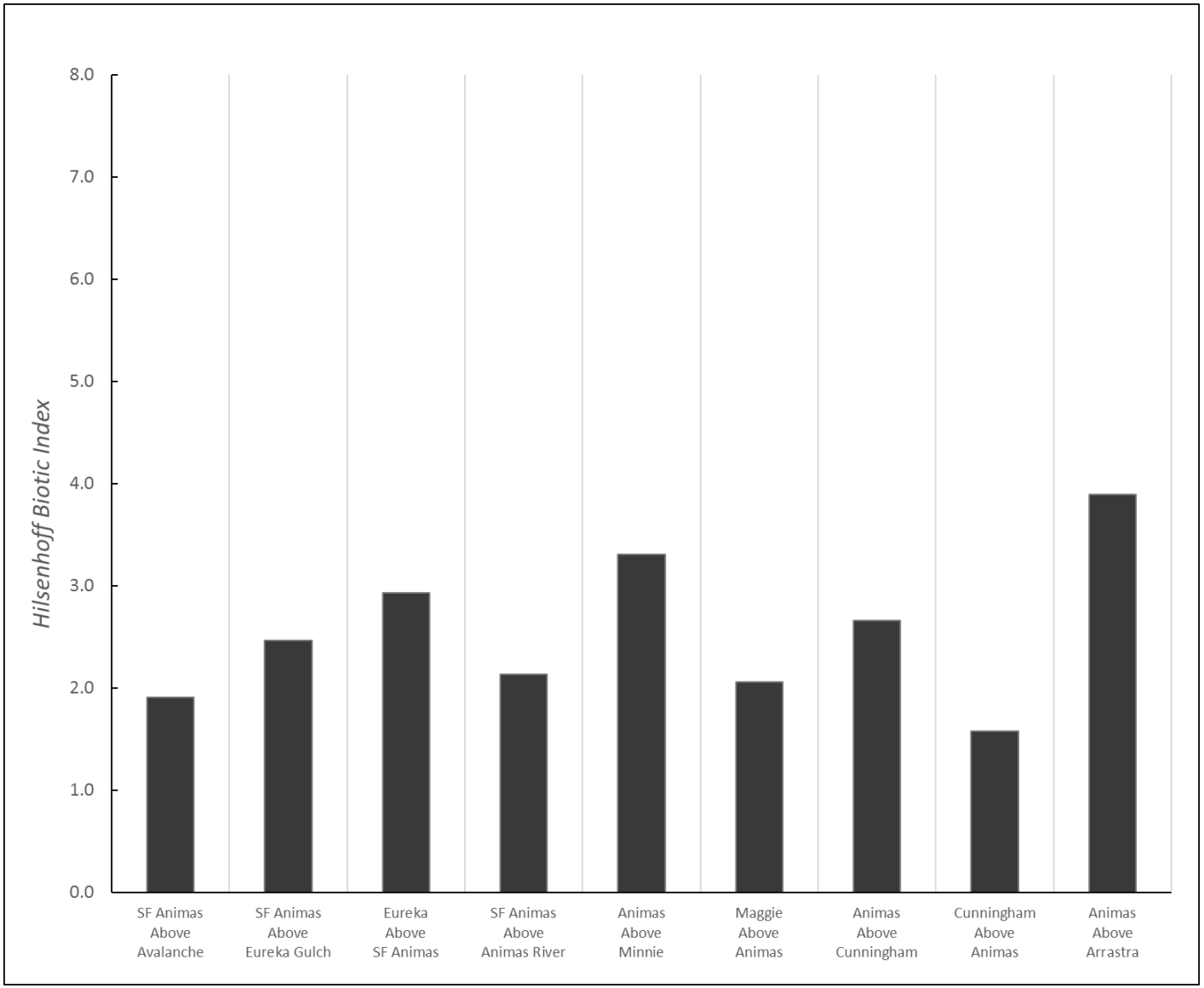


Figure 8: Hilsenhoff Biotic Index (HBI) – Upper Animas Group B

Note: see table 2 for an explanation of BMI metrics.

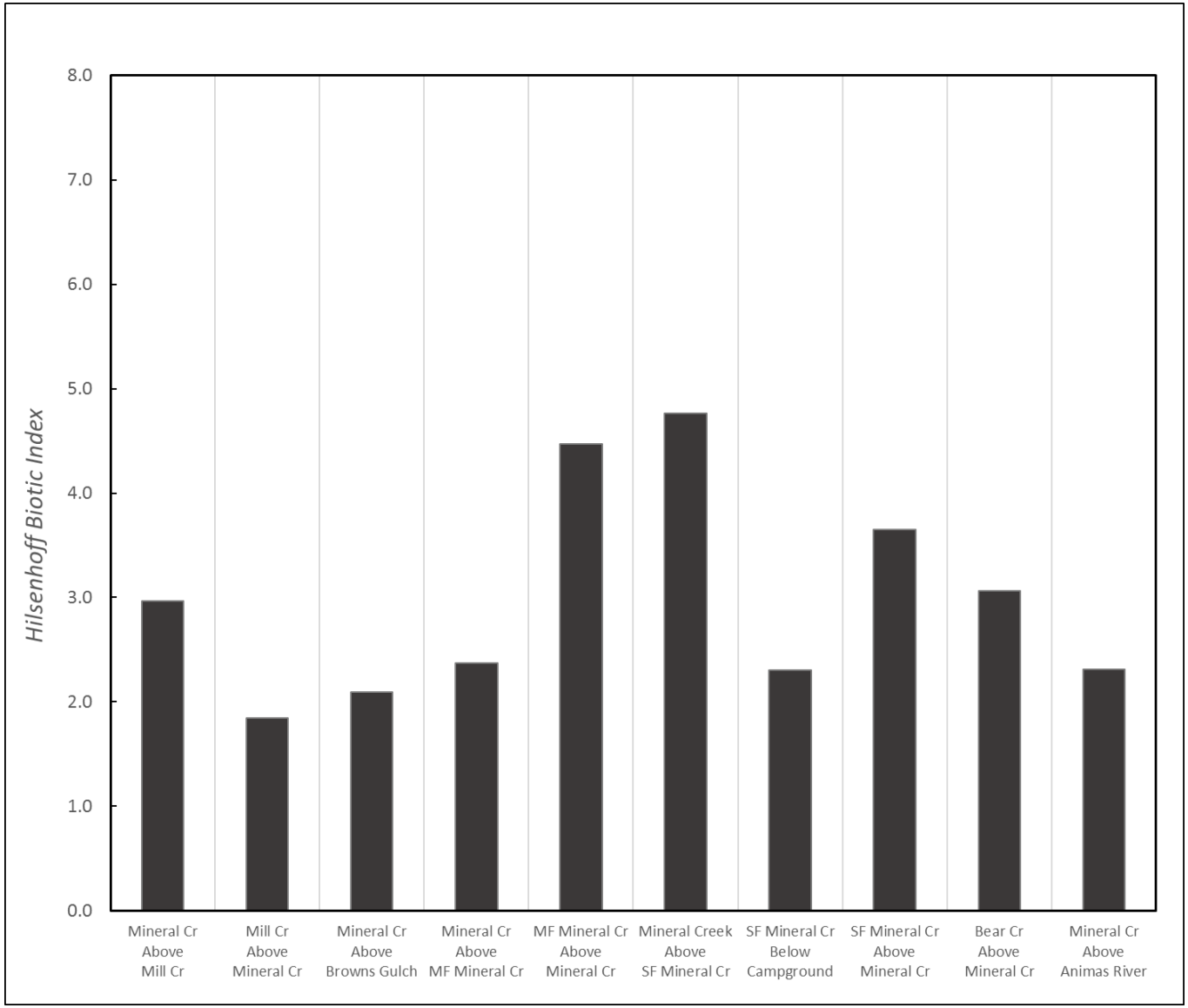


Figure 9: Hilsenhoff Biotic Index (HBI) – Mineral Creek Group

Note: see table 2 for an explanation of BMI metrics.

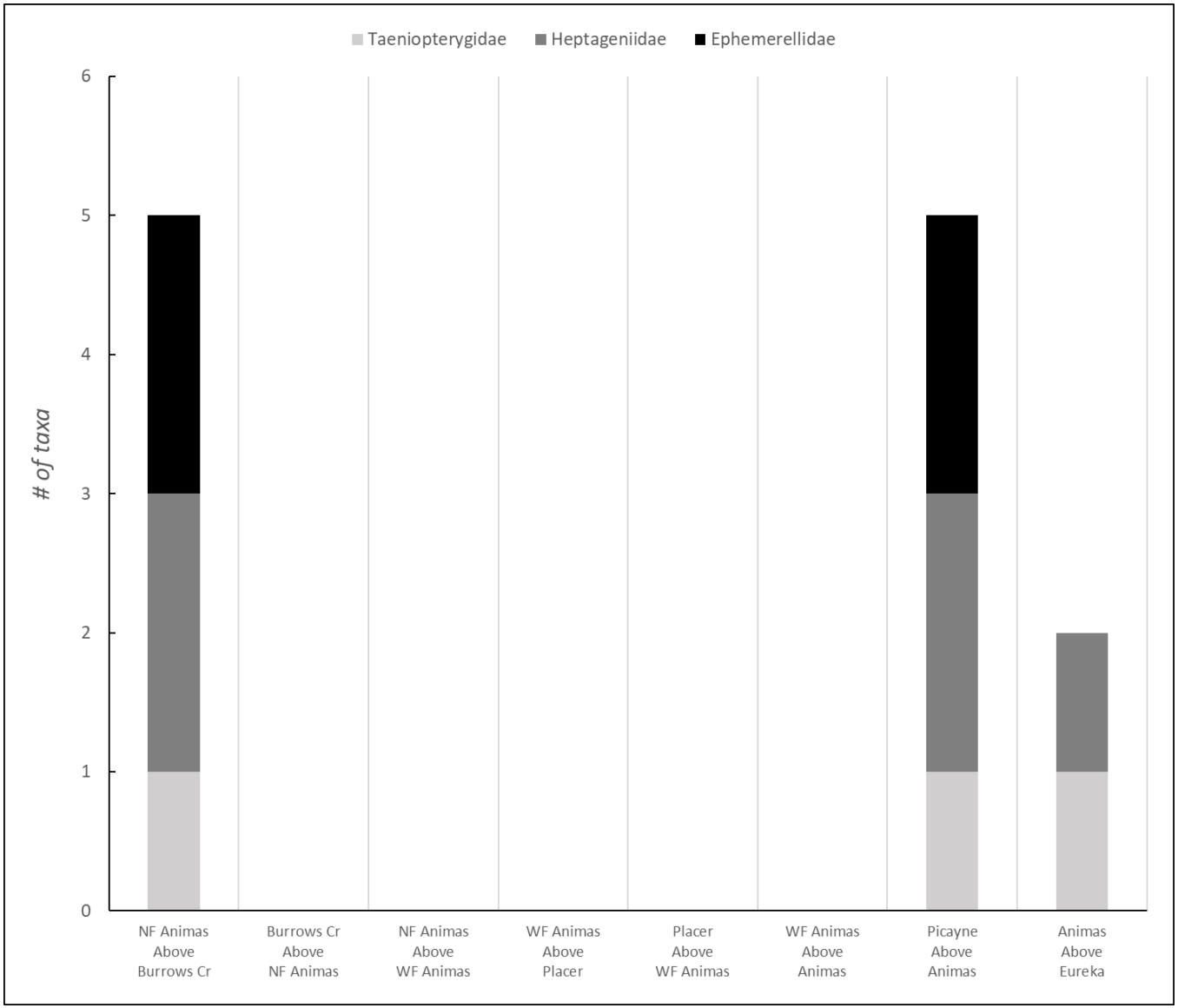


Figure 10: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Upper Animas Group A

Note: see table 2 for an explanation of BMI metrics.

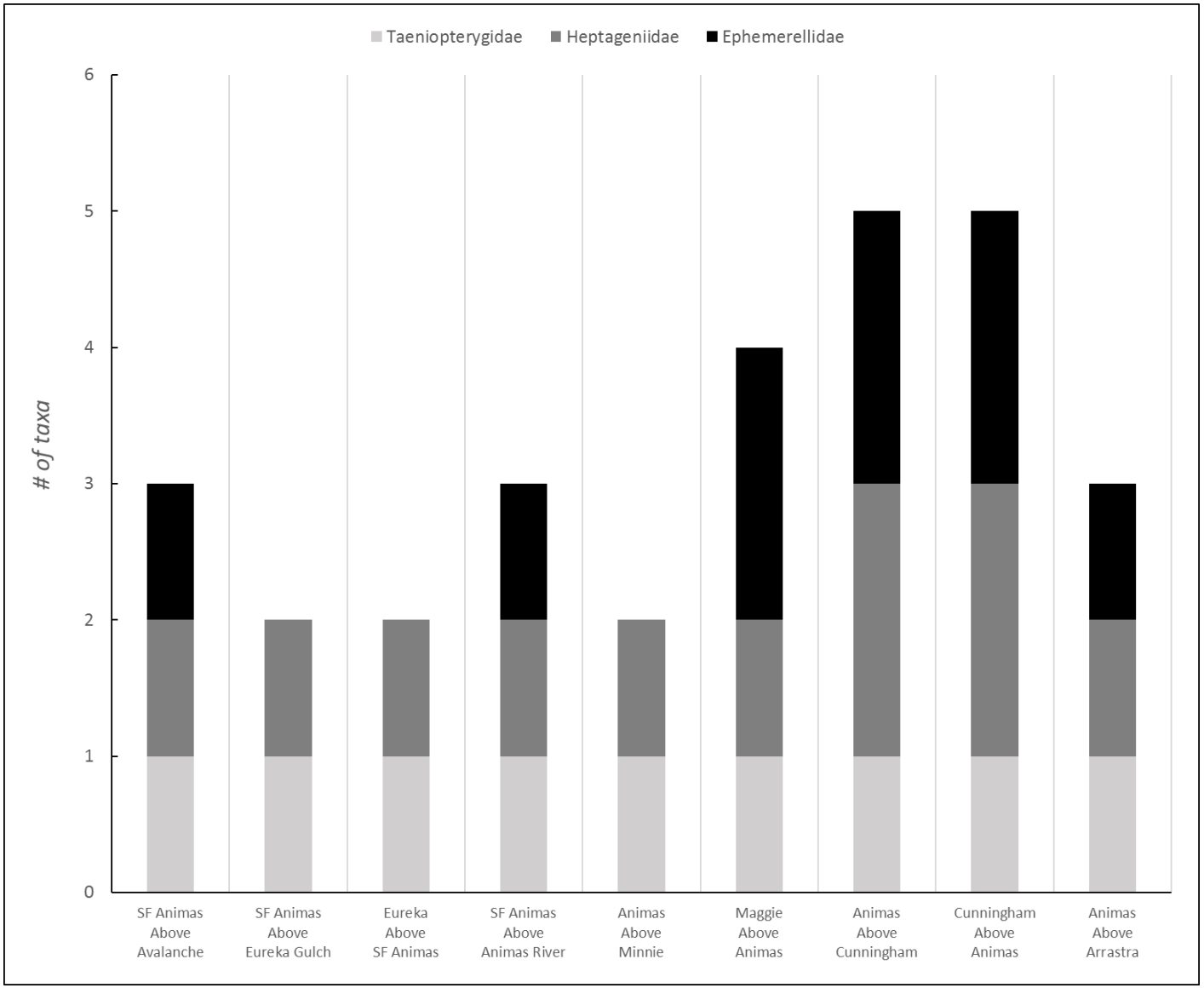


Figure 11: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Upper Animas Group B
Note: see table 2 for an explanation of BMI metrics.

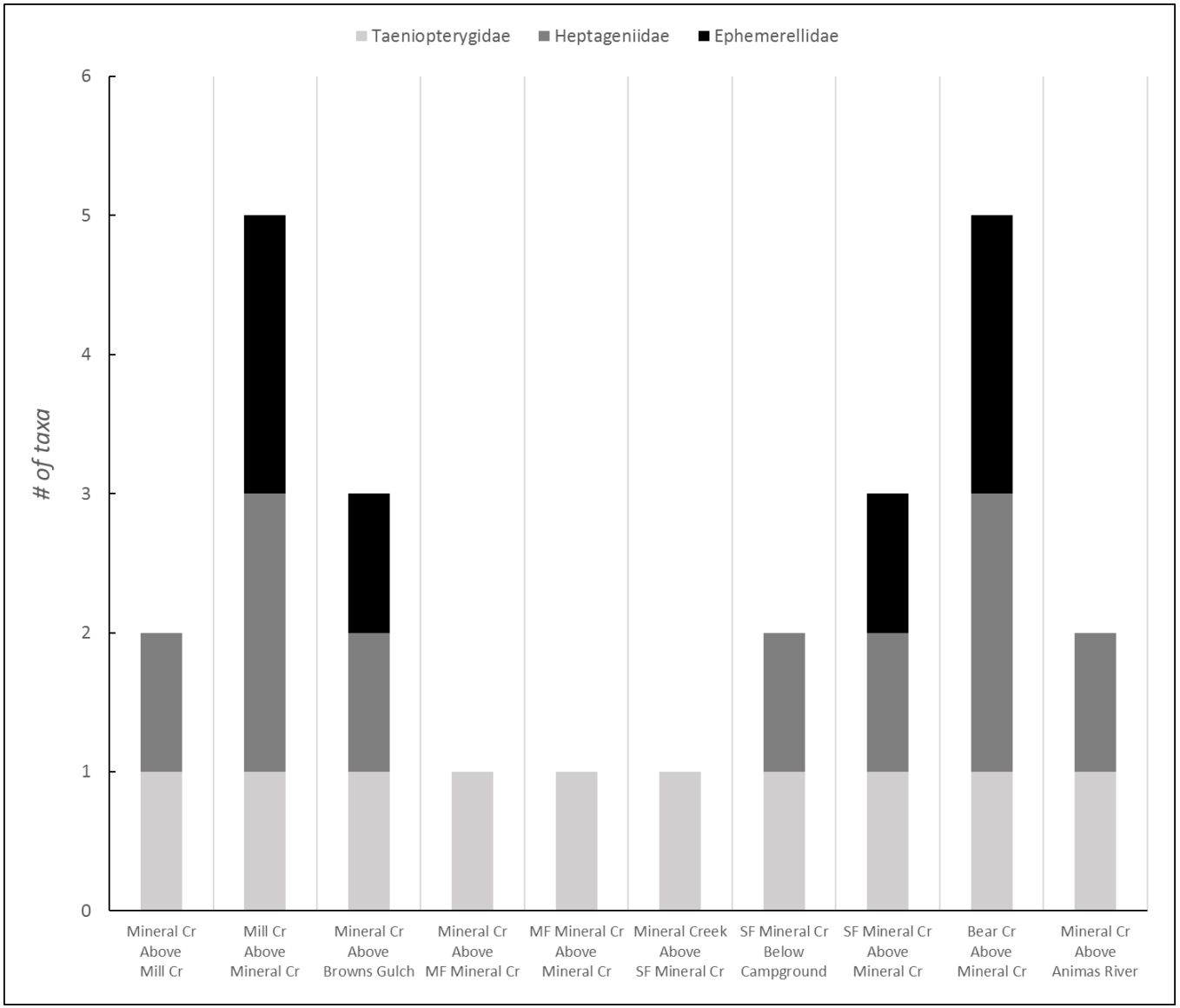


Figure 12: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Mineral Creek Group
Note: see table 2 for an explanation of BMI metrics.

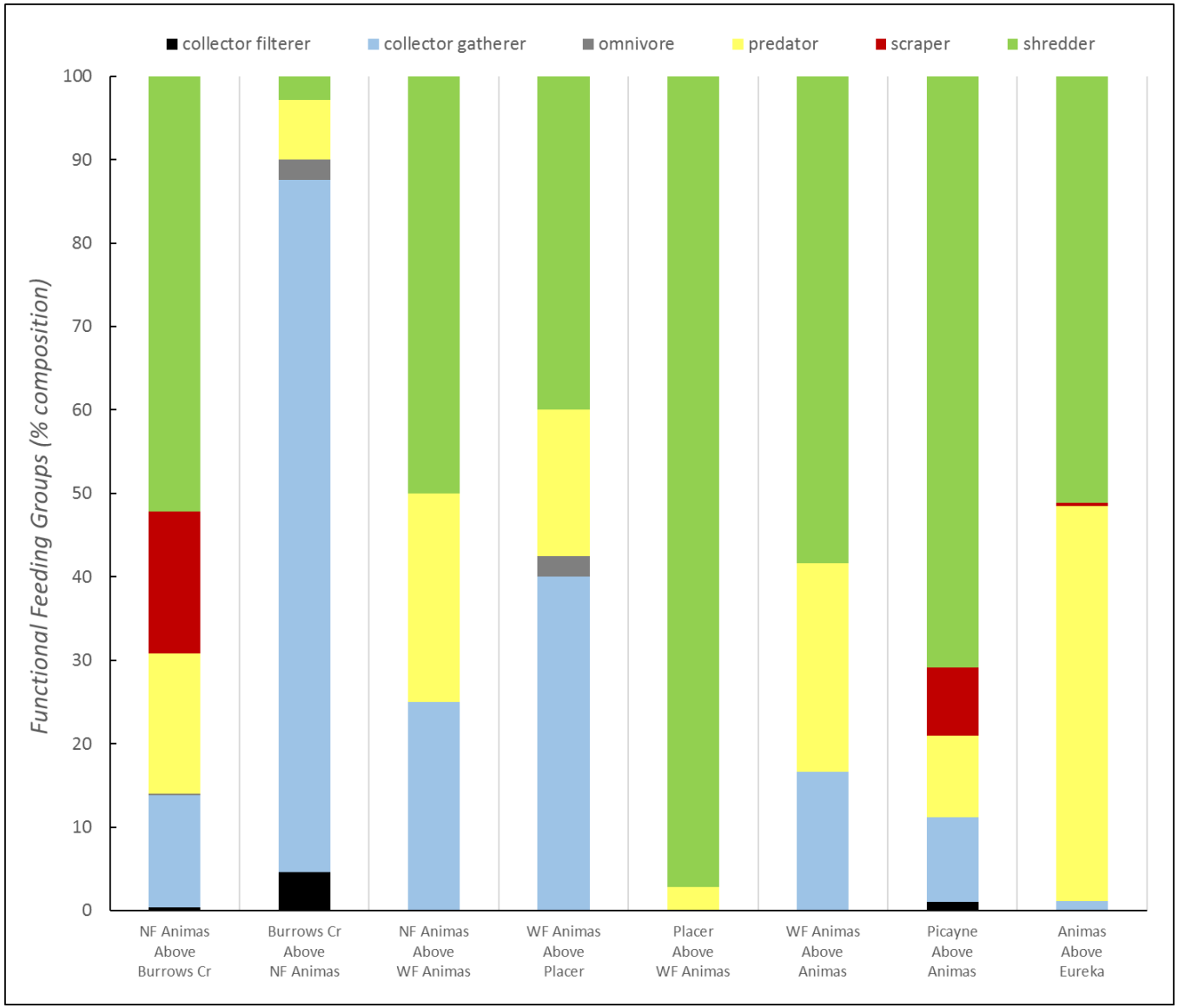


Figure 13: Relative abundance of functional feeding groups – Upper Animas Group A

Note: see table 2 for an explanation of BMI metrics.

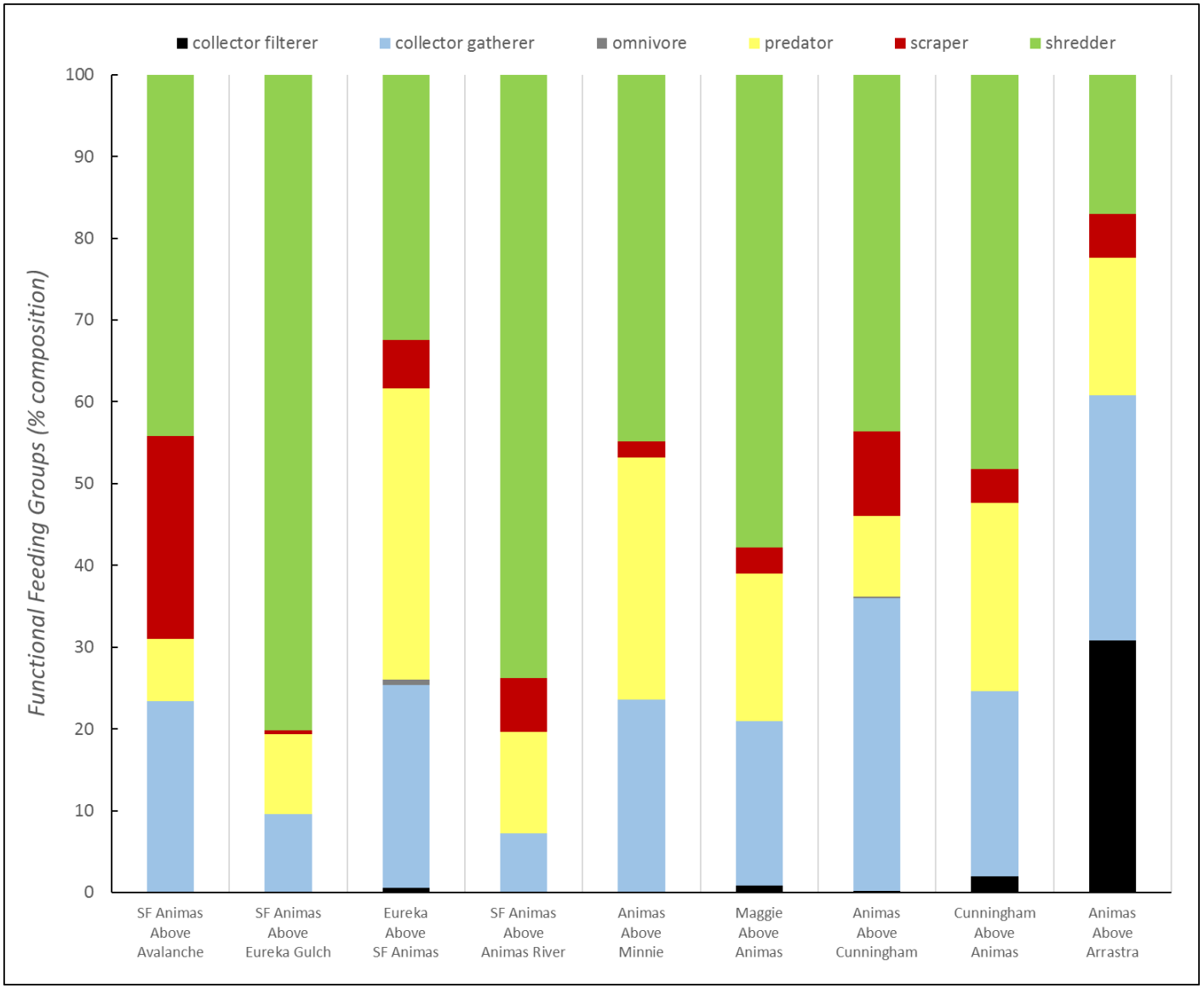


Figure 14: Relative abundance of functional feeding groups – Upper Animas Group B

Note: see table 2 for an explanation of BMI metrics.

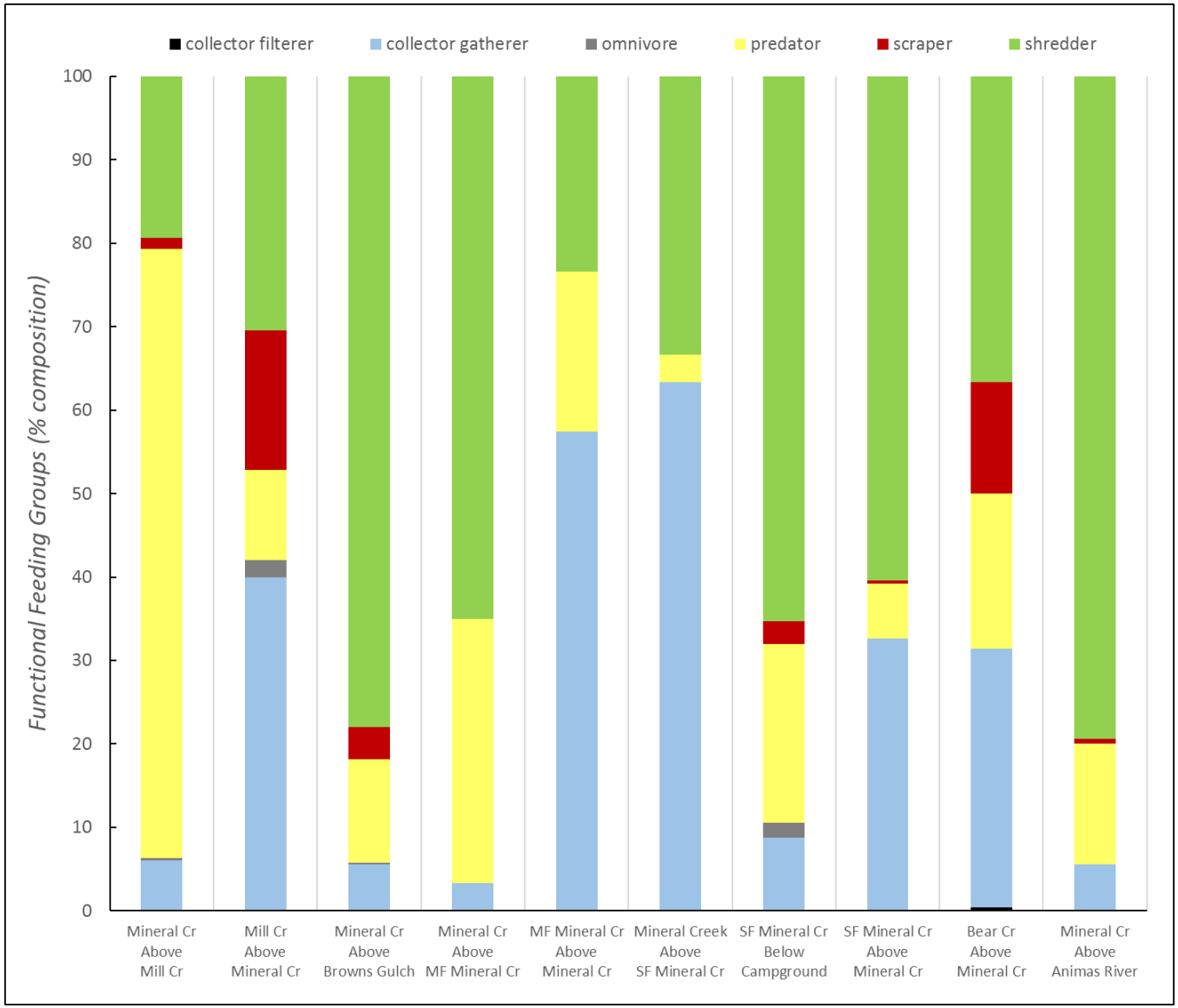


Figure 15: Relative abundance of functional feeding groups – Mineral Creek Group

Note: see table 2 for an explanation of BMI metrics.

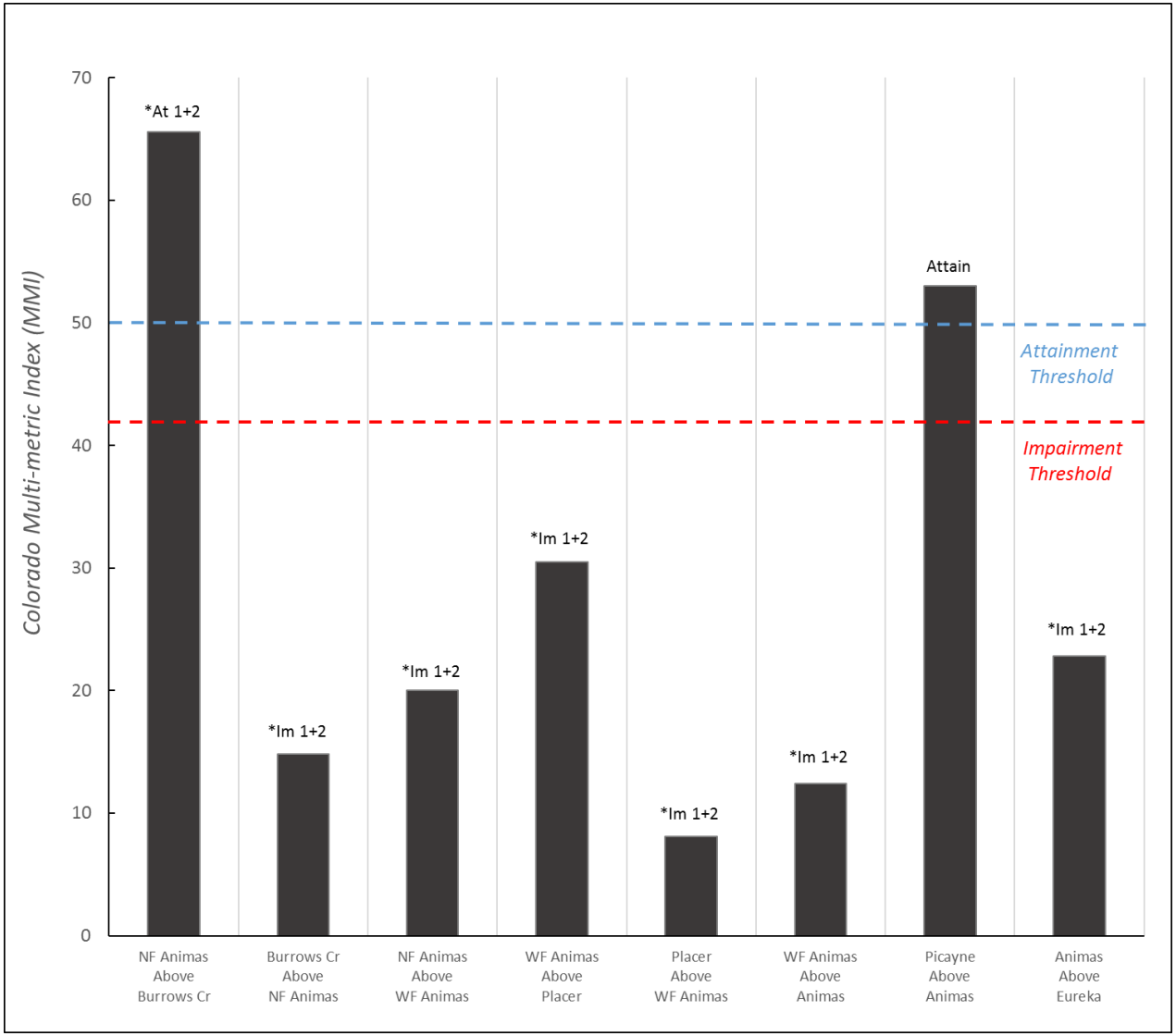


Figure 16: Multi-metric Index (MMI) – Upper Animas Group A

*Note: **Attain** = attainment of aquatic life use designation; **Impaired** = impairment of aquatic life use designation; ***At 1+2** = No aquatic life use designation, but theoretically would be in attainment of class 1 and class 2; ***At 2, Im1** = No aquatic life use designation, but theoretically would be in attainment of class 2, but not class 1; ***Im 1+2** = No aquatic life use designation, but theoretically would be in impairment of class 1 and class 2.*

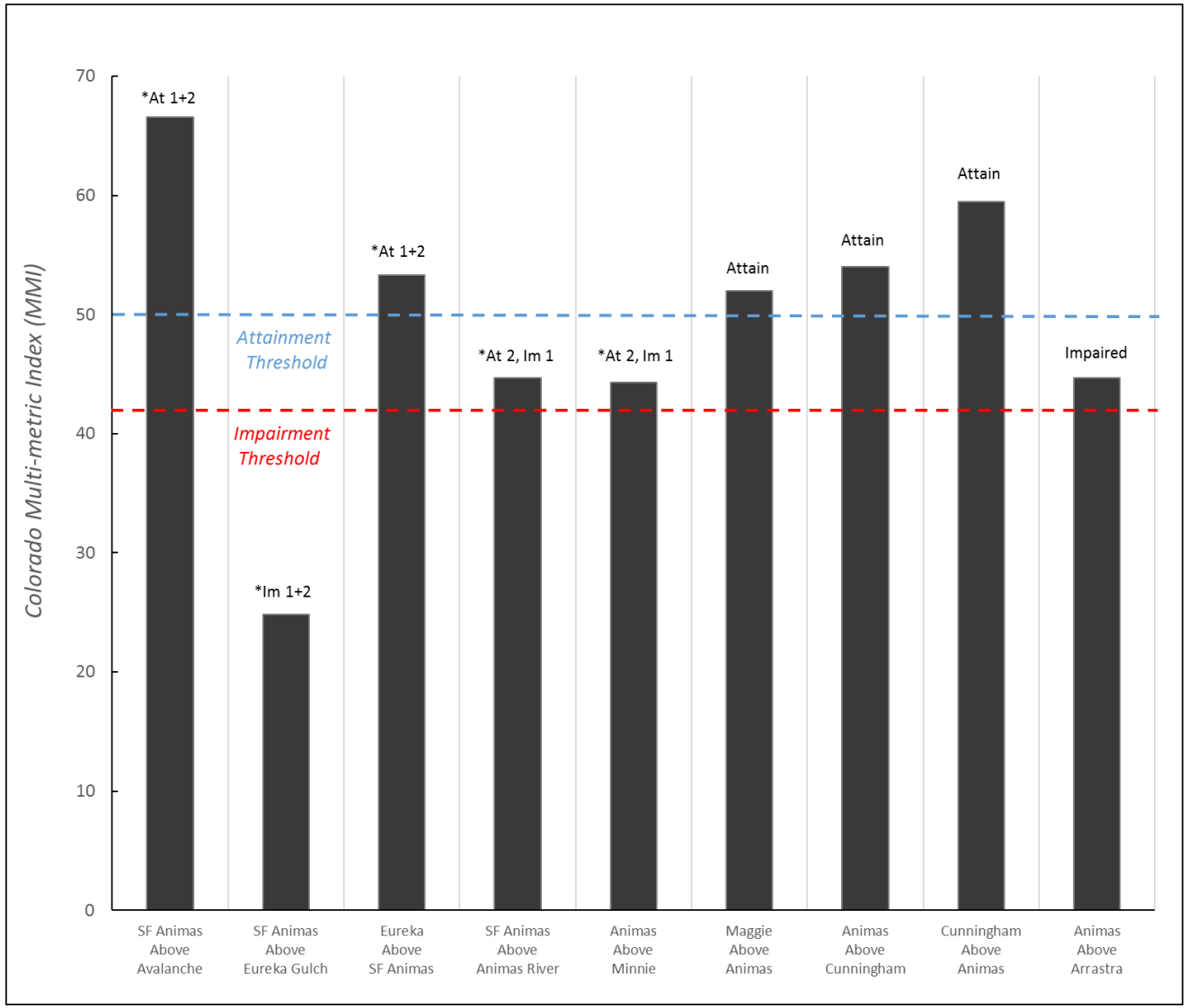


Figure 17: Multi-metric Index (MMI) – Upper Animas Group B

*Note: **Attain** = attainment of aquatic life use designation; **Impaired** = impairment of aquatic life use designation; ***At 1+2** = No aquatic life use designation, but theoretically would be in attainment of class 1 and class 2; ***At 2, Im1** = No aquatic life use designation, but theoretically would be in attainment of class 2, but not class 1; ***Im 1+2** = No aquatic life use designation, but theoretically would be in impairment of class 1 and class 2.*

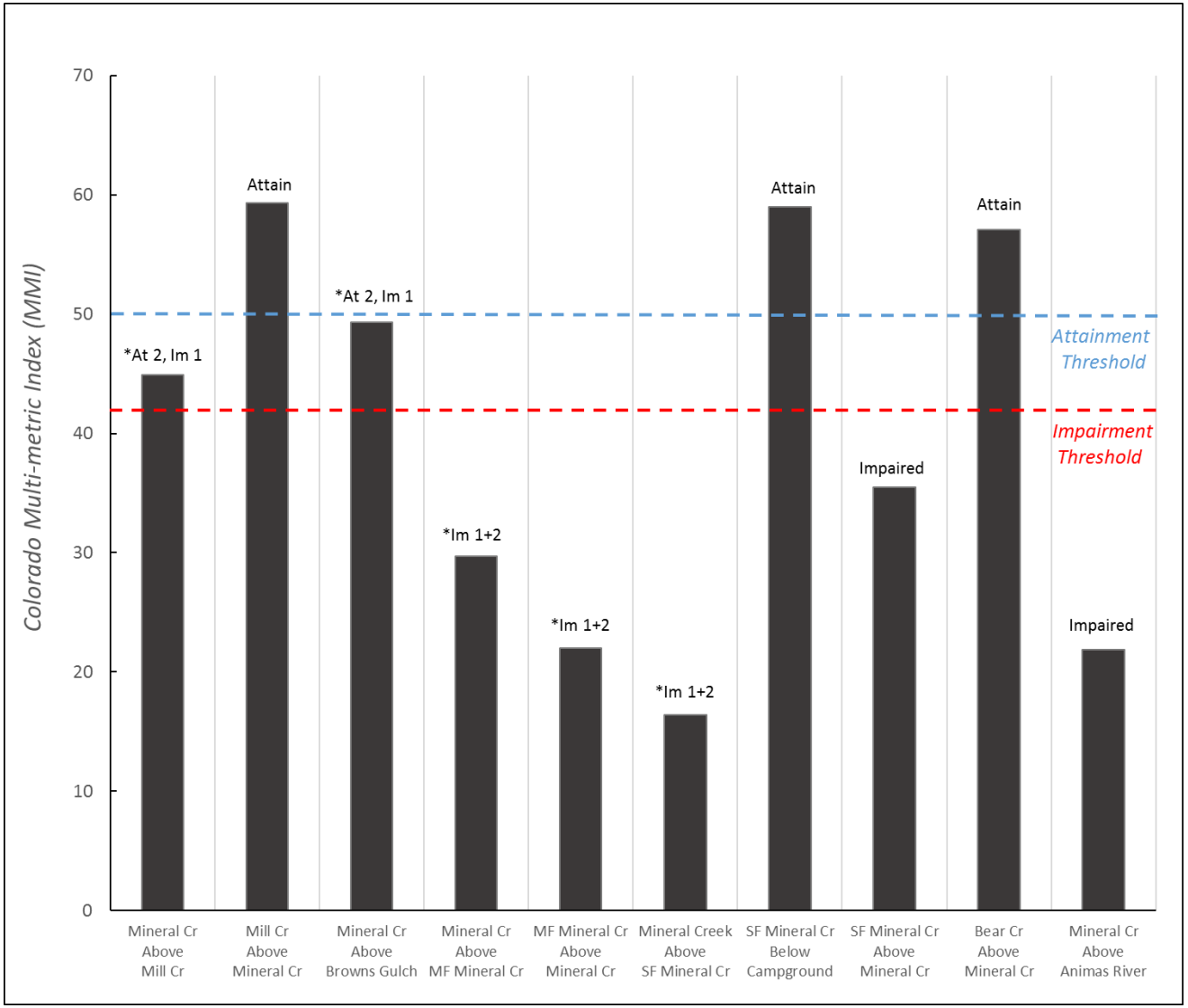


Figure 18: Multi-metric Index (MMI) – Mineral Creek Group

*Note: **Attain** = attainment of aquatic life use designation; **Impaired** = impairment of aquatic life use designation; ***At 1+2** = No aquatic life use designation, but theoretically would be in attainment of class 1 and class 2; ***At 2, Im1** = No aquatic life use designation, but theoretically would be in attainment of class 2, but not class 1; ***Im 1+2** = No aquatic life use designation, but theoretically would be in impairment of class 1 and class 2.*

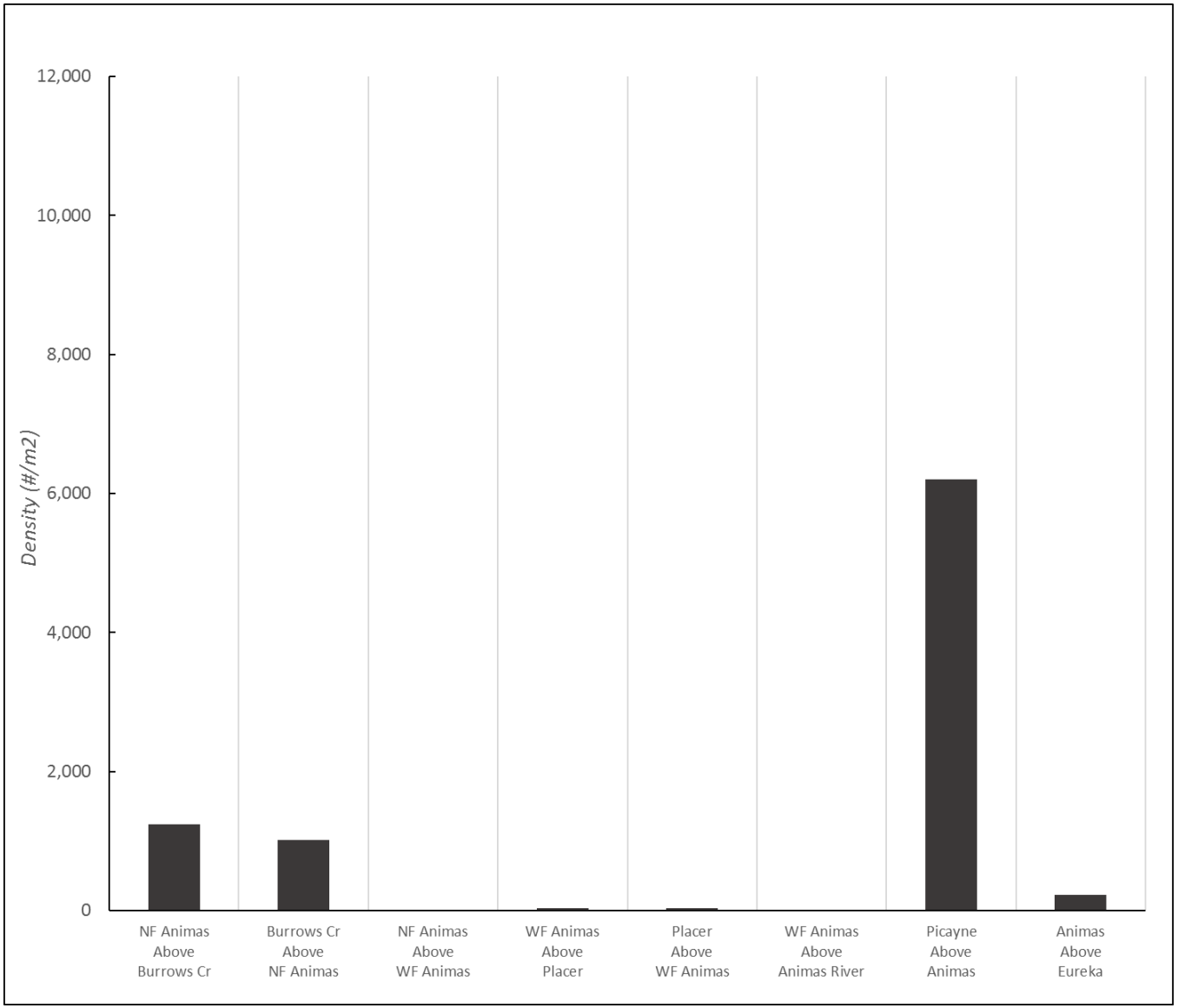


Figure 19: Density (#/m²) – Upper Animas Group A

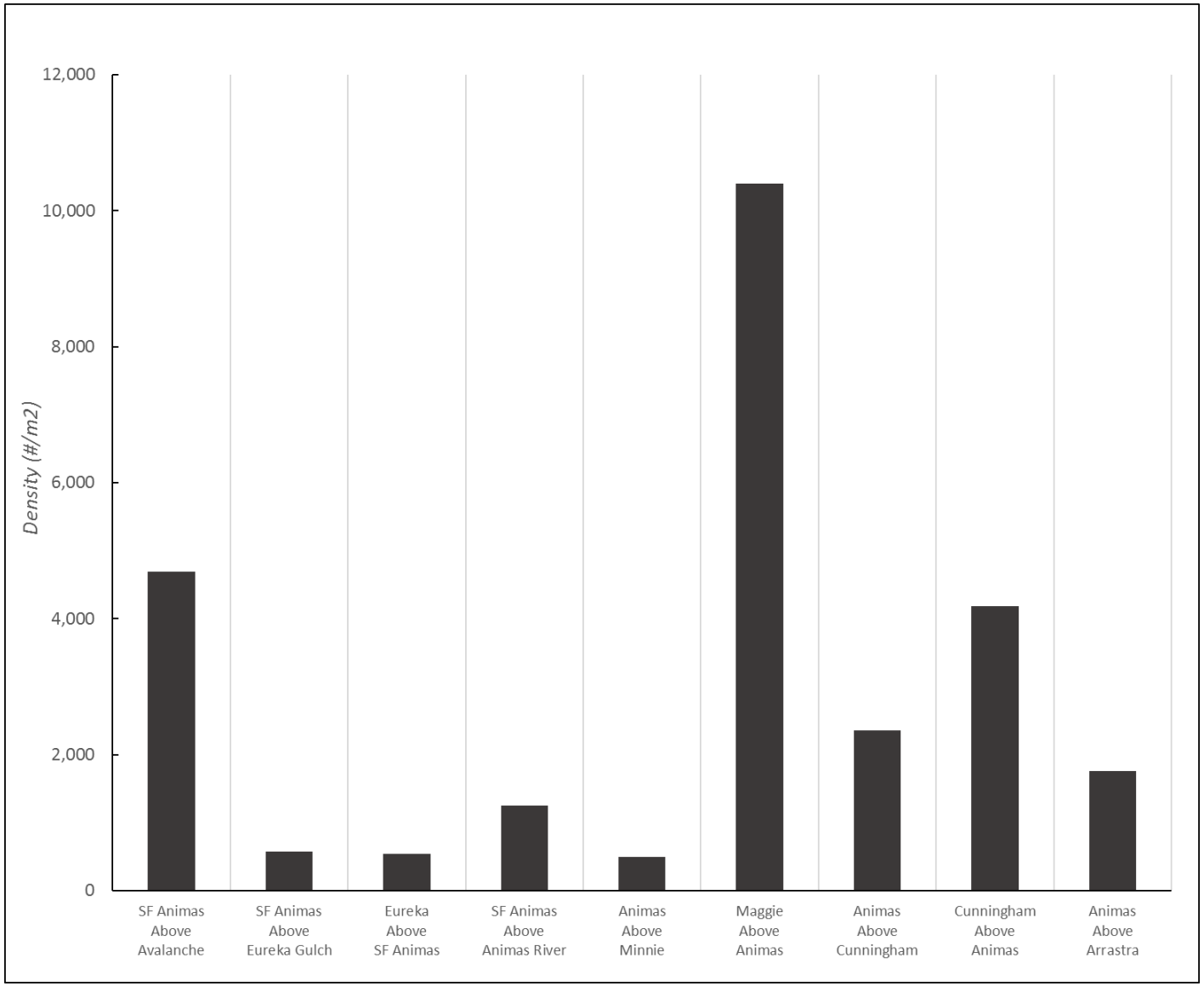


Figure 20: Density (#/m²) – Upper Animas Group B

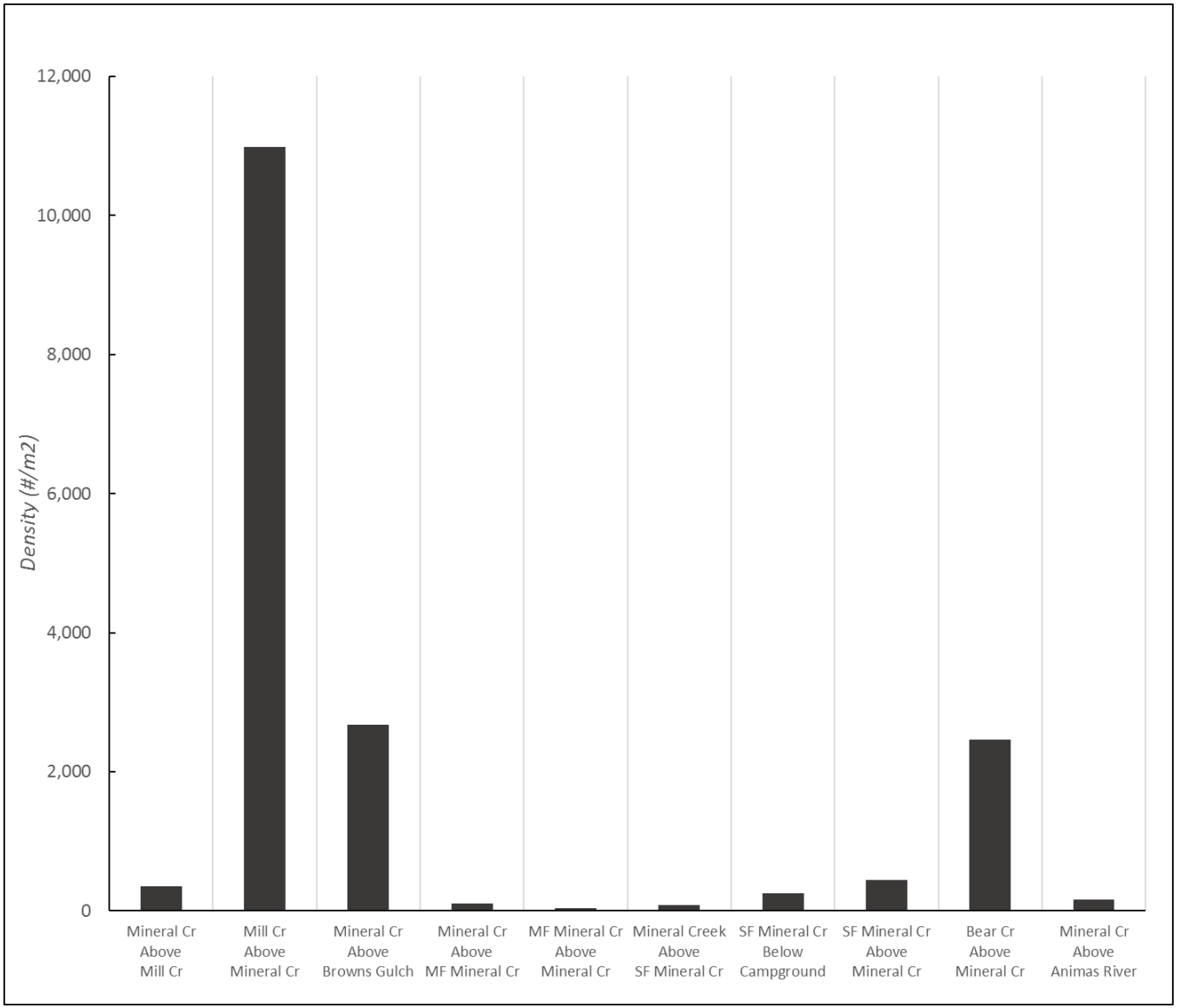


Figure 21: Density (#/m²) – Mineral Creek Group

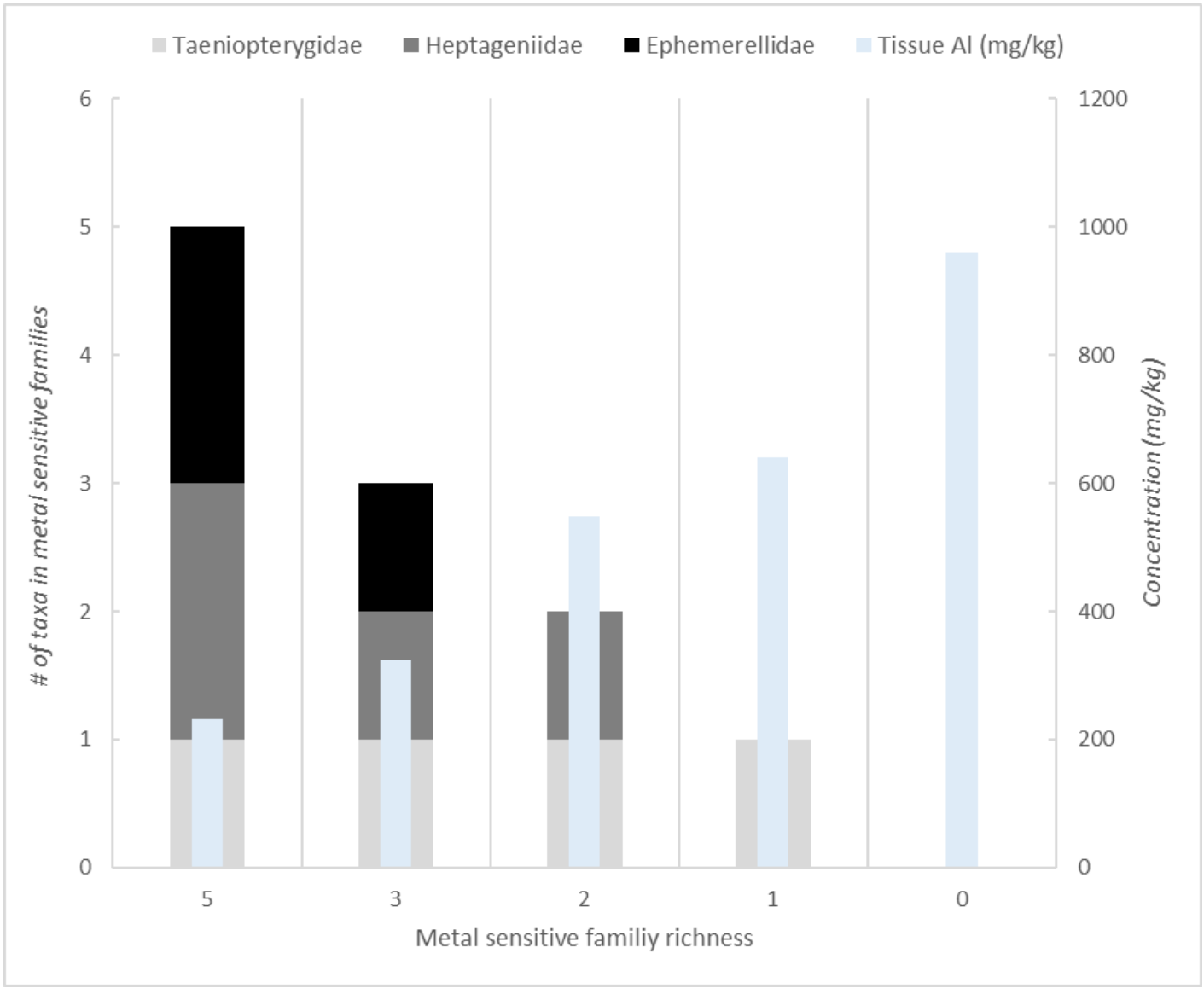


Figure 22: Concentration of aluminum in BMI tissue along a gradient of decreasing metal sensitive family richness

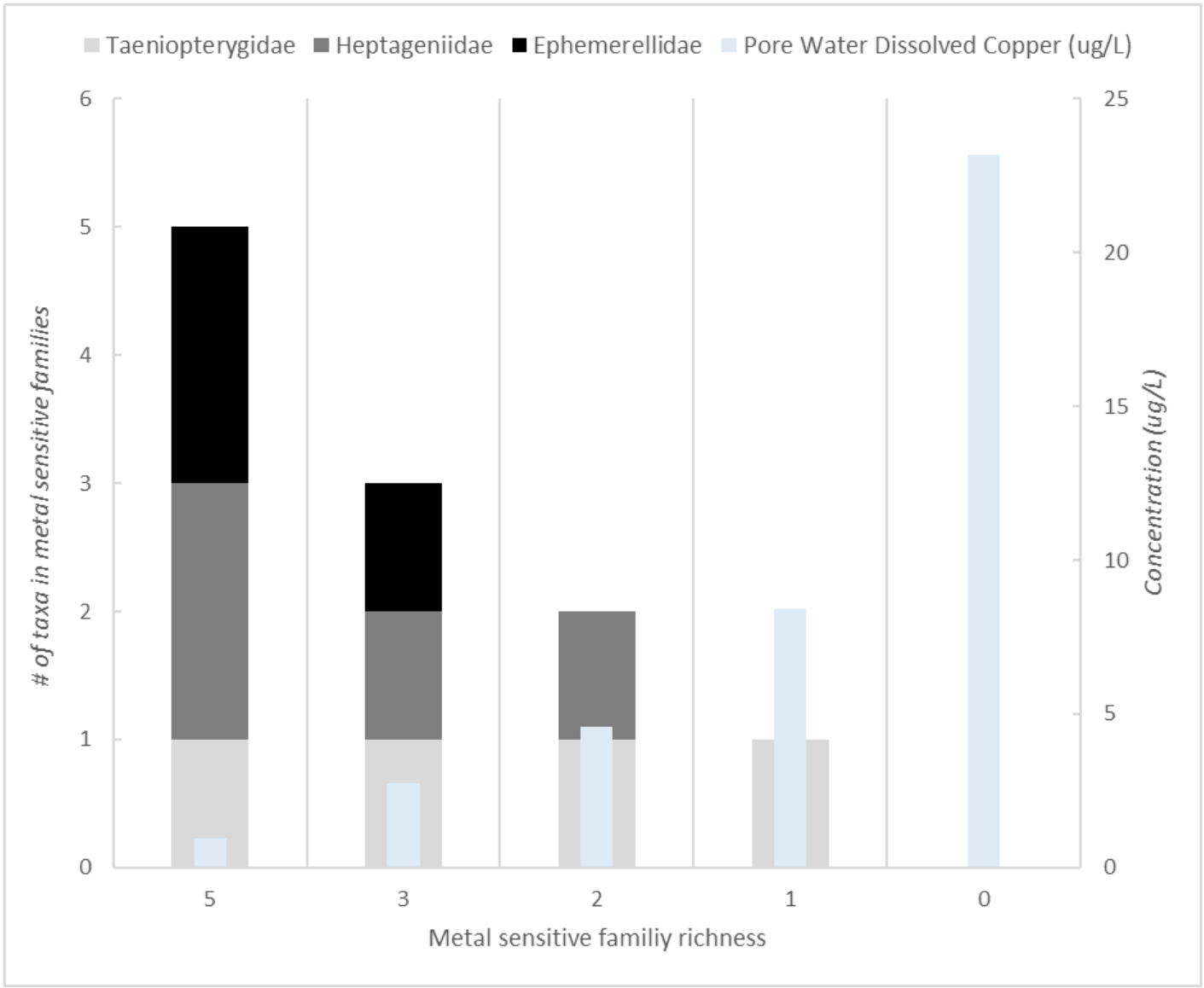


Figure 23: Concentration of dissolved copper in pore water along a gradient of decreasing metal sensitive family richness

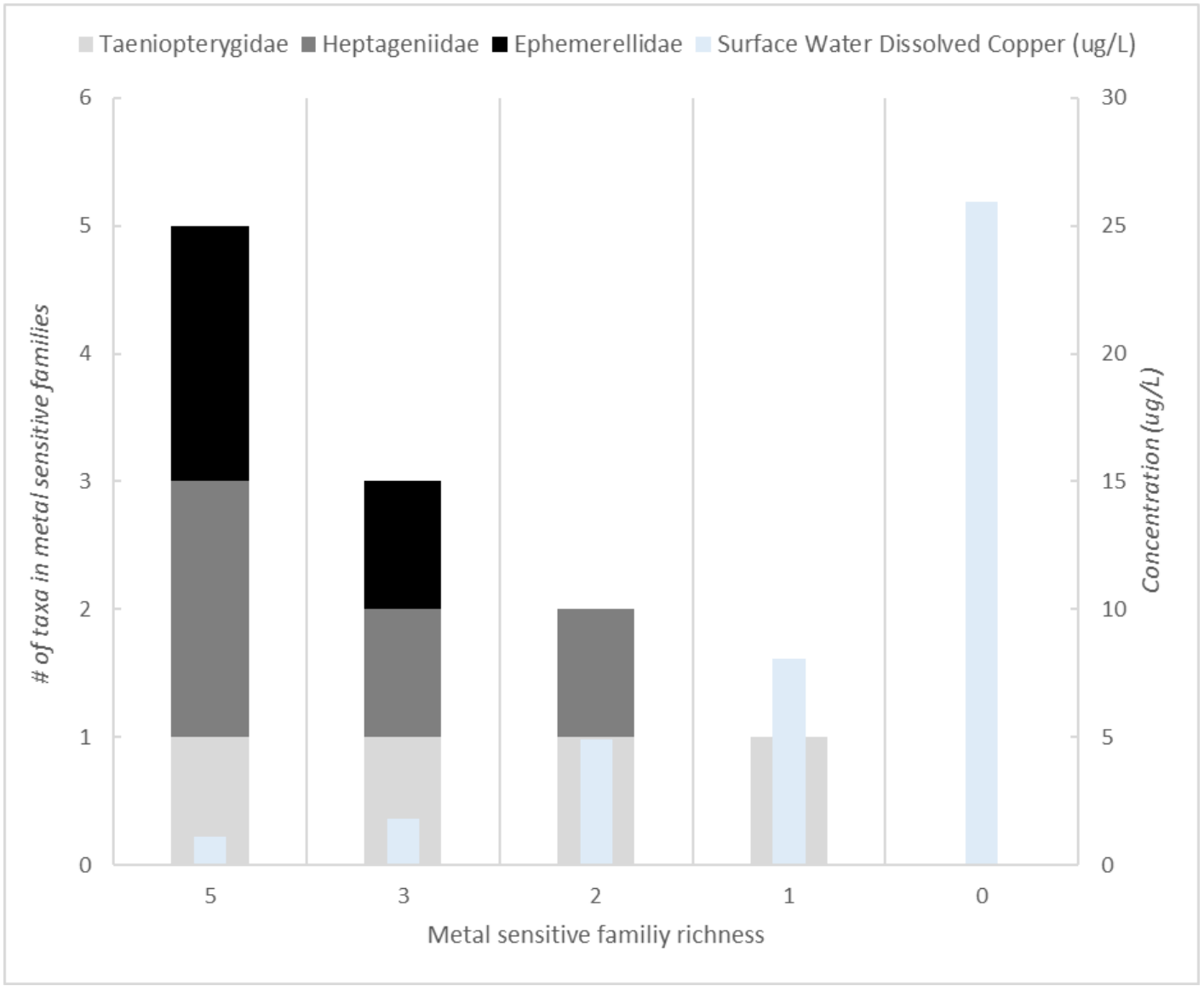


Figure 24: Concentration of dissolved copper in surface water along a gradient of decreasing metal sensitive family richness

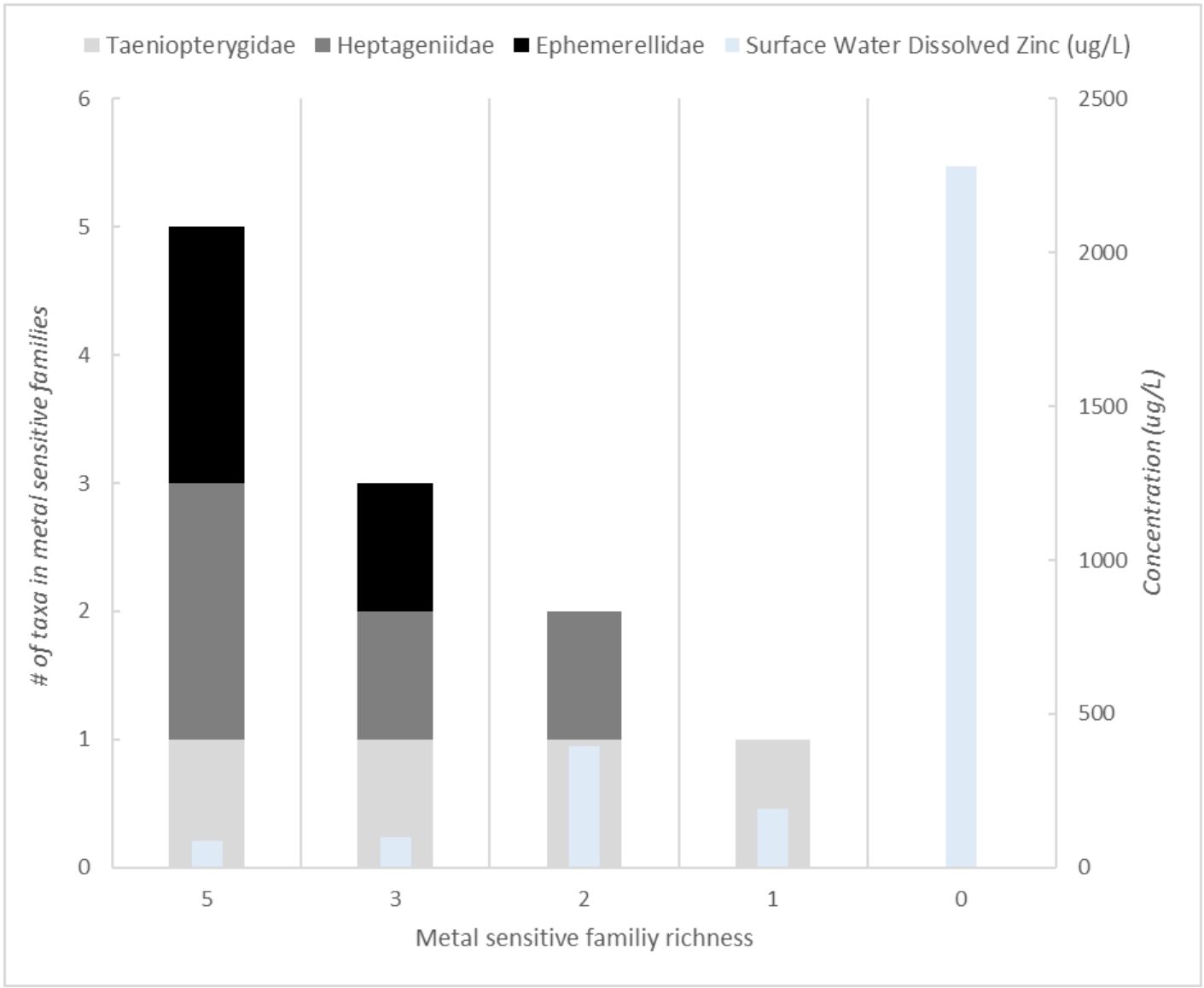


Figure 25: Concentration of dissolved zinc in surface water along a gradient of decreasing metal sensitive family richness

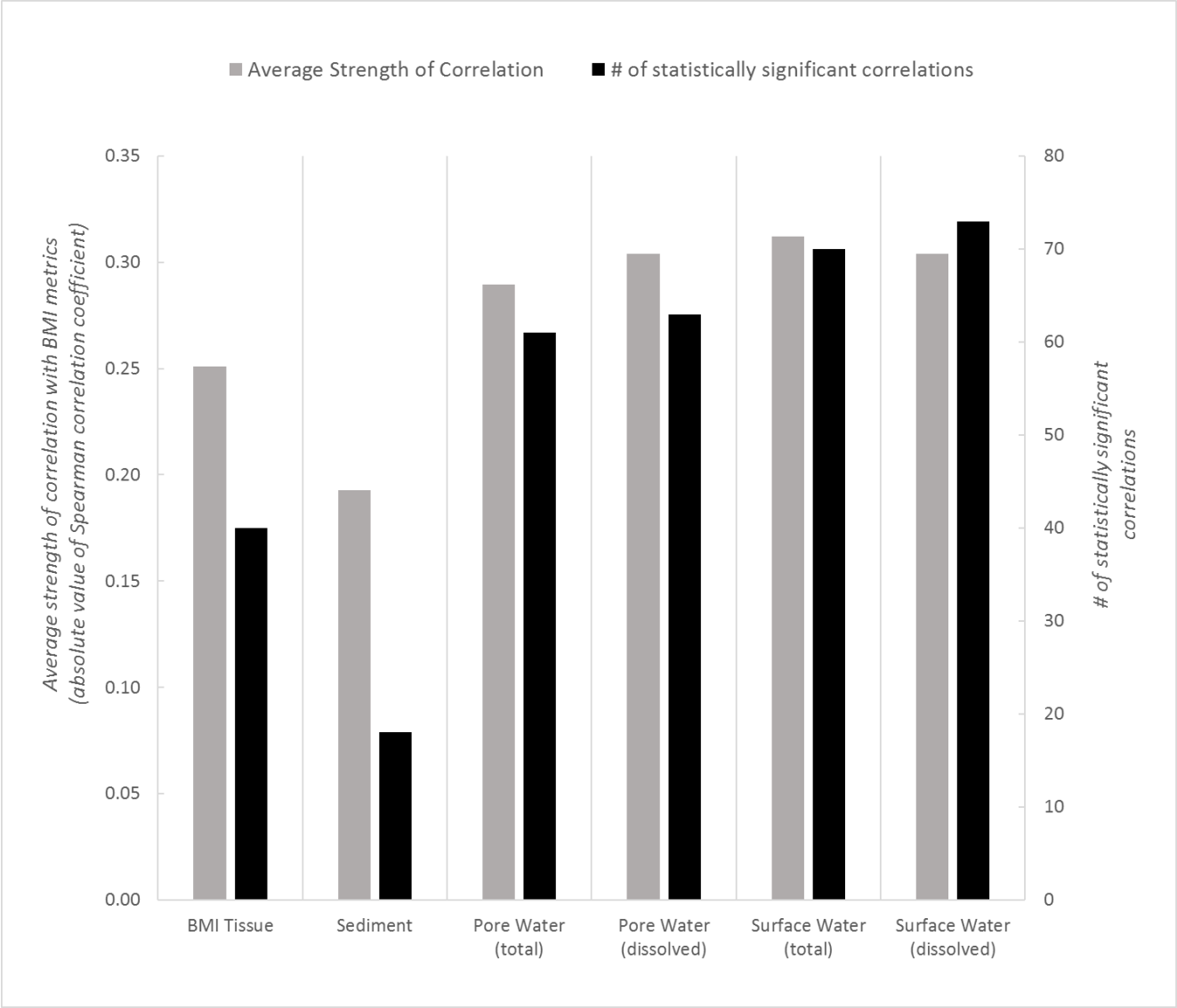


Figure 26: Correlations for each media between BMI metrics and metals and minerals

Note: Correlation analysis included all metals and minerals that were analyzed consistently across all media and sites (Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mg, Mn, Ni, Se, Ag, Tl, and Zn).

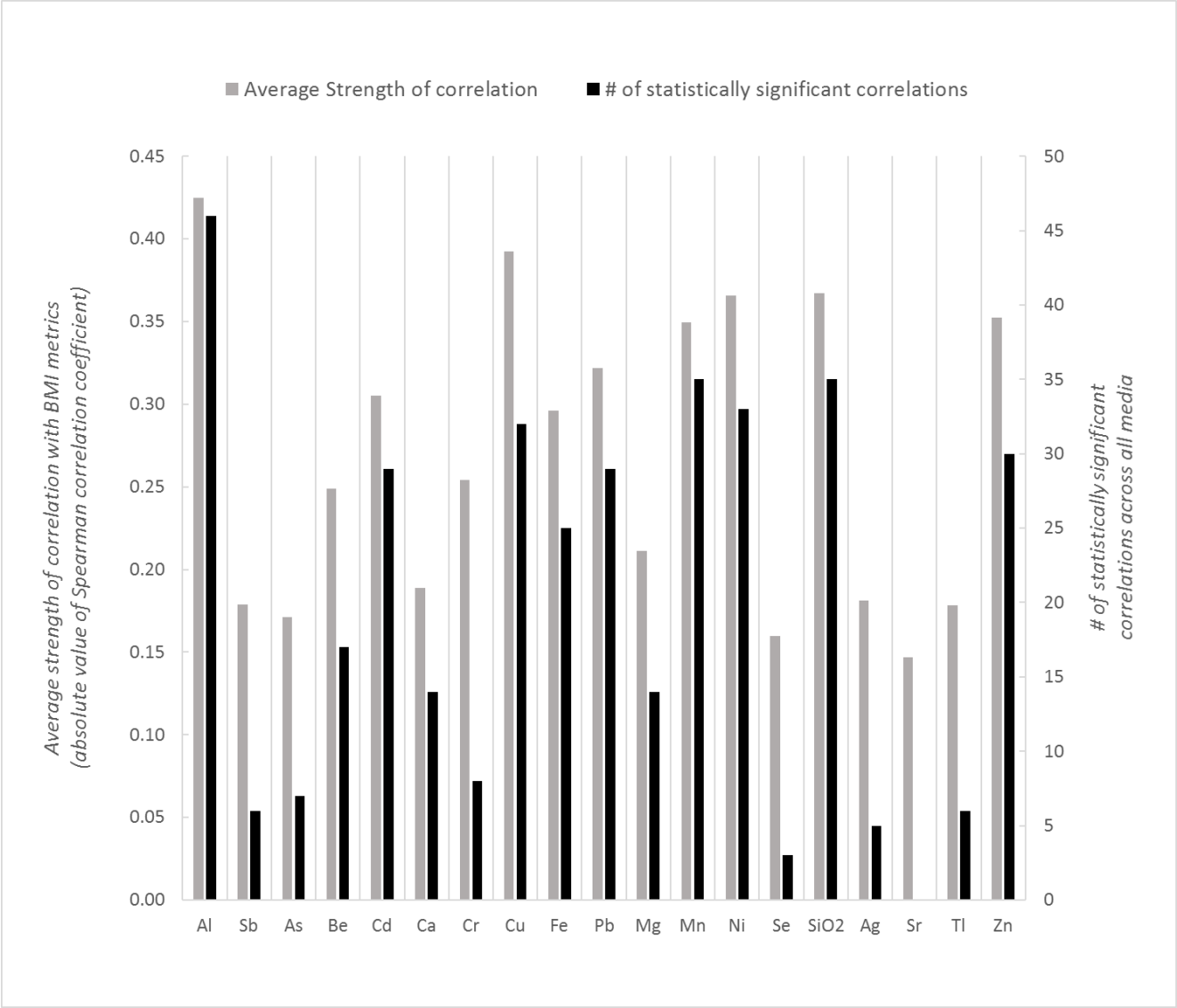


Figure 27: Correlations between BMI metrics and each metal and mineral across all media

Note: Correlation analysis included all metals and minerals that were analyzed consistently across all media and sites (Al, Sb, As, Be, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Ni, Se, Ag, Tl, and Zn). In addition, Sr and SiO_2 were included even though they were not analyzed for sediment.

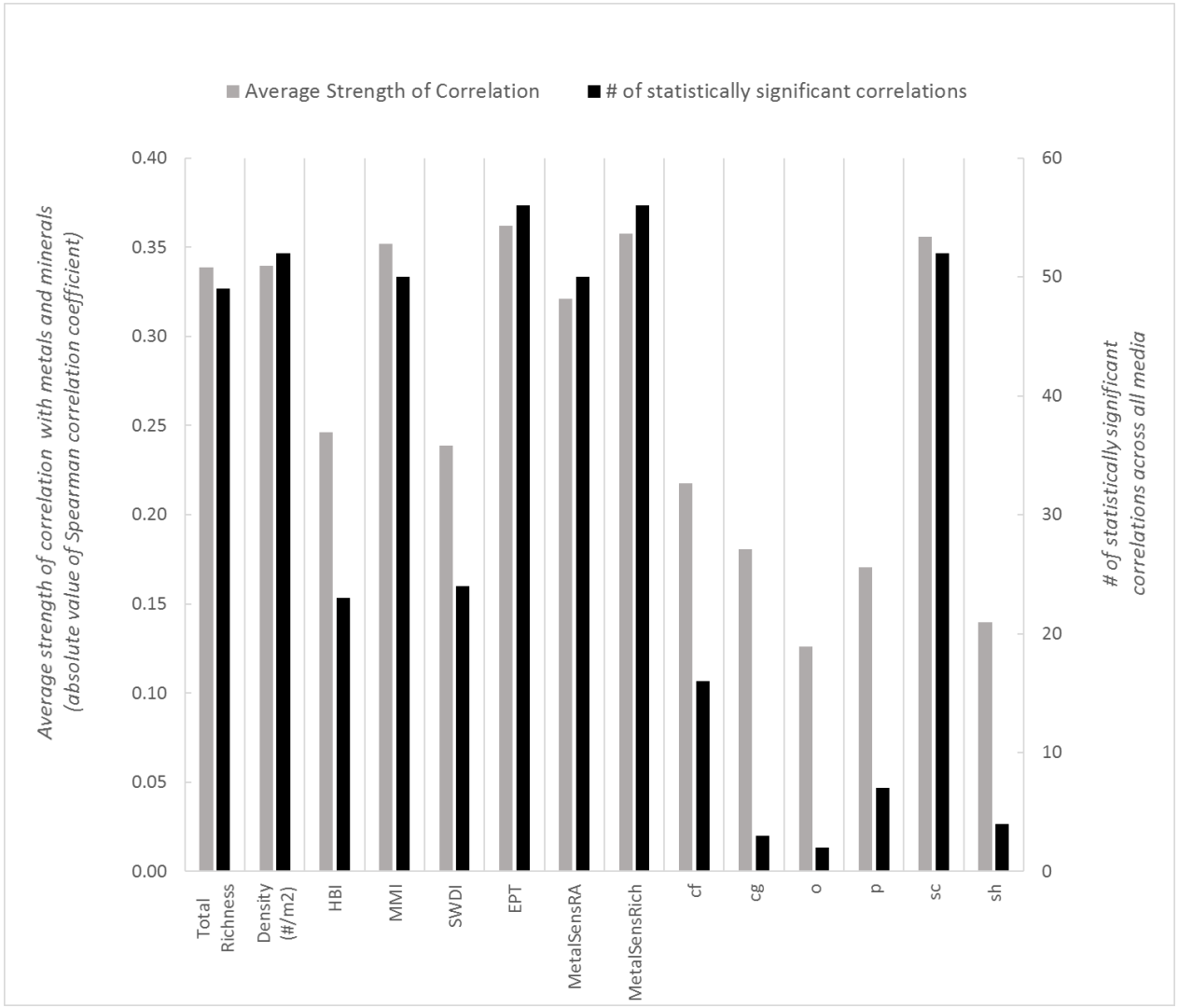


Figure 28: Correlations between BMI metrics and metals and minerals for each BMI metric

Note: See table 2 for explanation of BMI metrics. MetalSensRA = relative abundance of Ephemerellidae, Heptageniidae, and Taeniopterygidae familes; MetalSensRich = richness of Ephemerellidae, Heptageniidae, and Taeniopterygidae families. Functional Feeding Groups include collector-filterers (cf), collector-gatherers (cg), omnivores (o), predators (p), scrapers (sc), and shredders (sh).

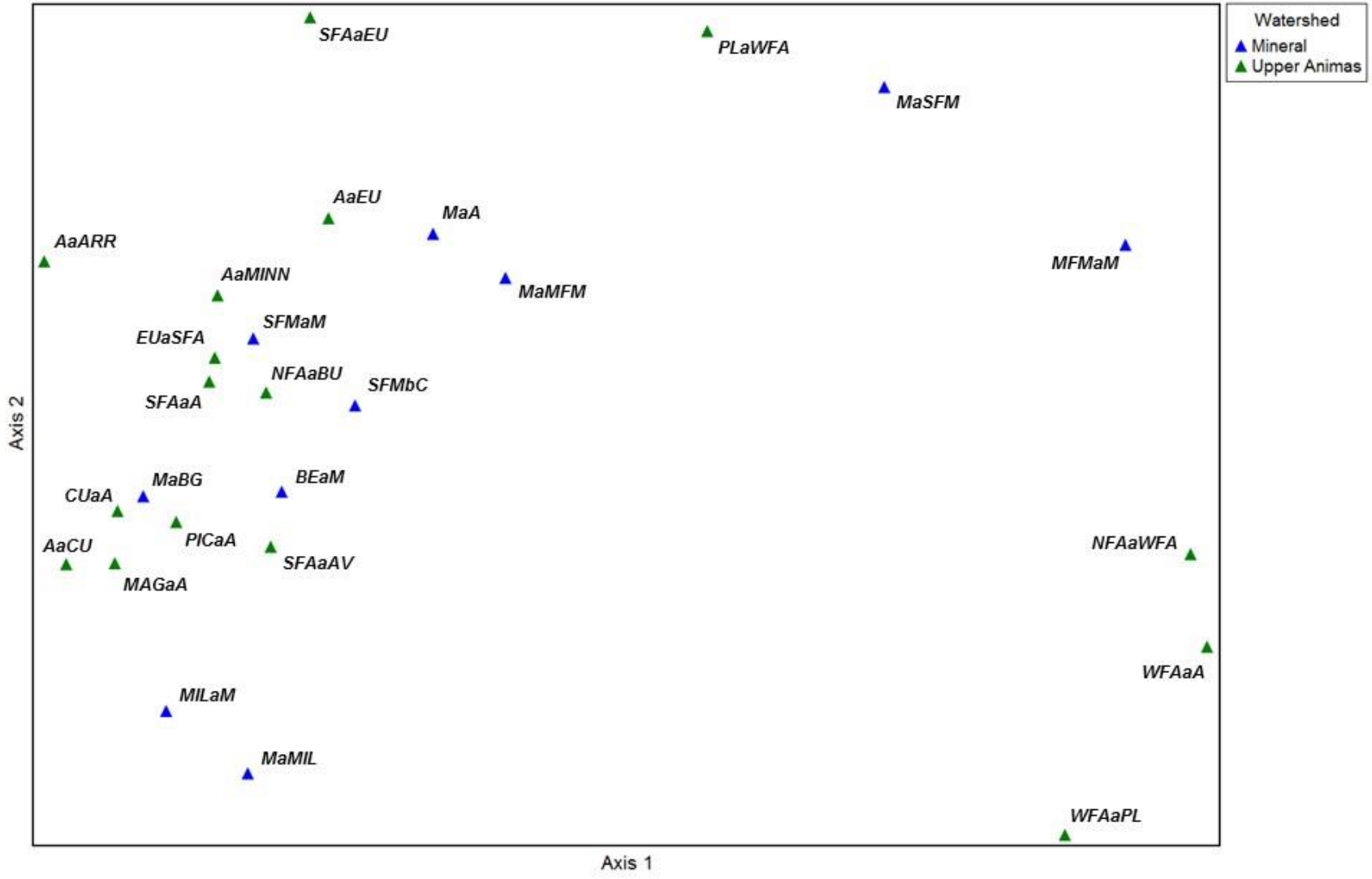


Figure 29: NMS ordination. Sites grouped by watershed (Animas River, Mineral Cr). See Table 13 for ordination details

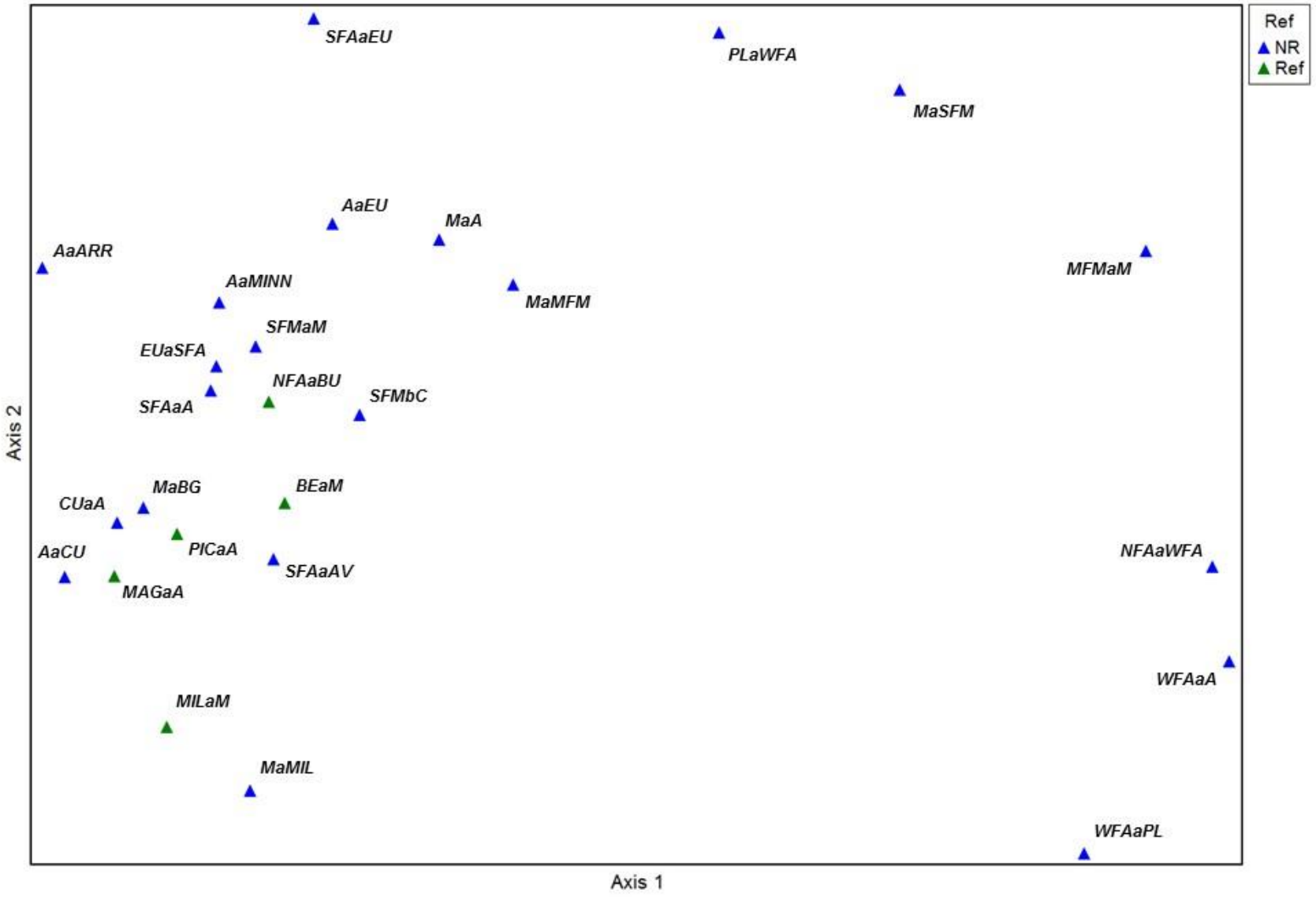


Figure 30: NMS ordination. Sites grouped by reference (Ref) and non-reference (NR). See Table 13 for ordination details

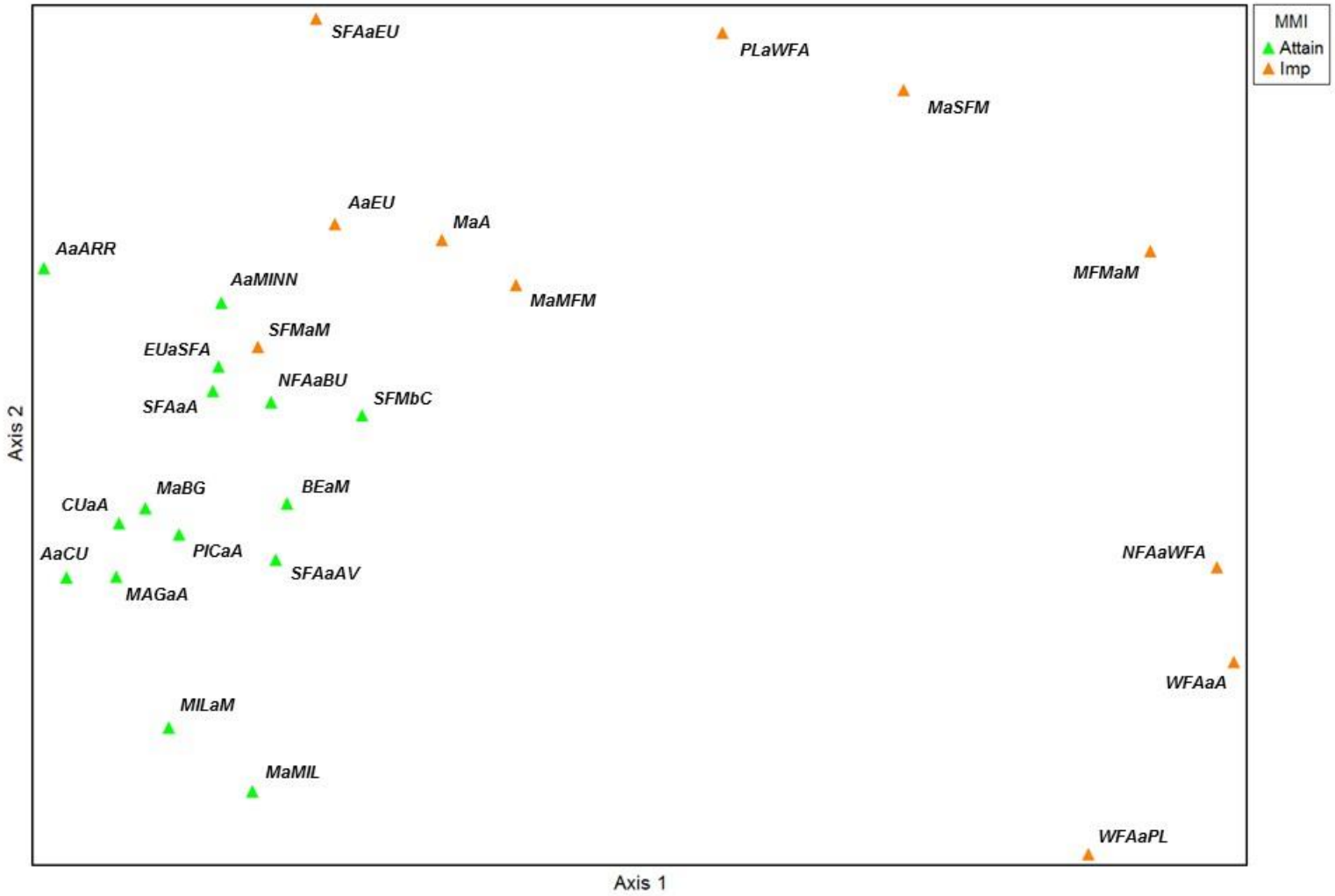


Figure 31: NMS ordination. Sites grouped by aquatic life use attainment (Attain) and impairment (Imp) of class two waters based on MMI scores. The assessment of attainment/impairment is for illustration only since it is based on a theoretical assumption that all sites are designated as having a class two aquatic life use designation. See Table 13 for ordination details

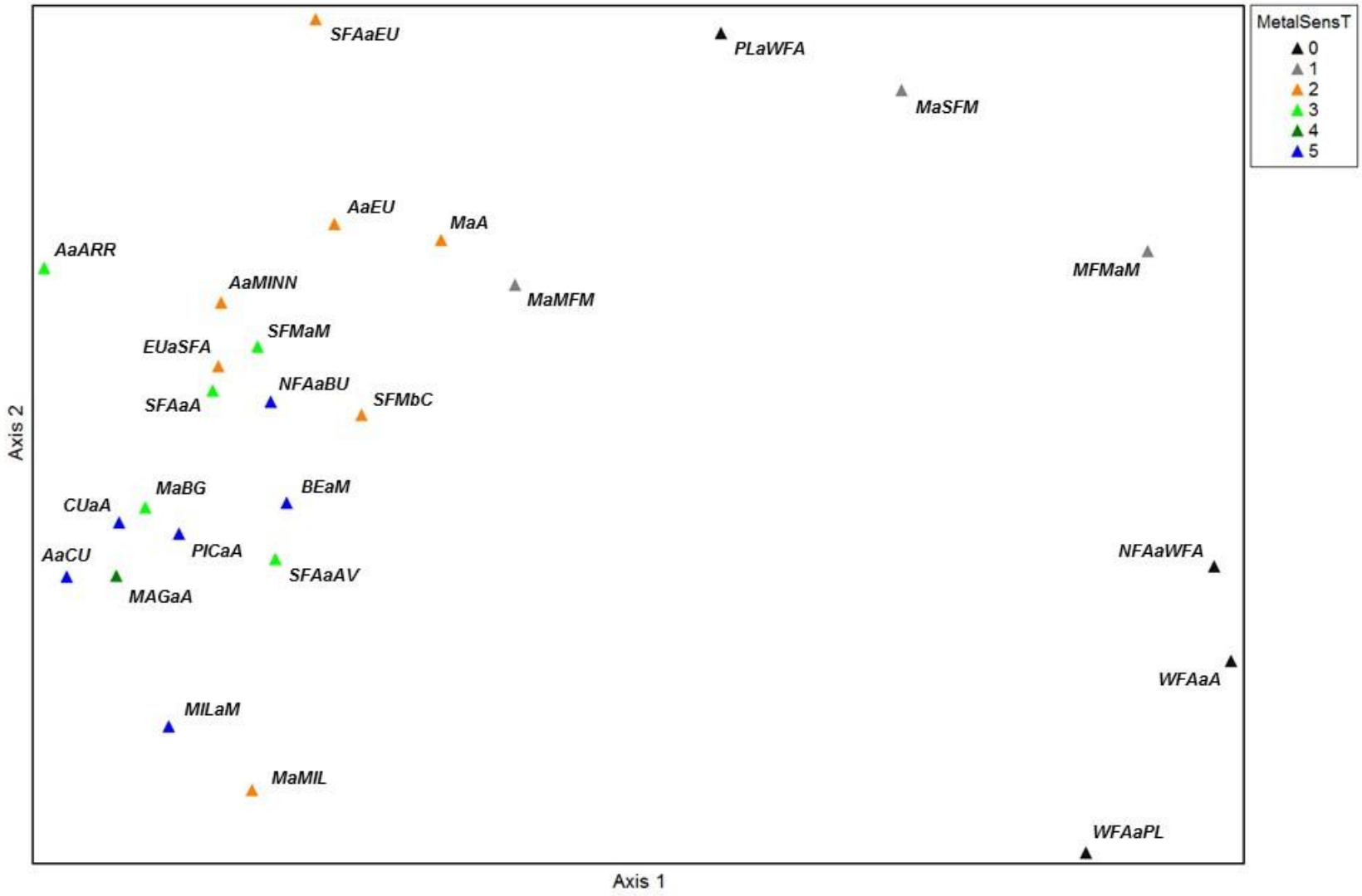


Figure 32: NMS ordination. Sites grouped by richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae. See Table 13 for ordination details

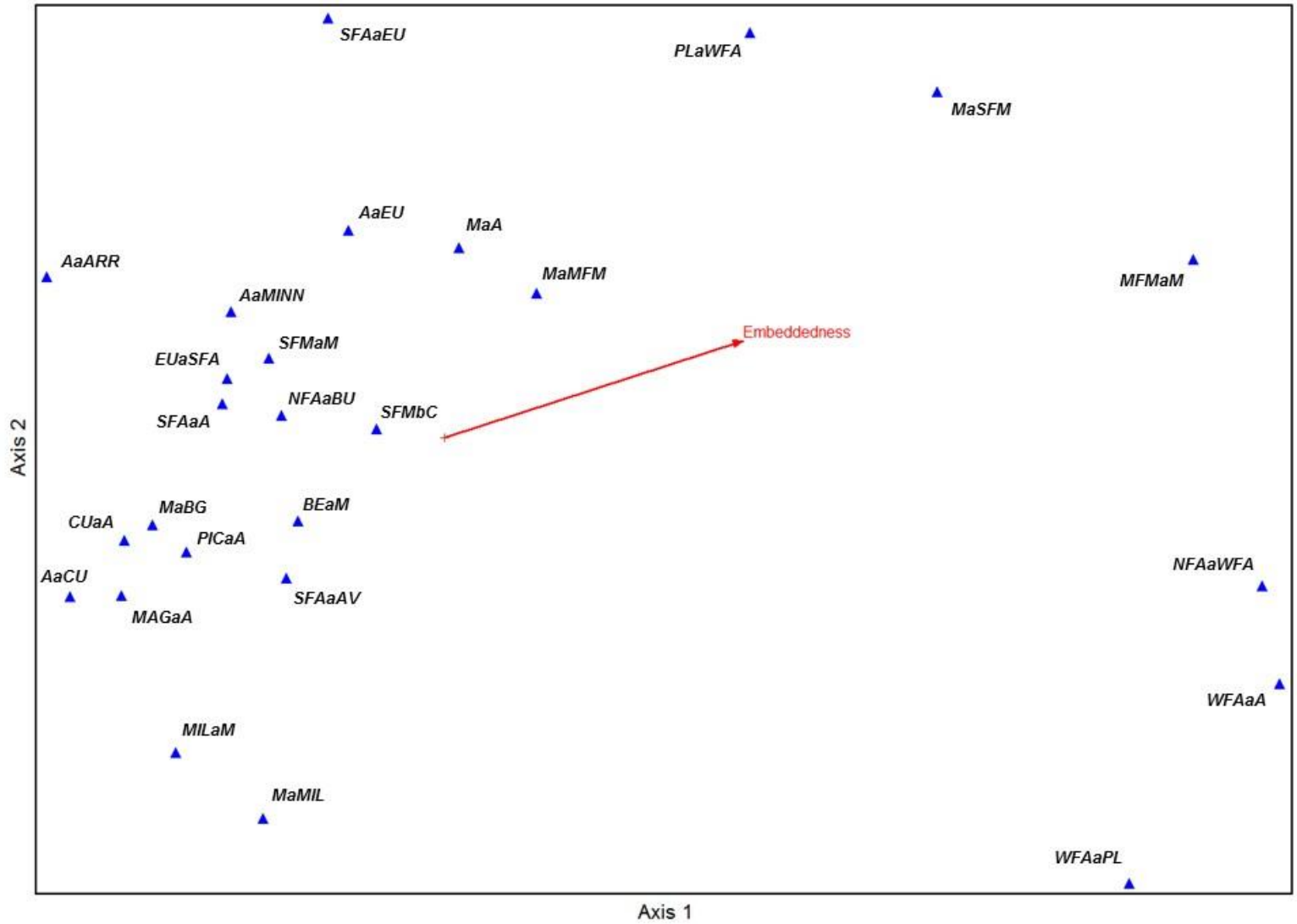


Figure 33: NMS ordination with orthogonal vector lines for physical habitat variables (r^2 correlation greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. See Table 13 for ordination details

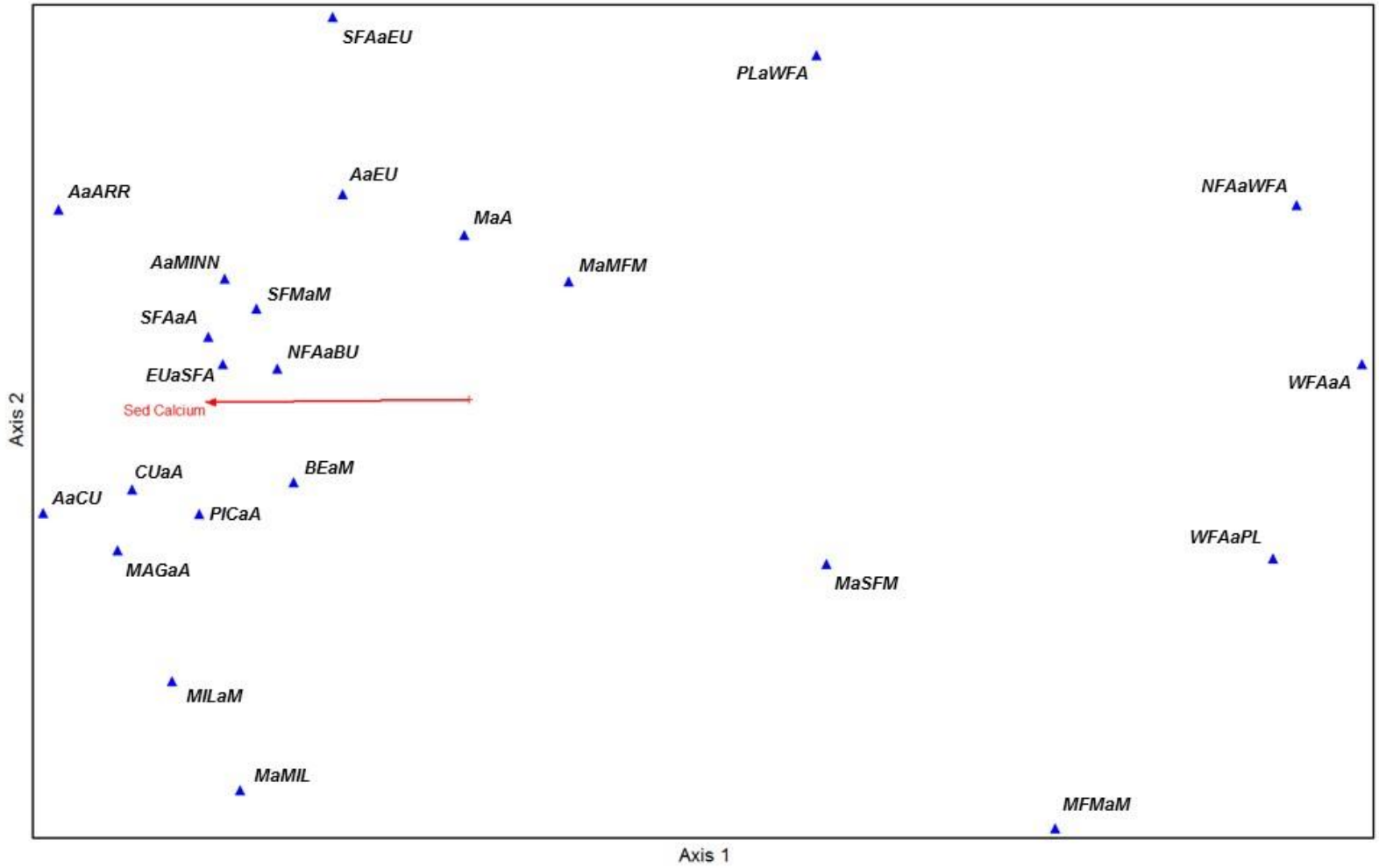


Figure 34: NMS ordination with orthogonal vector lines for metal and mineral concentrations in sediment (r^2 correlations greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. See Table 13 for ordination details. This ordination is based on the subset of sites where sediment samples were collected

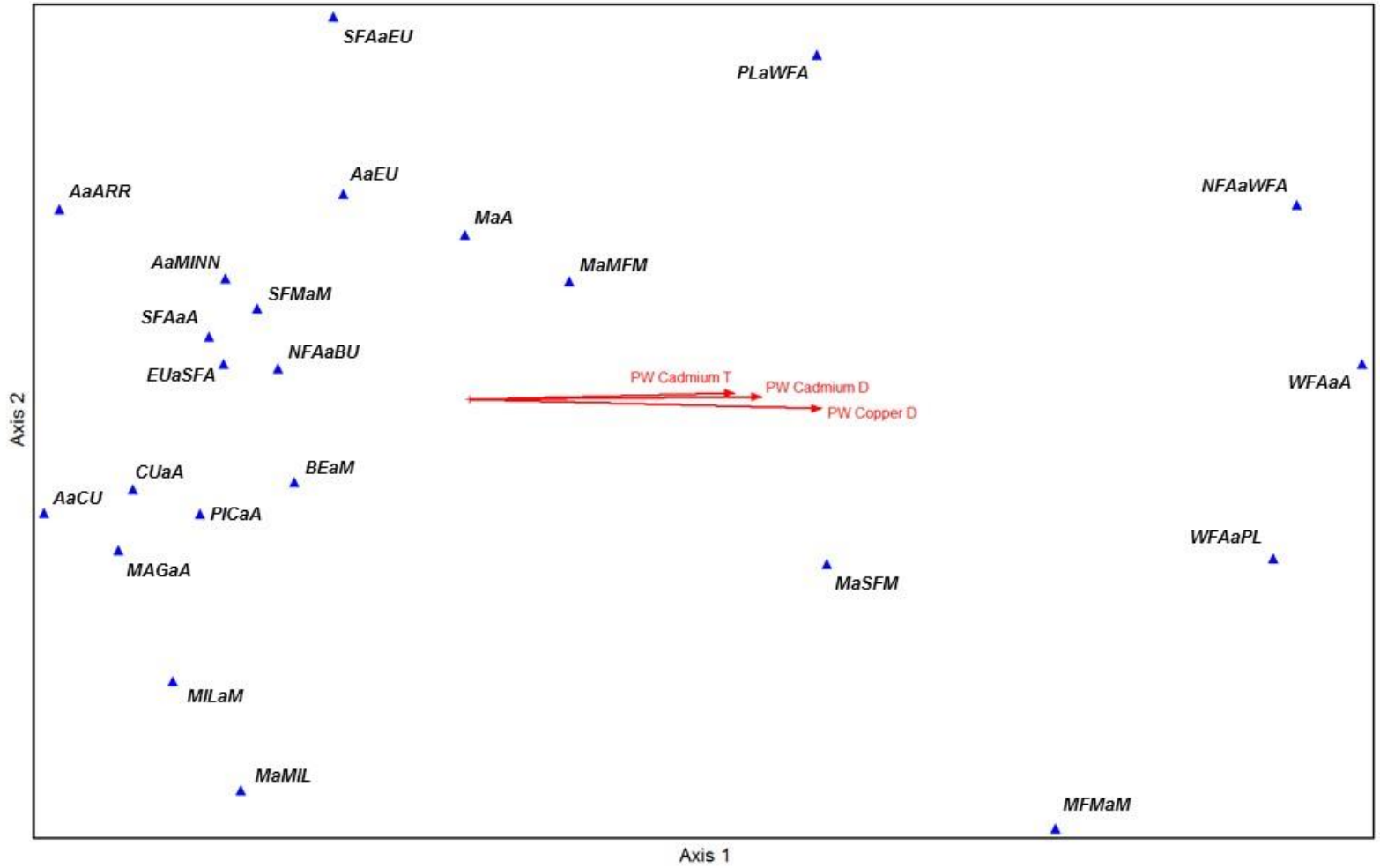


Figure 35: NMS ordination with orthogonal vector lines for metal and mineral concentrations in pore water (r^2 correlations greater than 0.4). The angle and length of the red lines reflect the direction and strength of the relationship between the variable and ordination axes. This ordination is based on the subset of sites where pore water samples were collected. See Table 13 for ordination details

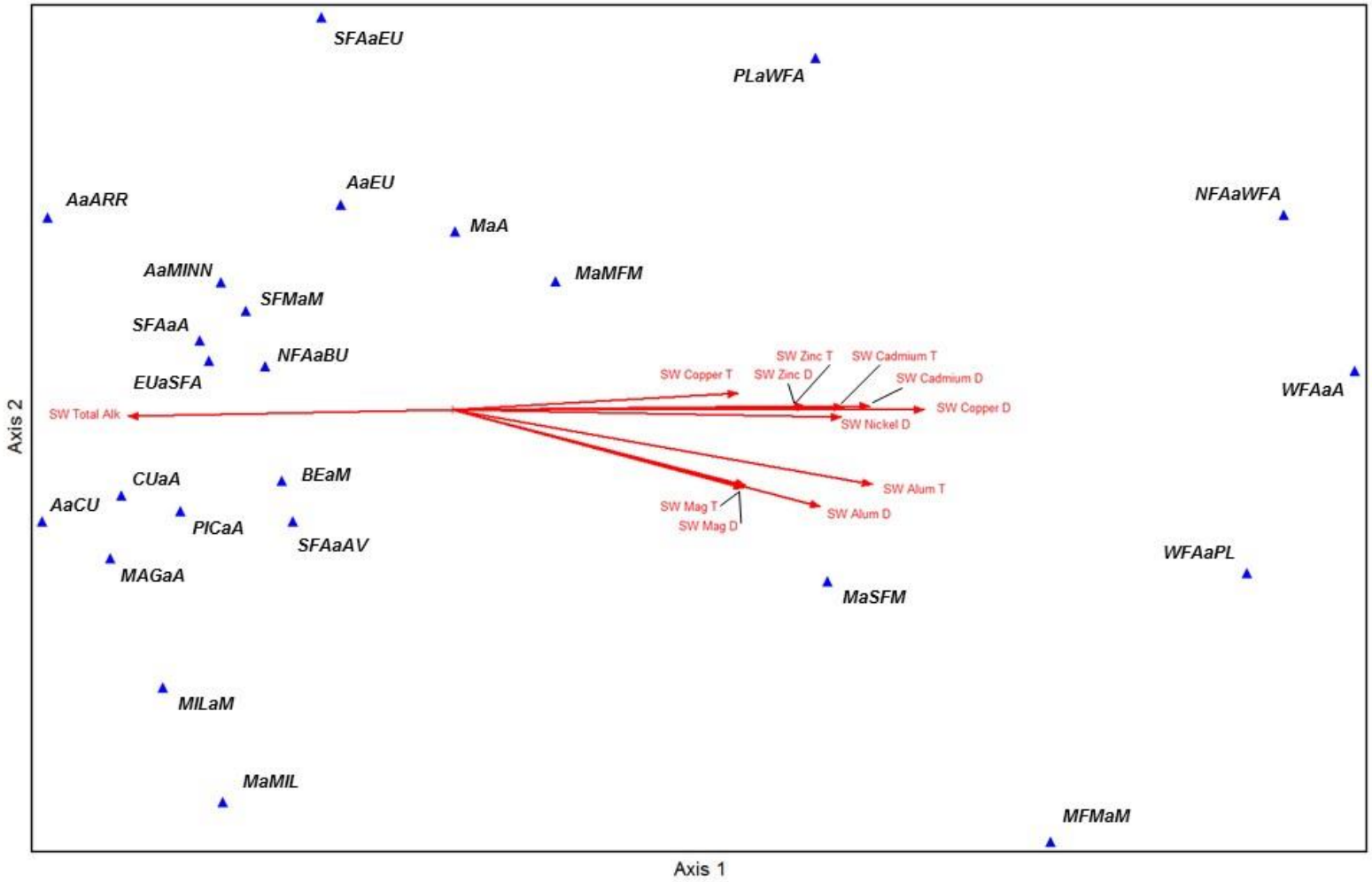


Figure 36: NMS ordination with orthogonal vector lines for metal and mineral concentrations in surface water (r^2 correlations greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. This ordination is based on the subset of sites where surface water samples were collected. See Table 13 for ordination details

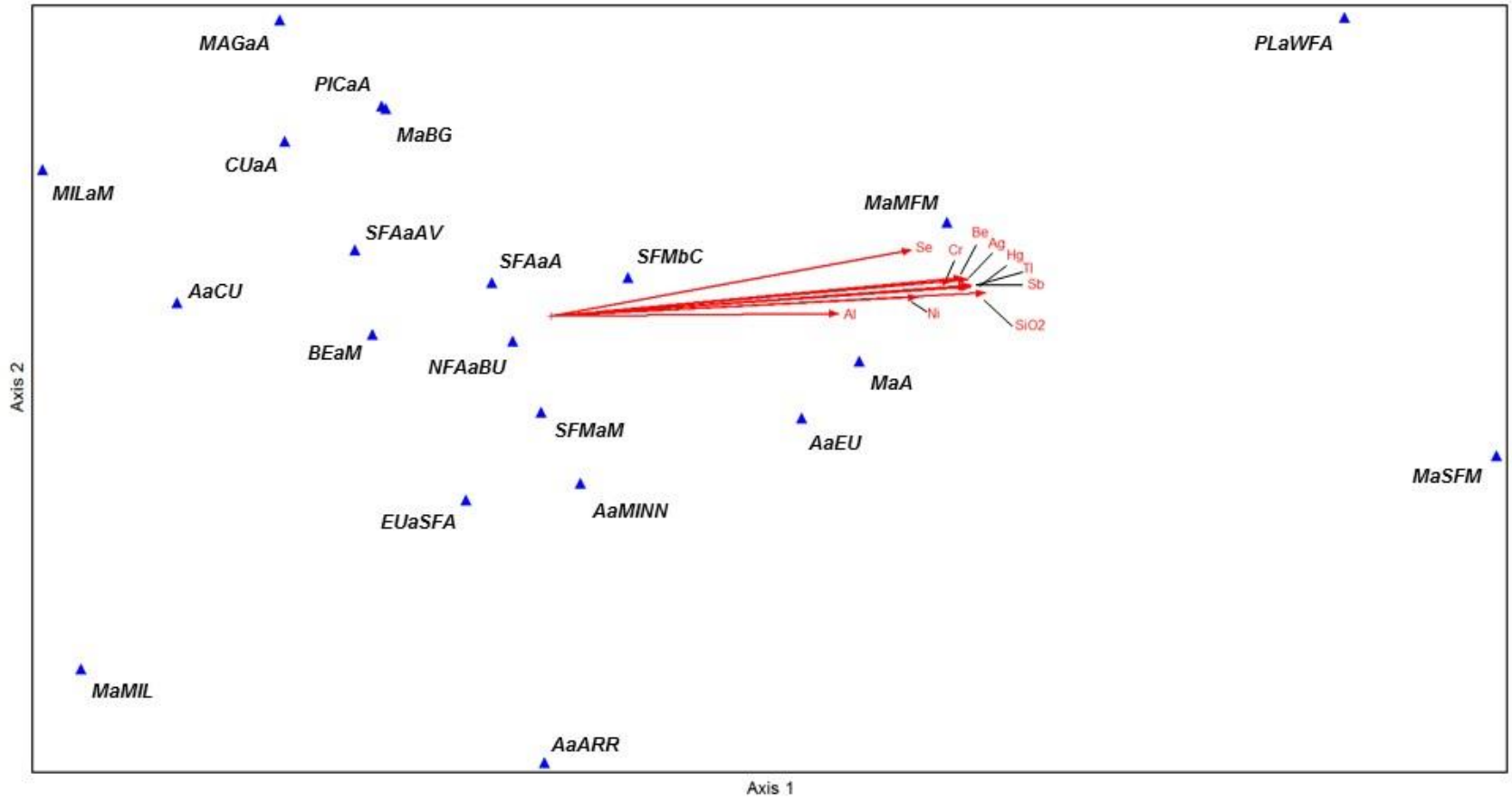


Figure 37: NMS ordination with orthogonal vector lines for metal and mineral concentrations in BMI tissue (r^2 correlations greater than 0.4). The angle and length of the lines reflect the direction and strength of the relationship between the variable and ordination axes. This ordination is based on the subset of sites where BMI tissue samples were collected. See Table 13 for ordination details



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Burrows Creek Benthic Macroinvertebrate Assessment

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Contents

Introduction 1
Objectives 1
Methods 1
Sampling Locations 1
Sample Collection 2
Laboratory Sample Processing and Identification 3
Data Analysis 3
Results 3
Benthic Macroinvertebrates 3
Summary 7
References 10
Appendix – Table of benthic relative abundance 12

Table of Figures

Figure 1. Burrows Creek benthic macroinvertebrate sample locations. 2
Figure 2. Colorado Multi-Metric Index (MMI). 4
Figure 3. Relative abundance of Ephemeroptera, Plecoptera, Trichoptera, Chironomidae, and others. 5
Figure 4. Taxa richness. 5
Figure 5. Modified Hilsenhoff Biotic Index (MHBI). 6
Figure 6. Metal Sensitive Family (MSF) relative abundance. 7
Figure 7. Map of Cumulative Criteria Unit (CCU), Chronic (originally published in Roberts 2017) 9

Table 1. Burrows Creek benthic macroinvertebrate sample location coordinates and date(s) sampled. 2

Introduction

Mountain Studies Institute was tasked by the Bureau of Land Management (BLM) to characterize benthic macroinvertebrate communities within Burrows Creek, located in the Upper Animas Watershed in San Juan County, Colorado. This assessment is intended to provide contextual information related to BLM's acquisition of the Mineral Point Ditch water right on Burrows Creek and dedication of that right to instream flow use through a cooperative effort with the Colorado Water Conservation Board (CWCB). Benthic macroinvertebrates have been previously sampled from one location on Burrows Creek in 2016 and 2020. In 2024 we expanded upon previous efforts by increasing the spatial resolution of benthic sampling to three sites on Burrows Creek.

Burrows Creek is a small high-elevation stream located above tree-line in the Bonita Peak Mining District. Water quality in Burrows Creek is poor and contains elevated concentrations of several metals including aluminum, cadmium, copper, manganese, lead, and zinc (Roberts 2017). There are anthropogenic and natural sources of metals within the Burrows Creek watershed. Anthropogenic sources include waste rock, and to a lesser extent draining adits, from the Red Cloud, Boston, Dewitt, and London mines (CDM Smith 2021; USGS 2007). Natural sources of metals are derived from the altered pyritic rock that occurs in the watershed. Notably, there are numerous inflows to Burrows Creek that originate in the highly mineralized rock on the north side of Houghton Mountain. One of these inflows drains from an area of Houghton Mountain with no known mining activities and was found to be a significant source of naturally occurring metals (HSG 2021). The elevated metals in Burrows Creek limit the degree to which aquatic life such as benthic macroinvertebrates could be expected to occur even in the absence of legacy mining.

In recent years there have been substantial actions implemented in the Burrows Creek watershed that could ultimately influence water quality and aquatic life. These include fen restoration, mine reclamation, and the rerouting of formerly diverted surface water back into Burrows Creek.

Objectives

Our primary objective was to characterize benthic macroinvertebrate communities in Burrows Creek using standard macroinvertebrate metrics including the Colorado Multi-Metric Index (MMI).

Methods

Sampling Locations

We collected benthic macroinvertebrate community samples from three locations along Burrows Creek (**Figure 1**; **Table 1**). From upstream to downstream, these locations are:

- Burrows Creek upstream from the Boston Mine
- Burrows Creek downstream of the Boston Mine at the base of Houghton Mountain
- Burrows Creek upstream of the confluence with the North Fork of the Animas River

At the furthest downstream location (Burrows Creek upstream of the confluence with the North Fork of the Animas River), we sampled the same reach that we previously sampled in 2016 and 2020 using identical methodologies.

In order to contextualize observations of the Burrows Creek benthic community, we've included in our analyses additional benthic data collected in recent years from neighboring watersheds in the Bonita Peak Mining District. These include 2016 and 2020 benthic samples from the North Fork of the Animas River upstream and downstream of the confluence with Burrows Creek as well as samples from Porphyry Gulch,

Table 1. Burrows Creek benthic macroinvertebrate sample location coordinates and date(s) sampled.

Stream	*Site*	*Lat*	*Long*	*Date(s) sampled*
Burrows Creek	Above Boston Mine	37.94386	-107.59092	8/12/2024
Burrows Creek	Below Boston Mine	37.94753	-107.58679	8/12/2024
Burrows Creek	Above NF Animas	37.947773	-107.580374	10/7/2016; 9/24/2020; 8/12/2024

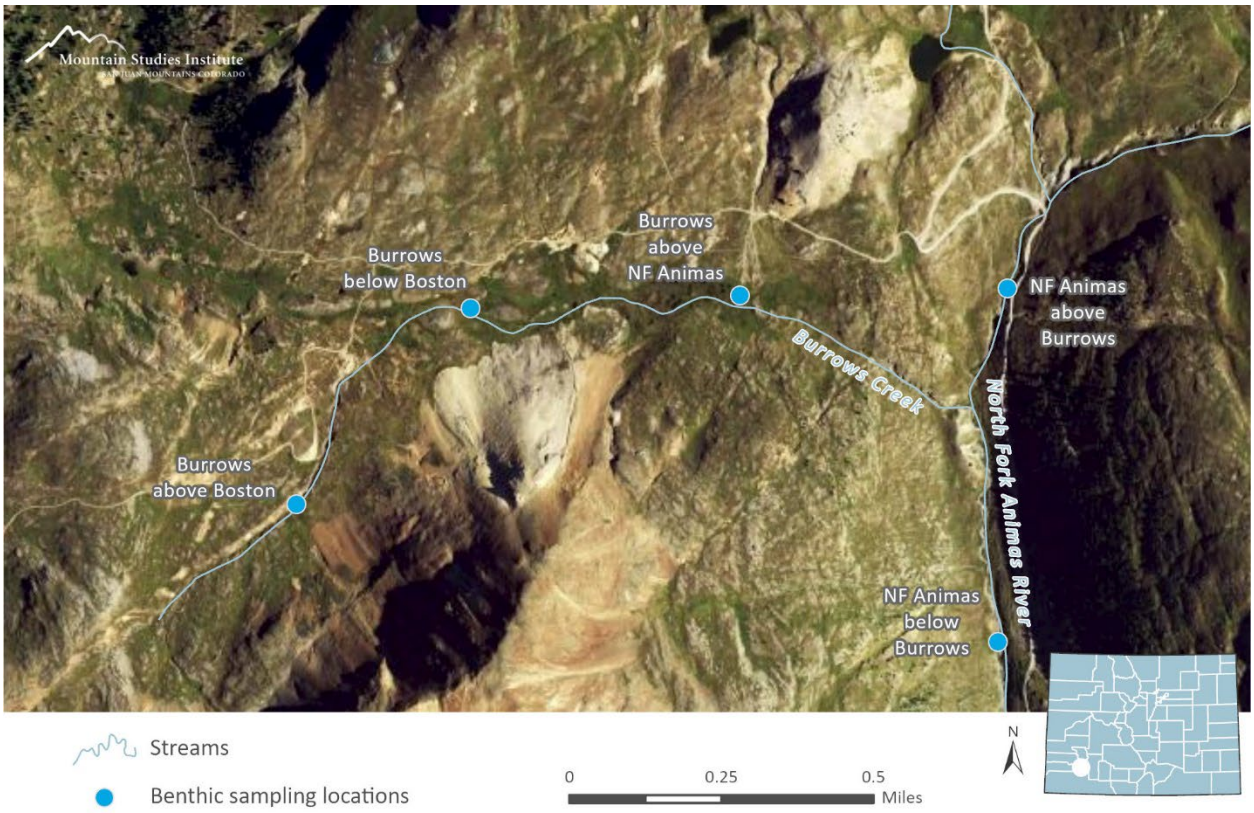


Figure 1. Burrows Creek benthic macroinvertebrate sample locations.

a Mineral Creek tributary also located in the Bonita Peak Mining District. Porphyry Gulch serves as a comparison for high elevation benthic community composition.

Sample Collection

We followed BMI sampling protocols developed by the Environmental Protection Agency (Barbour *et al.,* 1999) and Colorado Department of Public Health and Environment (CDPHE, 2010). Anderson (2007) assessed a variety of BMI sampling methods and determined that the most appropriate method for use in the Animas River watershed was a targeted riffle method that utilized a modified rectangular dip net coupled with a dolphin bucket. The net opening measured 46 cm by 25 cm or 0.115 m^2 (178 in^2). We collected each sample by placing the net securely on the bottom of the river with the net opening facing upstream. A biologist stood downstream of the net and disturbed the substrate on the river bottom that was immediately upstream of the net. We lifted and scrubbed rocks and gravel by hand for approximately

30 seconds so that benthic macroinvertebrates would be dislodged and drift downstream into the net opening. For each sample, we disturbed an area of approximately 0.115 m^2 of substrate, which was estimated in the field by using the size of the net opening as a guide (net opening is 46 cm by 25 cm; area of 0.115 m2). Within riffle habitat, we obtained ten samples within an approximately 100 meter-long section of Burrows Creek. We then made a composite of the ten samples in a single sample container. In total, 1.15 m^2 of riffle habitat comprised the sample at each site (0.115m^2 x 10 samples).

Laboratory Sample Processing and Identification

Lab Identification

Samples were identified by Scott Roberts (Mountain Studies Institute) and Dr. Michael Bogan (University of Arizona). We sub-sampled each field sample using a rotating drum splitter until a minimum of 500 organisms was obtained. Using a 10x microscope, we identified organisms to the lowest practical taxonomic level based on Merritt, Cummins, and Berg (2019). Dr. Bogan identified all Chironomidae and Acari taxa and served as a second taxonomist for our quality assurance program by independently verifying at least 10% of all taxa.

Data Analysis

BMI Metrics

Several metrics have been developed to assess the composition and health of BMI communities. These relatively independent metrics provide multiple lines of evidence of the overall habitat condition and water quality of an aquatic system. We focus our analysis on metrics that Roberts (2017) found to most strongly correlate with metal exposure in the BPMD and those that Roberts (2020) found to have the lowest inter-annual variability. These include MMI; richness of metal-sensitive families (MSF); and the Modified Hilsenhoff Biotic Index (MHBI).

Standardizing Sample Size

To eliminate potential bias from differing lab subsample sizes, we employed an algorithm to randomly subsample all samples to a fixed count of 500 individuals. All metrics discussed in this report are based on the 500 count subsampled data, except MMI, which is based on a fixed count of 300 organisms per sample.

Ecological Data Application System (EDAS)

We utilized the Ecological Data Application System (EDAS) developed by Colorado Department of Public Health and the Environment (CDPHE) to calculate all metrics, including the MMI. MMI scores are based on a fixed count of 300 individuals per sample.

Results

Benthic Macroinvertebrates

Colorado Multi-Metric Index

The Colorado Multi-Metric Index (MMI) was developed by CDPHE to assess the extent to which biological communities may have been altered by environmental stressors and to evaluate whether a water body is in attainment or impairment of designated aquatic life use (CDPHE 2020). Many stream reaches in Bonita Peak Mining District, including Burrows Creek and the North Fork of the Animas, do not have an aquatic life use designation so we can only assess theoretical attainment/impairment using MMI. All samples collected from Burrows Creek across years would be considered in impairment of aquatic life use (**Figure 2**). Based on previous samples collected in 2016 and 2020, the MMI assessment determination for the North Fork of the Animas River changes after the input of Burrows Creek surface water. Upstream of Burrows Creek, the

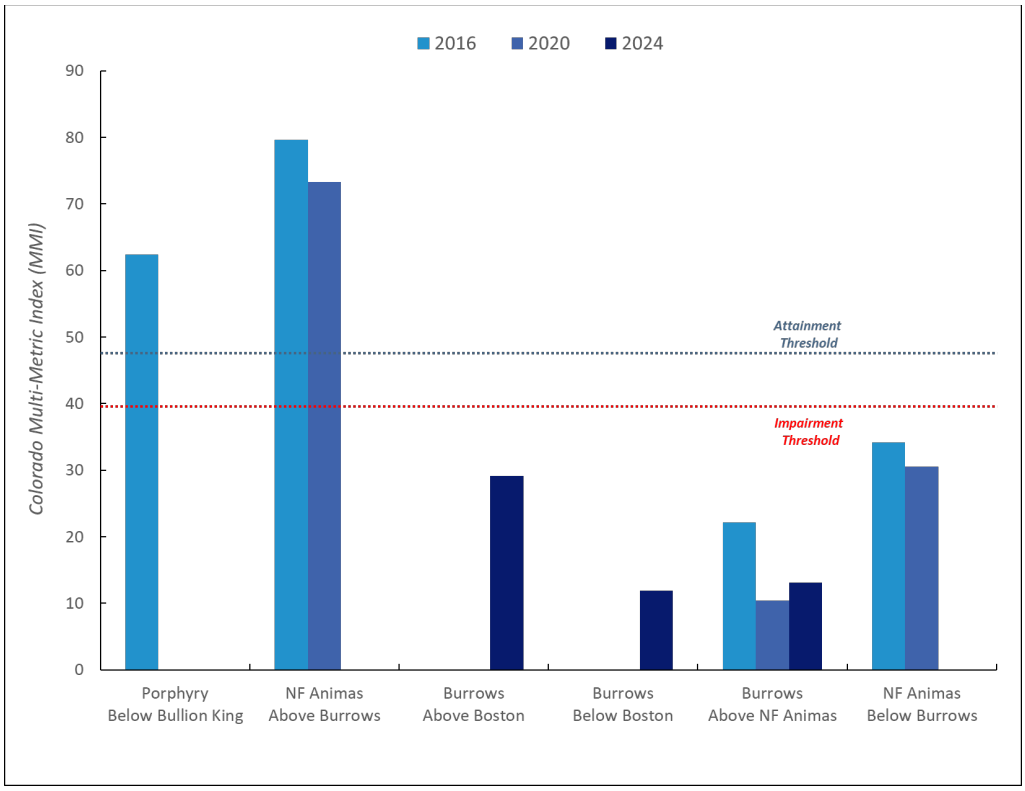


Figure 2. Colorado Multi-Metric Index (MMI).

North Fork of the Animas River is in attainment of aquatic life use, but downstream of Burrows Creek, the North Fork of the Animas River is in impairment of aquatic life use.

Porphyry Gulch, at ~3,729 m, is located at a similar high elevation as Burrows Creek, at ~3,650 m, and thus serves as a useful comparison. Benthic samples collected from Porphyry Gulch in 2015, 2016, 2022, and 2023 all indicate attainment of designated aquatic life use.

Differences in MMI scores among sites were largely driven by a stark contrast in diversity and proportionality of more sensitive taxa such as Ephemeroptera mayflies, Plecoptera stoneflies, and Trichoptera caddisflies (EPT). Samples from Burrows Creek were dominated by Chironomidae midges while samples from the North Fork of the Animas and Porphyry Gulch were dominated by EPT taxa (**Figure 3**).

Taxa richness

The total number of distinct taxa, or taxa richness, is often reflective of water quality conditions and has been found to be reduced in streams with elevated metal concentrations (Maret et al. 2003). Taxa richness in the North Fork of the Animas River and in Porphyry Gulch was greater than 30 while taxa richness of

Burrows Creek was below 20. Within Burrows Creek there was a general decrease in taxa richness from upstream to downstream. The North Fork of the Animas River had much fewer distinct taxa downstream of Burrows Creek than upstream (**Figure 4**).

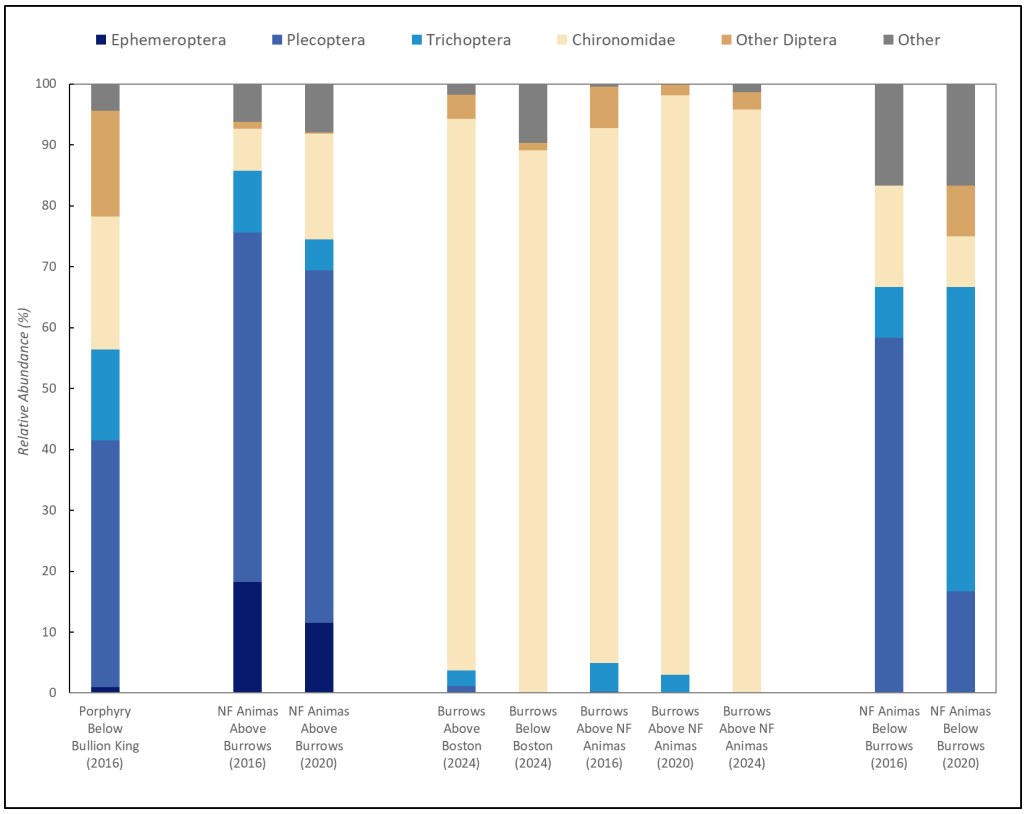


Figure 3. Relative abundance of Ephemeroptera, Plecoptera, Trichoptera, Chironomidae, and others.

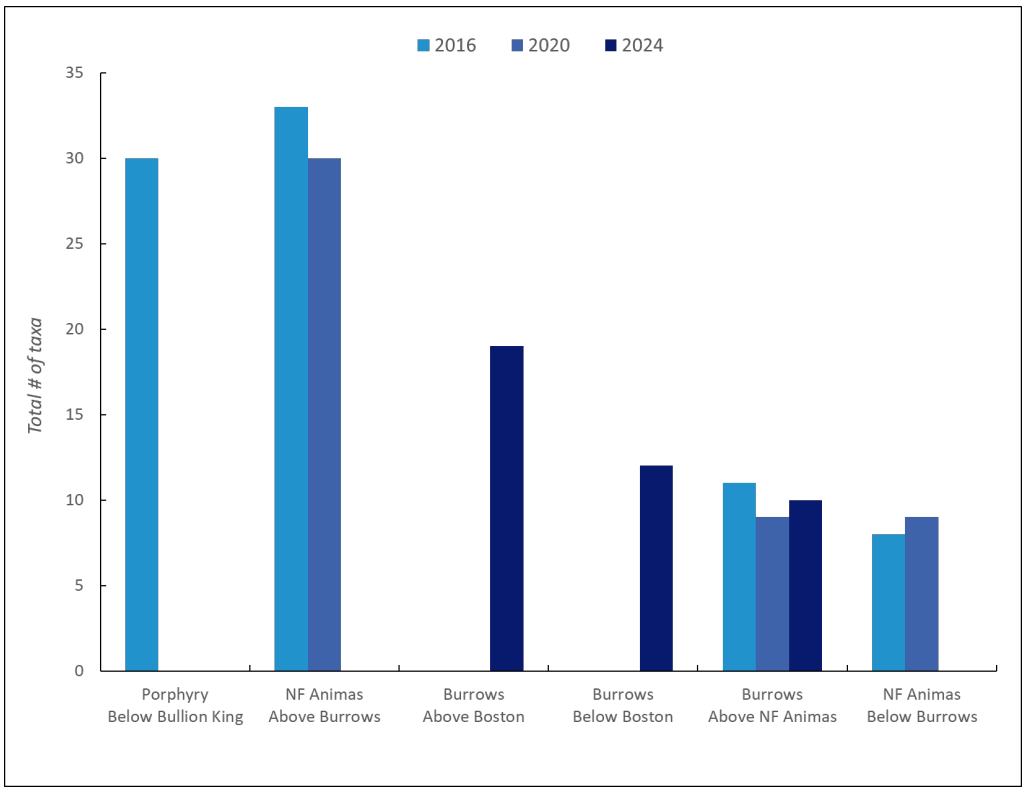


Figure 4. Taxa richness.

Sensitive taxa

MHBI is an index of the overall tolerance/sensitivity of a community to degraded water quality and is based on taxon-specific tolerance values and their relative abundance within the sample (Hilsenhoff 1987). The modified index value ranges from 0 (more tolerant) to 10 (more sensitive). MHBI is the inverse of the traditional HBI so that high MHBI scores reflect a community that has a high proportion of sensitive taxa. We found that Burrows Creek has a community comprised of much more tolerant taxa than that occurs in Porphyry Gulch or the North Fork of the Animas River (**Figure 5**). Contrary to a pattern of decreased overall taxa richness from upstream to downstream within Burrows Creek, MHBI scores increased from upstream to downstream.

Metal-sensitive taxa

There are three families of benthic communities that are known to be especially sensitive to elevated metal concentrations in the Animas River: Ephemerellidae mayflies, Heptageniidae mayflies, and Taeniopterygidae stoneflies (Courtney and Clements 2002; Roberts 2017). These metal-sensitive families were completely absent from all samples collected within Burrows Creek (**Figure 6**). However, in the adjacent North Fork of the Animas River, upstream from the confluence with Burrows Creek, five different metal-sensitive taxa comprised about 30% of the benthic community. Downstream of Burrows Creek in the North Fork of the Animas River, metal-sensitive taxa were absent in 2016, but one taxa, *Taenionema*, comprised about 8% of the benthic community in 2020. In comparison, two metal-sensitive taxa occurred in Porphyry Gulch in 2016, but only accounted for less than 1% of the community.

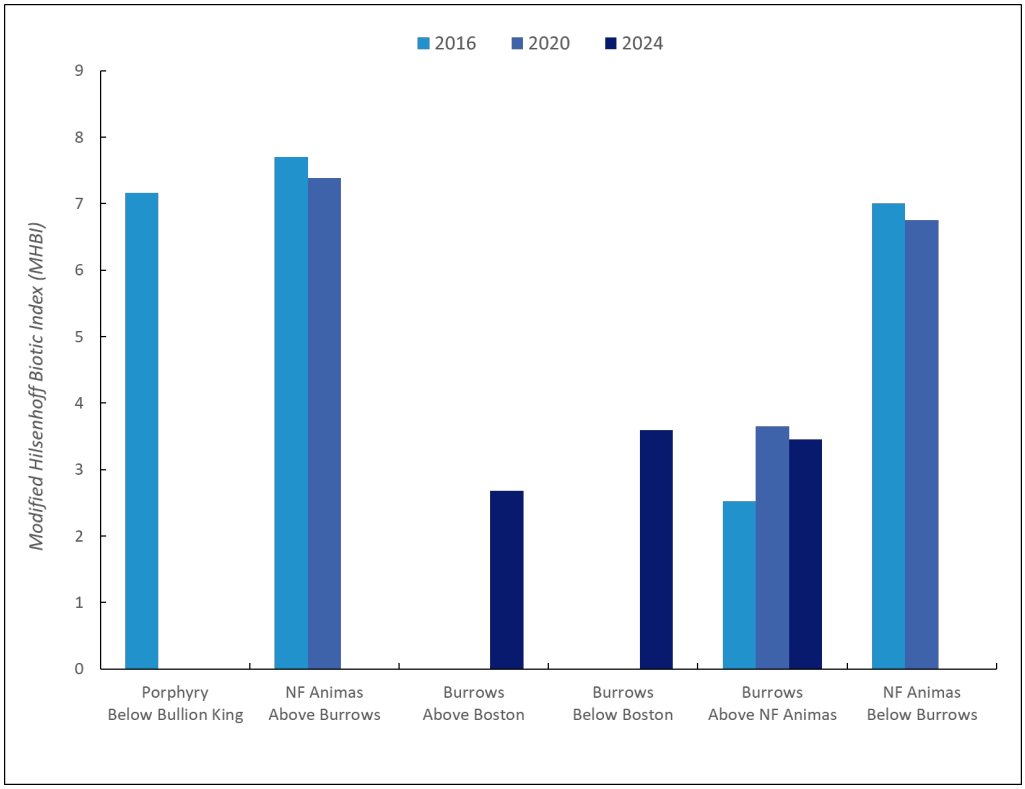


Figure 5. Modified Hilsenhoff Biotic Index (MHBI).

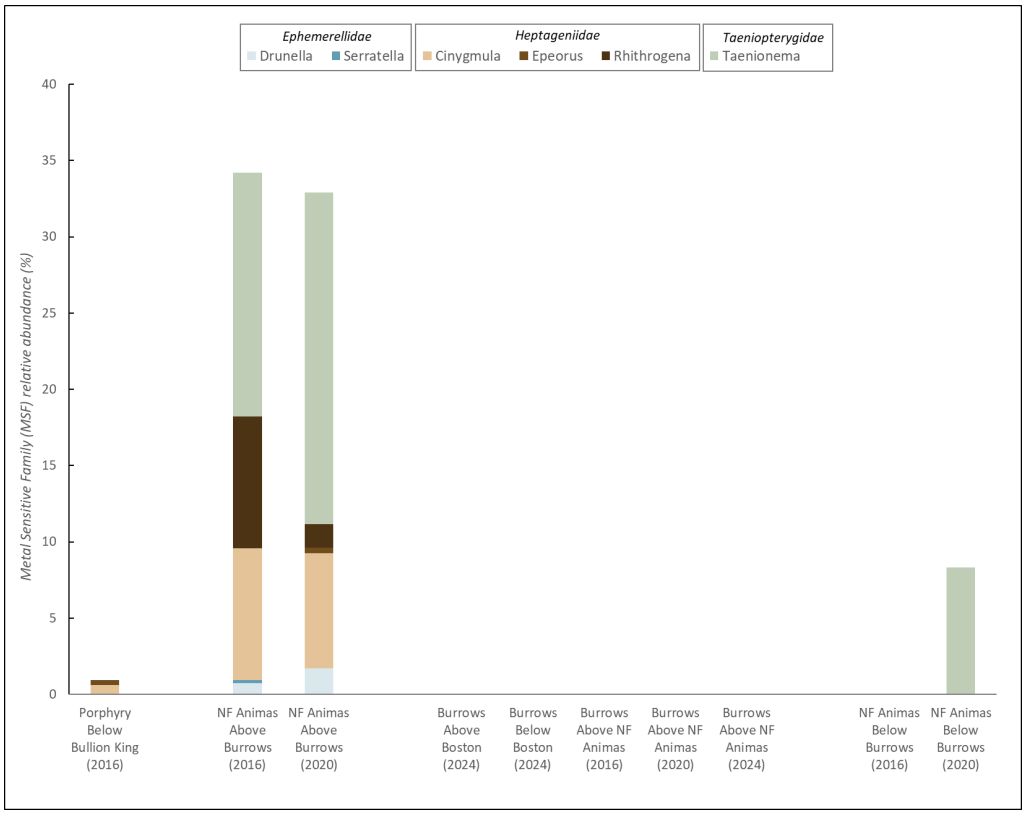


Figure 6. Metal Sensitive Family (MSF) relative abundance.

Summary

The benthic macroinvertebrate community composition of Burrows Creek differs from the adjacent North Fork of the Animas River and another high elevation stream, Porphyry Gulch. Burrows Creek generally had lower overall diversity, less sensitive species, a complete absence of taxa known to be sensitive to elevated metal concentrations, and a community dominated by Chironomidae midges. These differences likely reflect differences in water quality and stream bottom habitat condition (Roberts 2017). Stream bottom substrate size in Burrows Creek has been found to be much smaller than the North Fork of the Animas River. Specifically, the 50th percentile substrate size of the North Fork of the Animas River was 140 mm above Burrows Creek and 110 mm below Burrows Creek but was only 35 mm in Burrows Creek. Additionally, Burrows Creek had much greater algal cover than the North Fork of the Animas River (Roberts 2017). Water quality data from 2016 indicate that Burrows Creek had a greater cumulative risk to aquatic life from metals than the adjacent sampling locations on the North Fork of the Animas River (**Figure 7**).

At the Burrows Creek above North Fork of the Animas River site, benthic macroinvertebrate samples have now been collecting in three years: 2016, 2020, and 2024. There is no clear pattern of degradation or improvement of the benthic community during the 2016-2024 time period. Metal-sensitive taxa were completely absent from all three years and MMI scores signify impairment in all three years. Total richness was slightly higher in 2016 than in 2020 and 2024, but the proportion of sensitive species was lower in 2016 than in 2020 and 2024. Trichoptera caddisflies were present at low abundances in 2016 and 2020, but absent in 2024.

There are some differences in the Burrows Creek benthic community upstream of Boston Mine compared to downstream of Boston Mine. MMI scores and total taxa richness are lower below Boston Mine. Upstream of Boston Mine, there were very low abundances of two stonefly taxa (*Capnia* and *Zapada*) and two caddisfly taxa (*Ecclisomyia* and *Psycoglypha*), but there were no stonefly or caddisfly taxa found at the site immediately downstream of the Boston Mine. The Boston Mine is not the only influencing factor between the sampling locations on Burrows Creek upstream and downstream of Boson Mine. The Above Boston sampling location is located in a reach with much steeper gradient than the reach at the Below Boston sampling location. Additionally, there are substantial groundwater inflows between these two locations that may be poorly understood and warrant sampling and further assessment.

There are notable changes occurring within the Burrows Creek watershed including fen restoration, mine reclamation, and the rerouting of formerly diverted surface water back into Burrows Creek. Elsewhere, long-term monitoring has successfully demonstrated improvements in benthic communities following the implementation of remediation projects designed to reduce metal exposure to aquatic life (Clements et al. 2010; Herbst 2018). However, there can be a delayed recovery response of post-restoration benthic communities due to residual stream bottom sediment contamination (Clements et al. 2010). Additional data collection of water quality, surface water discharge, and benthic macroinvertebrates could help establish temporal trends informing how these activities may be affecting the condition of Burrows Creek.

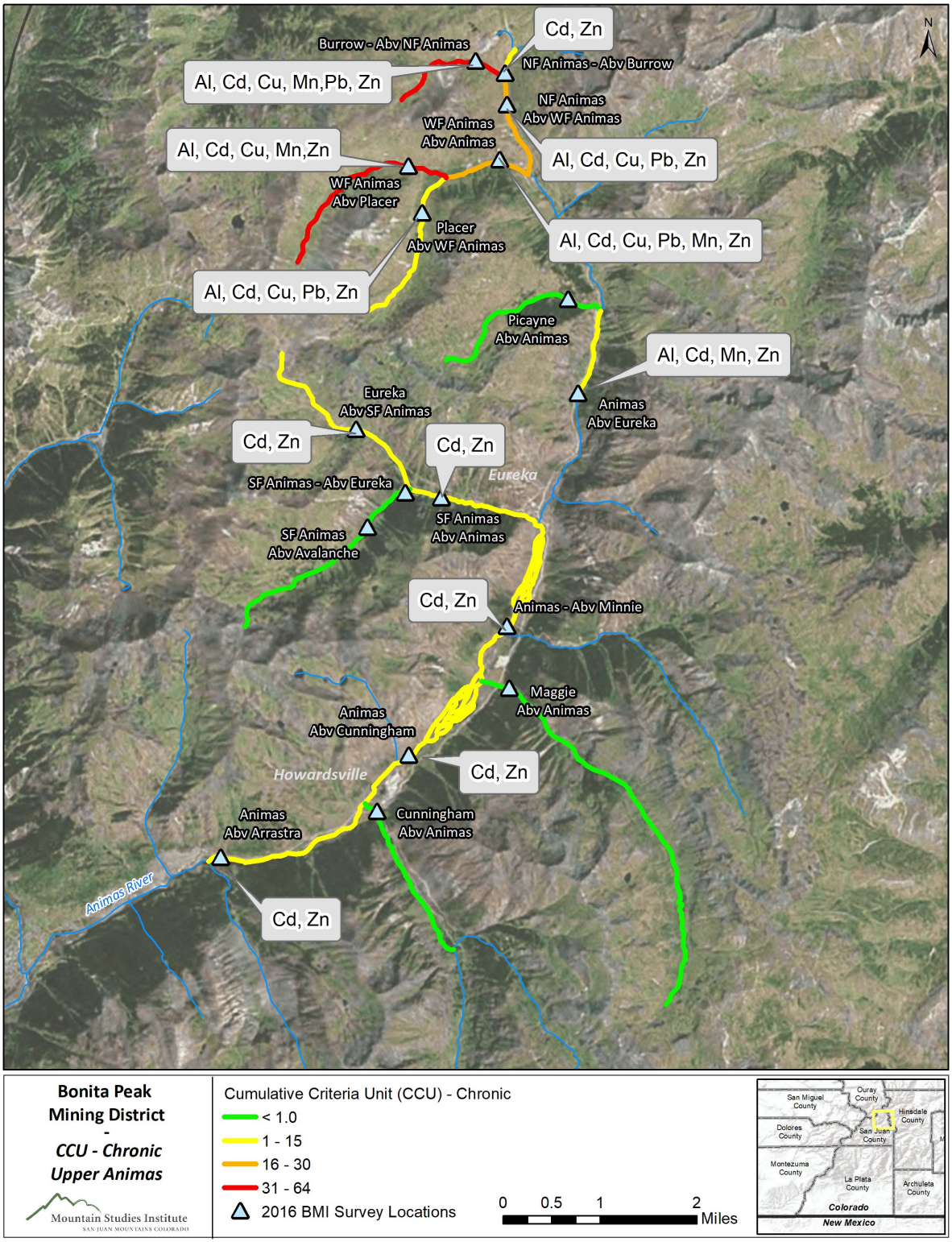


Figure 7. Map of Cumulative Criteria Unit (CCU), Chronic (originally published in Roberts 2017)

Note: Cumulative Criteria Unit (CCU) is the sum of Hazard Quotients (HQ). Metals are labeled on the map if a single metal had a hazard quotient above 1.0 for that site.

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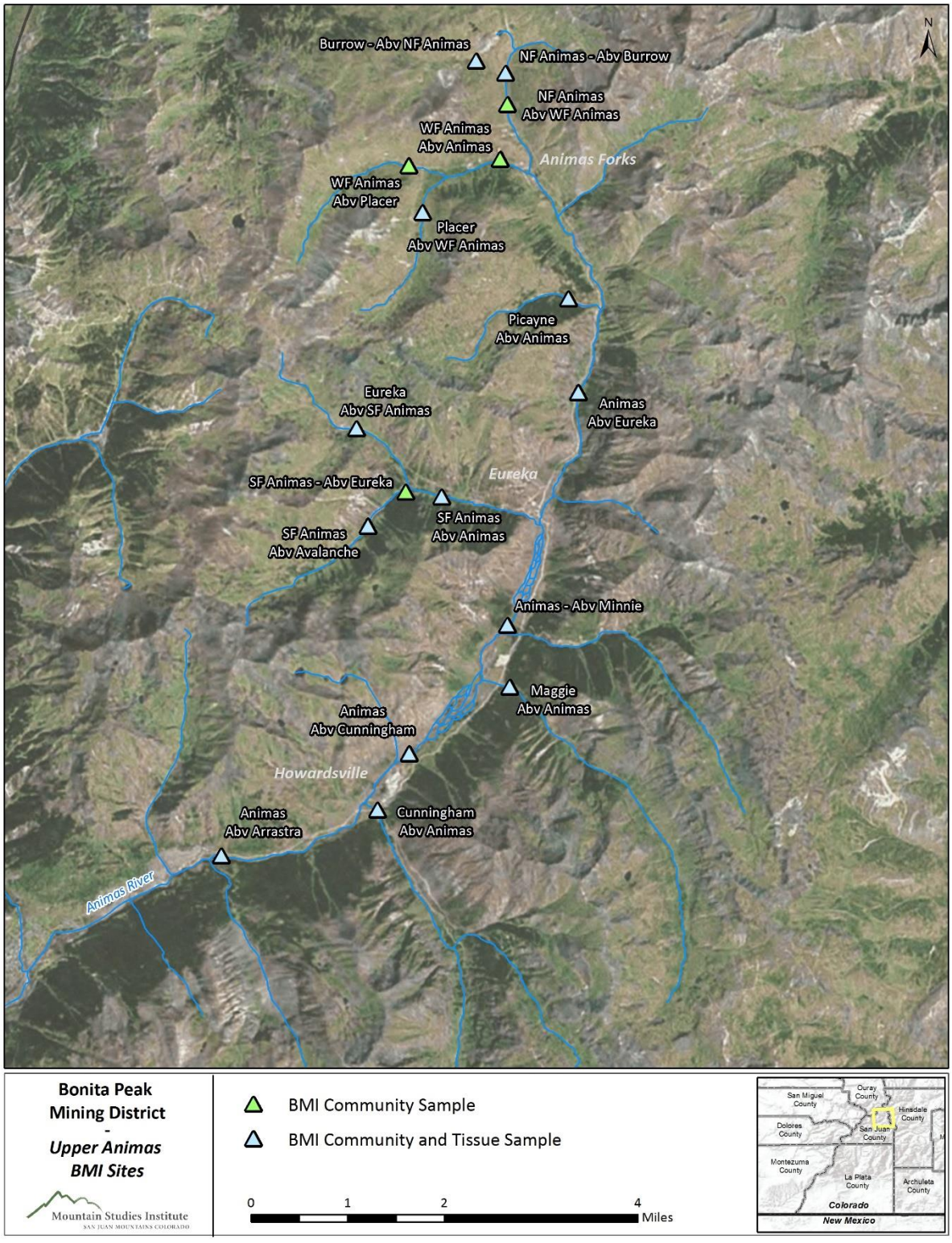
Appendix – Table of benthic relative abundance

Phylum	Class	Order	Family	Genus	Taxa Unit	Burrow Cr AboveBoston 8/12/2024	Burrow Cr BelowBoston 8/12/2024	Burrow Cr AbvNFAnimas 10/7/2016	Burrow Cr AbvNFAnimas 9/24/2020	Burrow Cr AbvNFAnimas 8/12/2024	NF Animas River BelowBurrows 10/7/2016	NF Animas River BelowBurrows 9/24/2020	NF Animas River AbvBurrowCr 10/7/2016	NF Animas River AbvBurrowCr 9/24/2020
Annelida	Clitellata	Oligochaeta	Oligochaeta		Oligochaeta	0.2	0.2	0.4	-	-	8.3	8.3	0.6	-
Arthropoda	Arachnida	Sarcoptiformes	Trhypochthoniidae	Mucronothrus	Mucronothrus	0.8	-	-	-	0.2	-	-	-	-
Arthropoda	Arachnida	Trombidiformes	Feltriidae		Feltria	-	-	-	-	-	-	-	0.2	-
Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	Atractides	Atractides	-	-	-	-	0.2	-	-	-	-
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	Lebertia	Lebertia	-	-	-	-	-	-	-	0.4	0.6
Arthropoda	Arachnida	Trombidiformes	Sperchonidae	Sperchon	Sperchon	0.2	-	0.0	-	-	-	8.3	1.7	3.6
Arthropoda	Insecta	Coleoptera	Dytiscidae		Hydroporinae	0.6	9.5	-	0.2	1.0	-	-	-	-
Arthropoda	Insecta	Coleoptera	Elmidae	Heterlimnius	Heterlimnius	-	-	-	-	-	8.3	-	1.5	3.8
Arthropoda	Insecta	Diptera	Ceratopogonidae	Bezzia/Palpomyia	Bezzia/Palpomyia	-	-	-	-	-	-	8.3	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Brillia	Brillia	-	-	-	-	-	-	-	0.4	-
Arthropoda	Insecta	Diptera	Chironomidae	Chaetocladius	Chaetocladius	-	-	0.8	-	-	8.3	-	0.4	-
Arthropoda	Insecta	Diptera	Chironomidae	Corynoneura	Corynoneura	-	2.7	-	-	1.3	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Cricotopus/Orthocladius	Cricotopus/Orthocladius	-	-	-	-	-	-	-	2.8	10.4
Arthropoda	Insecta	Diptera	Chironomidae	Diamesa	Diamesa	0.2	-	-	-	-	-	-	1.7	-
Arthropoda	Insecta	Diptera	Chironomidae	Eukiefferiella	Eukiefferiella brehmi	57.5	11.1	71.3	-	18.8	-	-	-	0.8
Arthropoda	Insecta	Diptera	Chironomidae	Eukiefferiella	Eukiefferiella claripennis	20.2	7.8	5.5	5.9	11.3	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Eukiefferiella	Eukiefferiella gracei	-	-	-	-	-	-	-	1.1	-
Arthropoda	Insecta	Diptera	Chironomidae	Krenosmittia	Krenosmittia	1.4	-	-	-	-	-	-	0.2	-
Arthropoda	Insecta	Diptera	Chironomidae	Limnophyes	Limnophyes	-	-	-	13.9	-	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Micropsectra	Micropsectra	-	-	-	-	-	-	-	-	0.8
Arthropoda	Insecta	Diptera	Chironomidae	Pagastia	Pagastia	-	-	-	-	-	-	-	-	0.6
Arthropoda	Insecta	Diptera	Chironomidae	Parachaetocladius	Parachaetocladius	1.2	6.9	-	-	-	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Paraphaenocladius	Paraphaenocladius	0.2	3.3	-	-	-	-	8.3	-	1.5
Arthropoda	Insecta	Diptera	Chironomidae	Parochlus	Parochlus	1.6	34.1	0.6	-	50.7	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Polypedilum	Polypedilum	-	-	-	0.2	-	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Pseudodiamesa	Pseudodiamesa	0.6	-	-	-	-	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Rheotanytarsus	Rheotanytarsus	-	0.7	5.1	74.0	-	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Smittia	Smittia	-	-	-	-	1.9	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Synorthocladius	Synorthocladius	-	-	-	-	-	-	-	-	0.2
Arthropoda	Insecta	Diptera	Chironomidae		Tanypodinae	-	-	-	-	-	8.3	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsus	Tanytarsus	-	-	-	-	-	-	-	0.4	2.8
Arthropoda	Insecta	Diptera	Chironomidae	Thienemanniella	Thienemanniella xena	7.7	22.0	4.5	1.1	11.7	-	-	-	-
Arthropoda	Insecta	Diptera	Chironomidae	Tvetenia	Tvetenia bavarica	-	0.4	-	-	-	-	-	-	0.4
Arthropoda	Insecta	Diptera	Empididae	Clinocera	Clinocera	3.8	1.3	6.8	1.7	2.9	-	-	0.2	-
Arthropoda	Insecta	Diptera	Psychodidae	Pericoma	Pericoma	-	-	-	-	-	-	-	0.8	-
Arthropoda	Insecta	Diptera	Simuliidae		Simuliidae	0.2	-	-	-	-	-	-	-	-
Arthropoda	Insecta	Diptera	Tipulidae	Dicranota	Dicranota	-	-	-	-	-	-	-	-	0.2
Arthropoda	Insecta	Diptera	Tipulidae	Tipula	Tipula	-	-	-	0.0	-	-	-	0.2	-

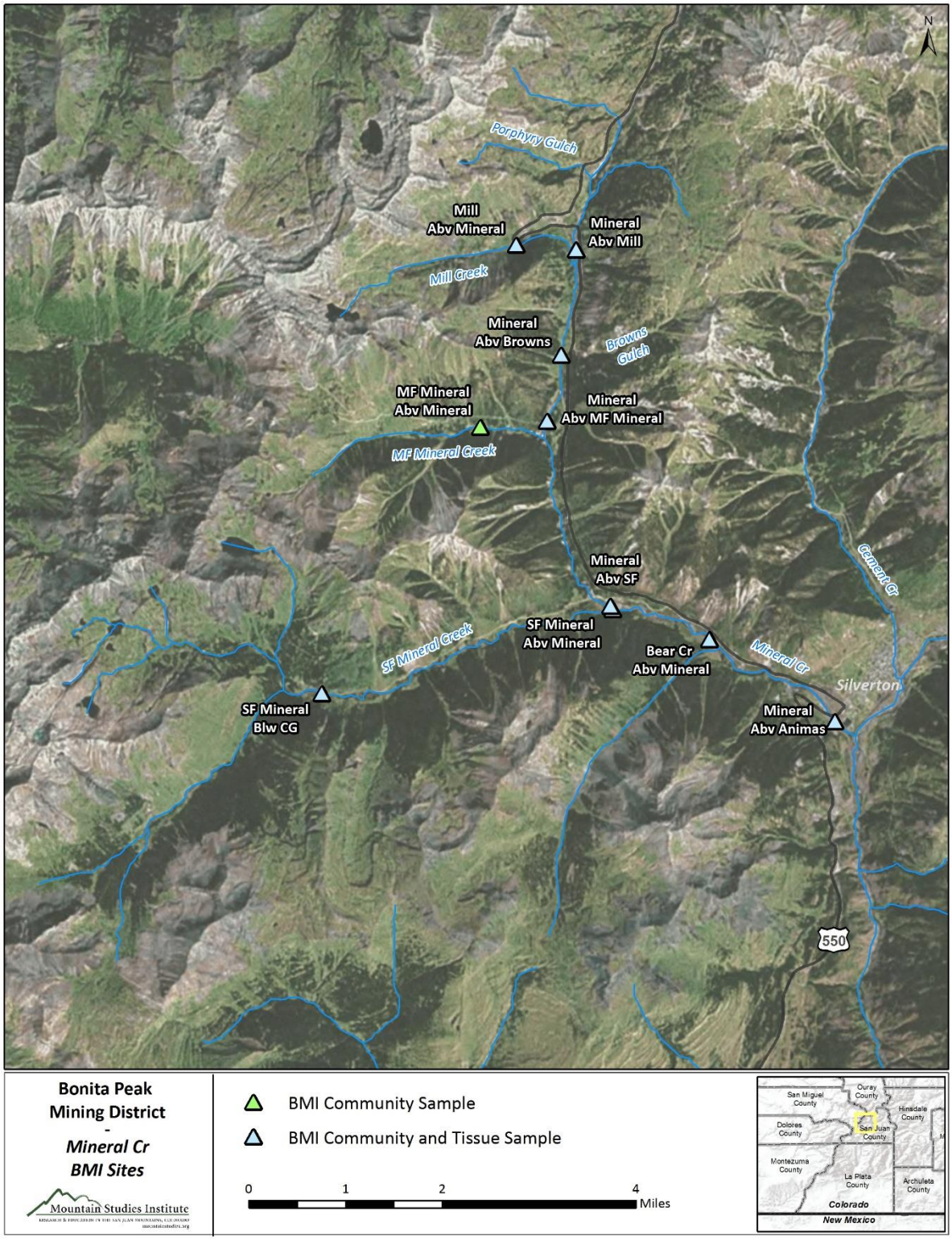
Phylum	Class	Order	Family	Genus	Taxa Unit	Burrow Cr AboveBoston 8/12/2024	Burrow Cr BelowBoston 8/12/2024	Burrow Cr AbvNFAnimas 10/7/2016	Burrow Cr AbvNFAnimas 9/24/2020	Burrow Cr AbvNFAnimas 8/12/2024	NF Animas River BelowBurrows 10/7/2016	NF Animas River BelowBurrows 9/24/2020	NF Animas River AbvBurrowCr 10/7/2016	NF Animas River AbvBurrowCr 9/24/2020
Arthropoda	Insecta	Ephemeroptera	Ameletidae	Ameletus	Ameletus	-	-	-	-	-	-	-	-	0.2
Arthropoda	Insecta	Ephemeroptera	Baetidae	Baetis	Baetis	-	-	-	0.2	-	-	-	-	0.2
Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Drunella	Drunella doddsi	-	-	-	-	-	-	-	0.8	1.7
Arthropoda	Insecta	Ephemeroptera	Ephemerellidae	Serratella	Serratella	-	-	-	-	-	-	-	0.2	-
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Cinygmula	Cinygmula	-	-	-	-	-	-	-	8.6	7.6
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Epeorus	Epeorus	-	-	-	-	-	-	-	-	0.4
Arthropoda	Insecta	Ephemeroptera	Heptageniidae	Rhithrogena	Rhithrogena	-	-	-	-	-	-	-	8.6	1.5
Arthropoda	Insecta	Plecoptera	Capniidae	Capnia	Capnia	1.0	-	-	-	-	8.3	-	-	-
Arthropoda	Insecta	Plecoptera	Capniidae		Capniidae	-	-	0.2	-	-	-	-	-	-
Arthropoda	Insecta	Plecoptera	Chloroperlidae	Suwallia	Suwallia	-	-	-	-	-	-	-	0.8	0.2
Arthropoda	Insecta	Plecoptera	Chloroperlidae	Sweltsa	Sweltsa	-	-	-	-	-	-	-	1.5	0.4
Arthropoda	Insecta	Plecoptera	Nemouridae	Zapada	Zapada	0.2	-	-	-	-	41.7	8.3	36.3	29.9
Arthropoda	Insecta	Plecoptera	Perlodidae	Isoperla	Isoperla	-	-	-	-	-	-	-	0.9	1.7
Arthropoda	Insecta	Plecoptera	Perlodidae	Megarcys	Megarcys	-	-	-	-	-	8.3	-	1.9	2.3
Arthropoda	Insecta	Plecoptera	Perlodidae	Skwala	Skwala	-	-	-	-	-	-	-	-	1.7
Arthropoda	Insecta	Plecoptera	Taeniopterygidae	Taenionema	Taenionema	-	-	-	-	-	-	8.3	16.0	21.7
Arthropoda	Insecta	Trichoptera	Hydropsychidae	Arctopsyche	Arctopsyche	-	-	-	-	-	-	33.3	3.4	-
Arthropoda	Insecta	Trichoptera	Limnephilidae	Ecclisomyia	Ecclisomyia	0.2	-	-	-	-	-	-	0.9	1.1
Arthropoda	Insecta	Trichoptera	Limnephilidae	Hesperophylax	Hesperophylax	-	-	0.8	1.0	-	-	-	-	-
Arthropoda	Insecta	Trichoptera	Limnephilidae		Limnephilidae	-	-	2.8	1.9	-	-	8.3	-	-
Arthropoda	Insecta	Trichoptera	Limnephilidae	Neophylax	Neophylax	-	-	-	-	-	-	-	1.5	0.4
Arthropoda	Insecta	Trichoptera	Limnephilidae	Psychoglypha	Psychoglypha	2.4	-	-	-	-	-	-	-	-
Arthropoda	Insecta	Trichoptera	Limnephilidae	Psychoronia	Psychoronia	-	-	1.1	-	-	-	-	-	-
Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila	Rhyacophila hyalinata	-	-	-	-	-	8.3	8.3	1.3	2.3
Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila	Rhyacophila sibirica	-	-	-	-	-	-	-	0.2	0.2
Arthropoda	Insecta	Trichoptera	Rhyacophilidae	Rhyacophila	Rhyacophila vofixa	-	-	-	-	-	-	-	2.8	1.1
Arthropoda	Ostracoda				Ostracoda	-	-	-	-	-	-	-	0.2	-
Arthropoda	Ostracoda				Ostracoda	-	-	-	-	-	-	-	0.2	-
Platyhelminthes	Turbellaria	Turbellaria	Turbellaria		Turbellaria	-	-	-	-	-	-	-	1.7	-

Appendix A – Maps

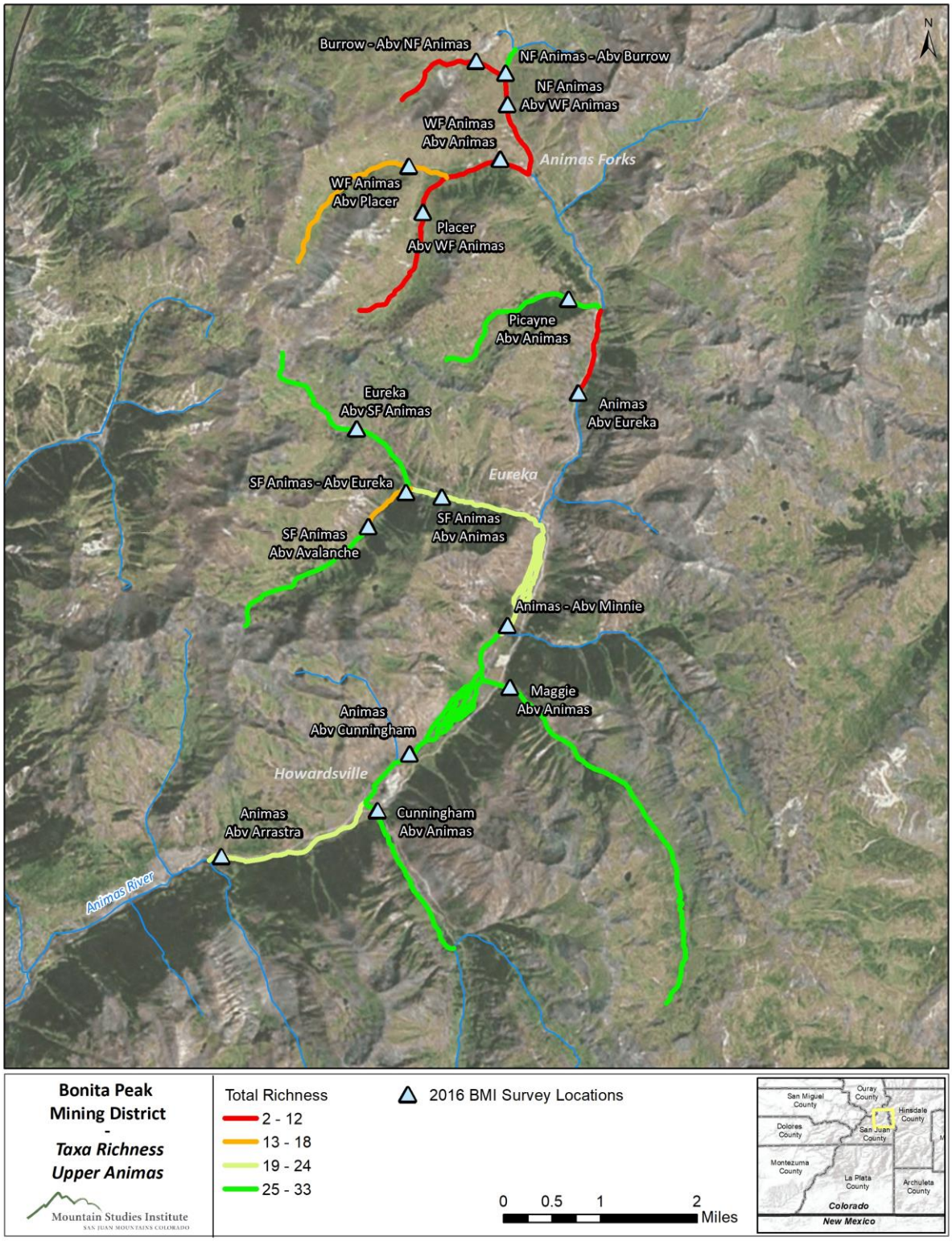
Note: Stream segment classifications are based on the downstream sampling location and thus may not accurately depict spatial heterogeneity within segments.



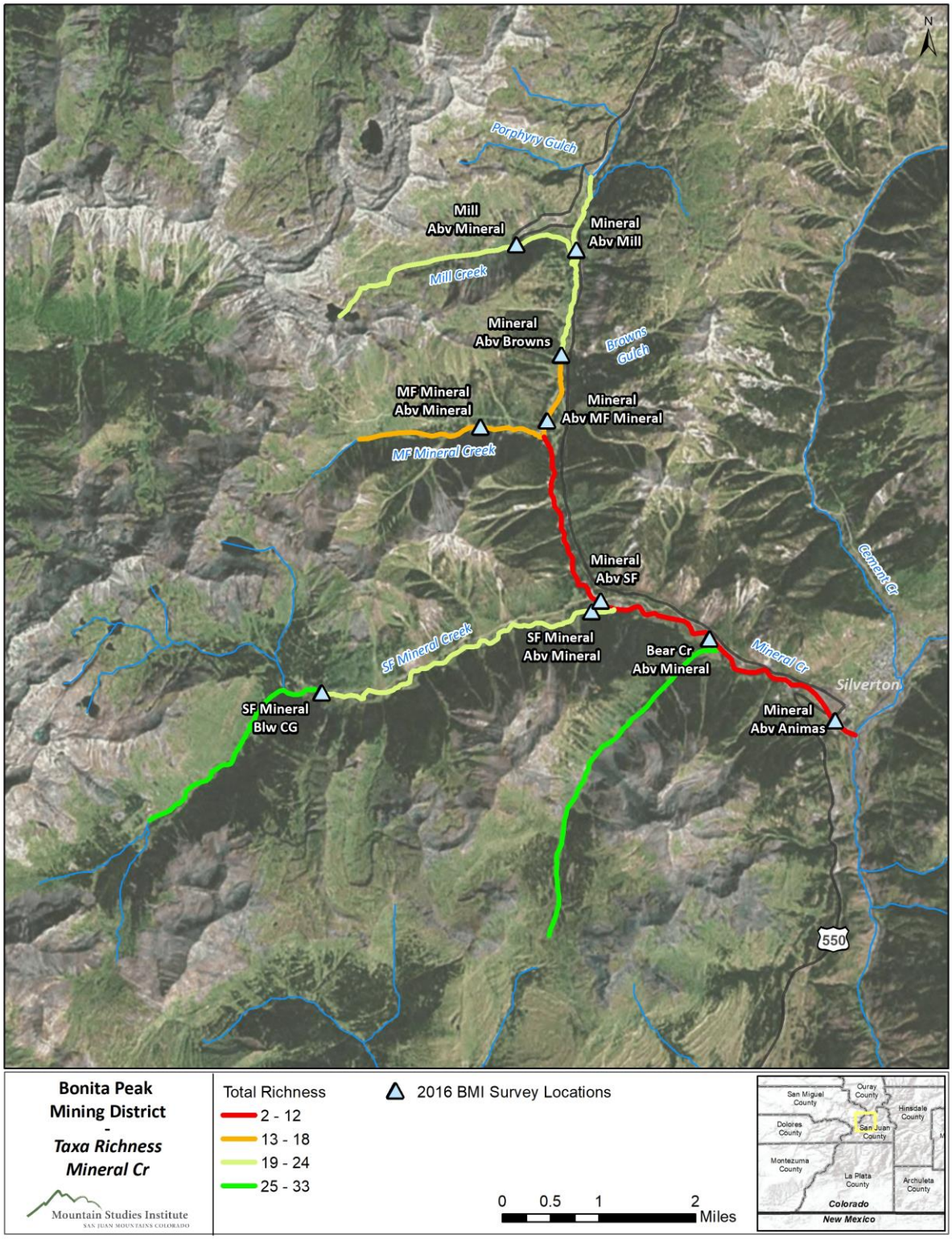
Map 1: BMI monitoring locations – Upper Animas River



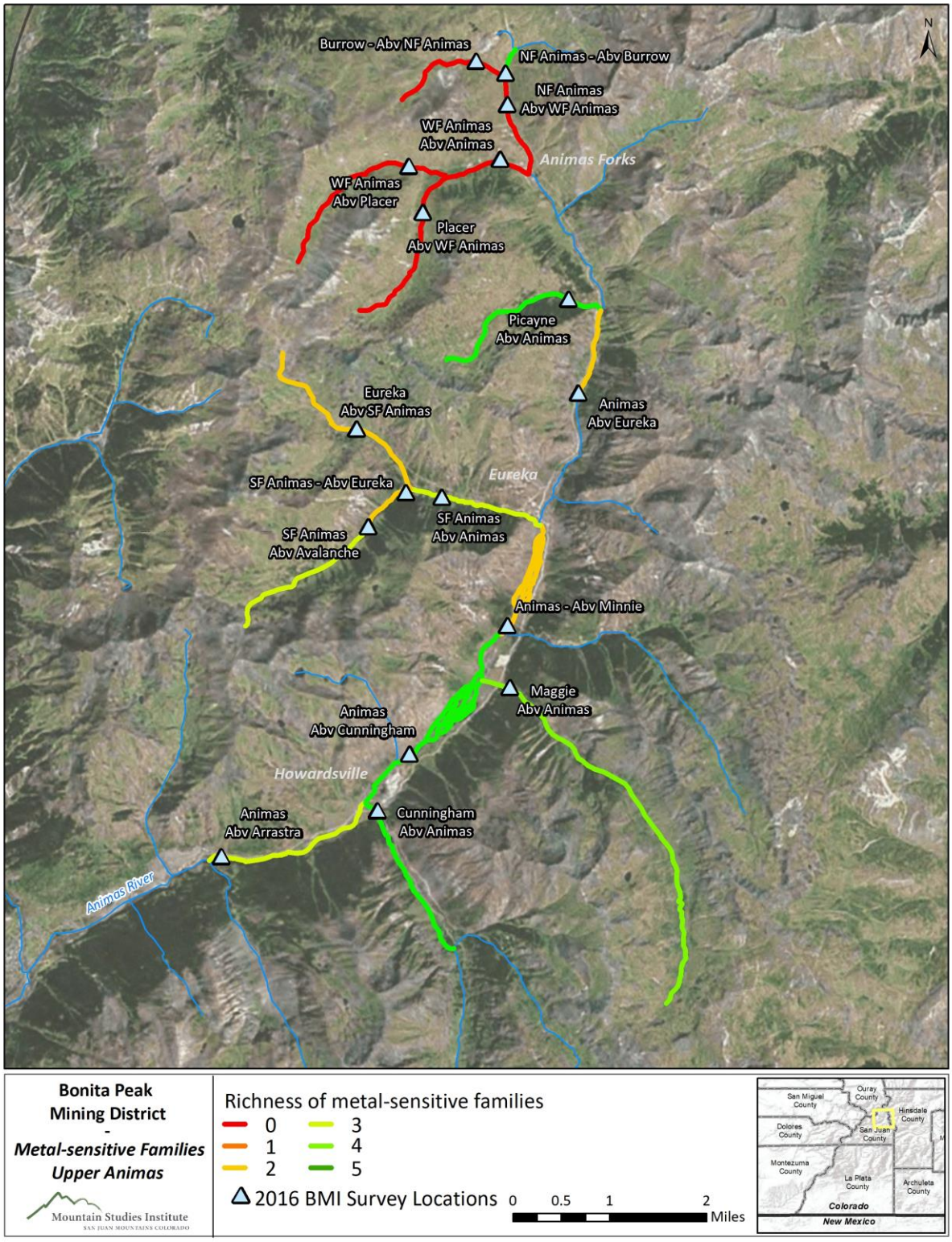
Map 2: BMI monitoring locations – Mineral Creek



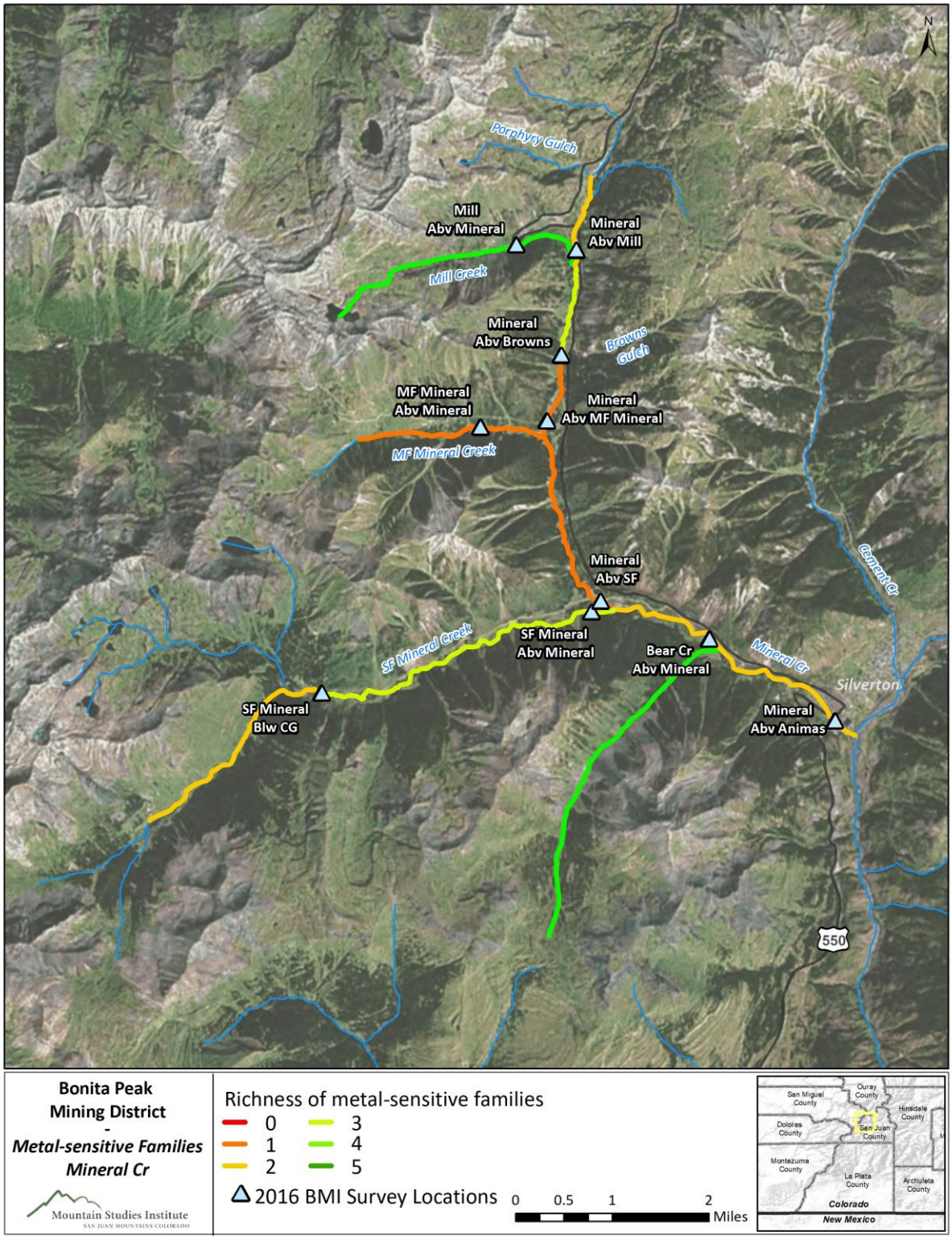
Map 3: Taxa Richness – Upper Animas River



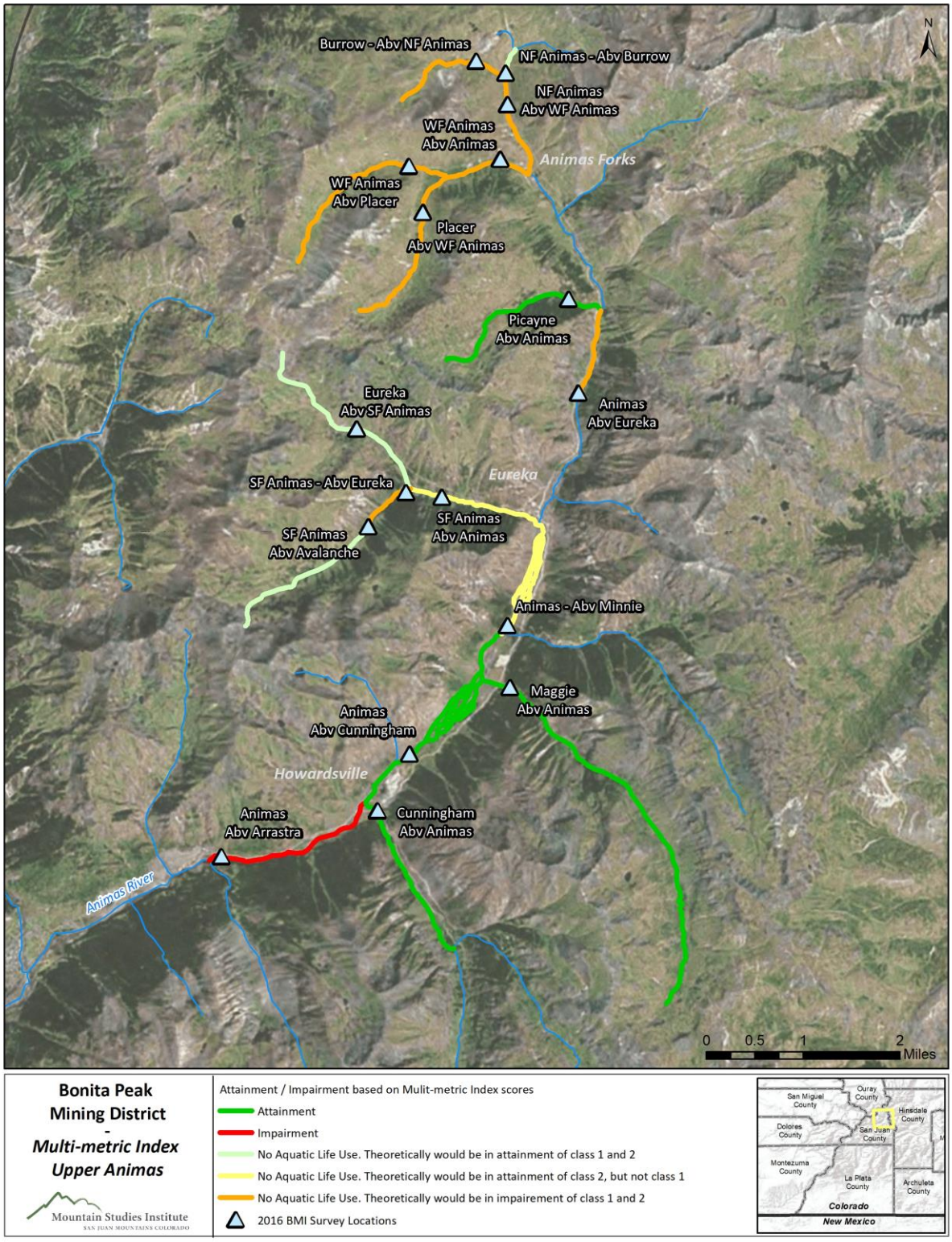
Map 4: Taxa Richness – Mineral Creek



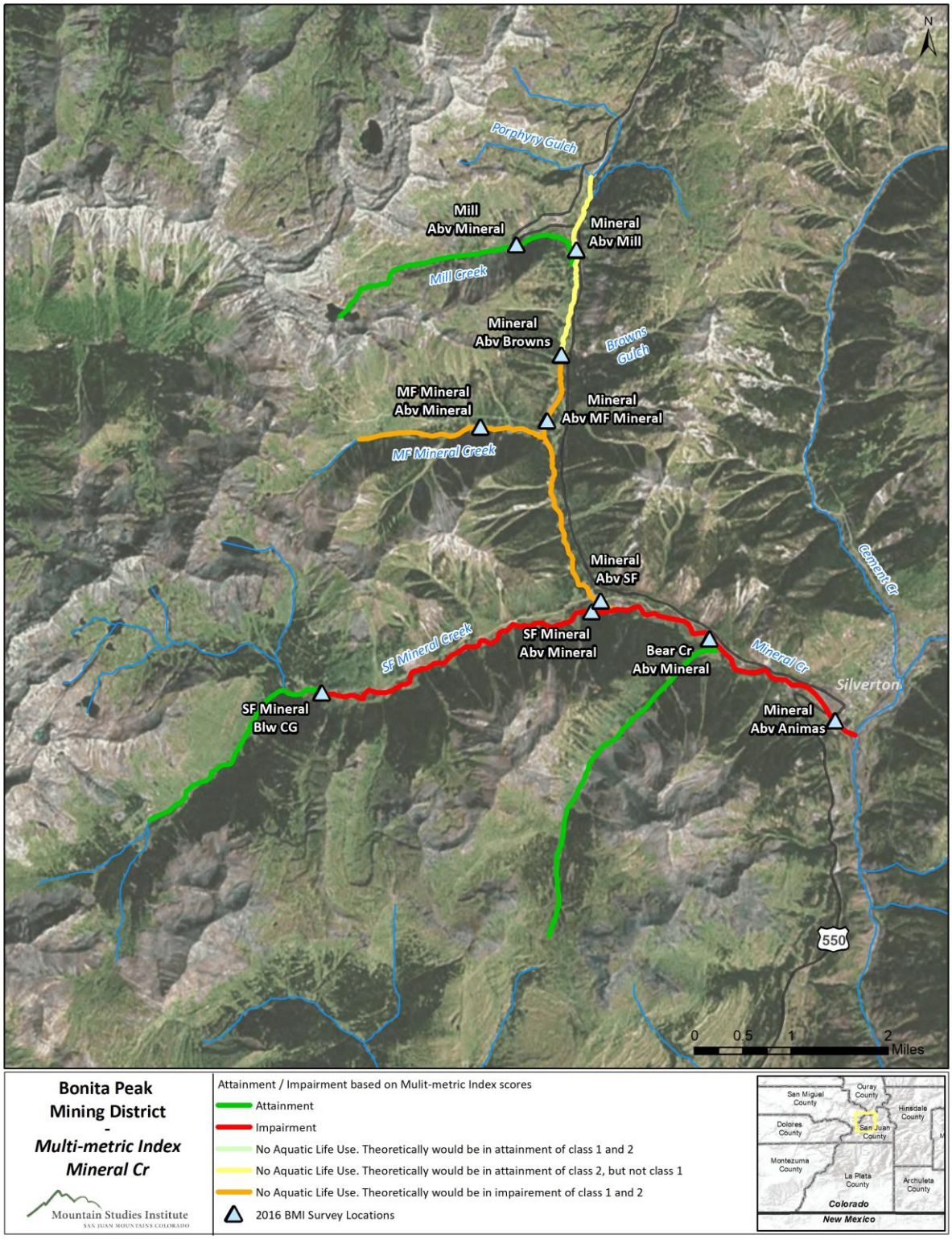
Map 5: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Upper Animas River



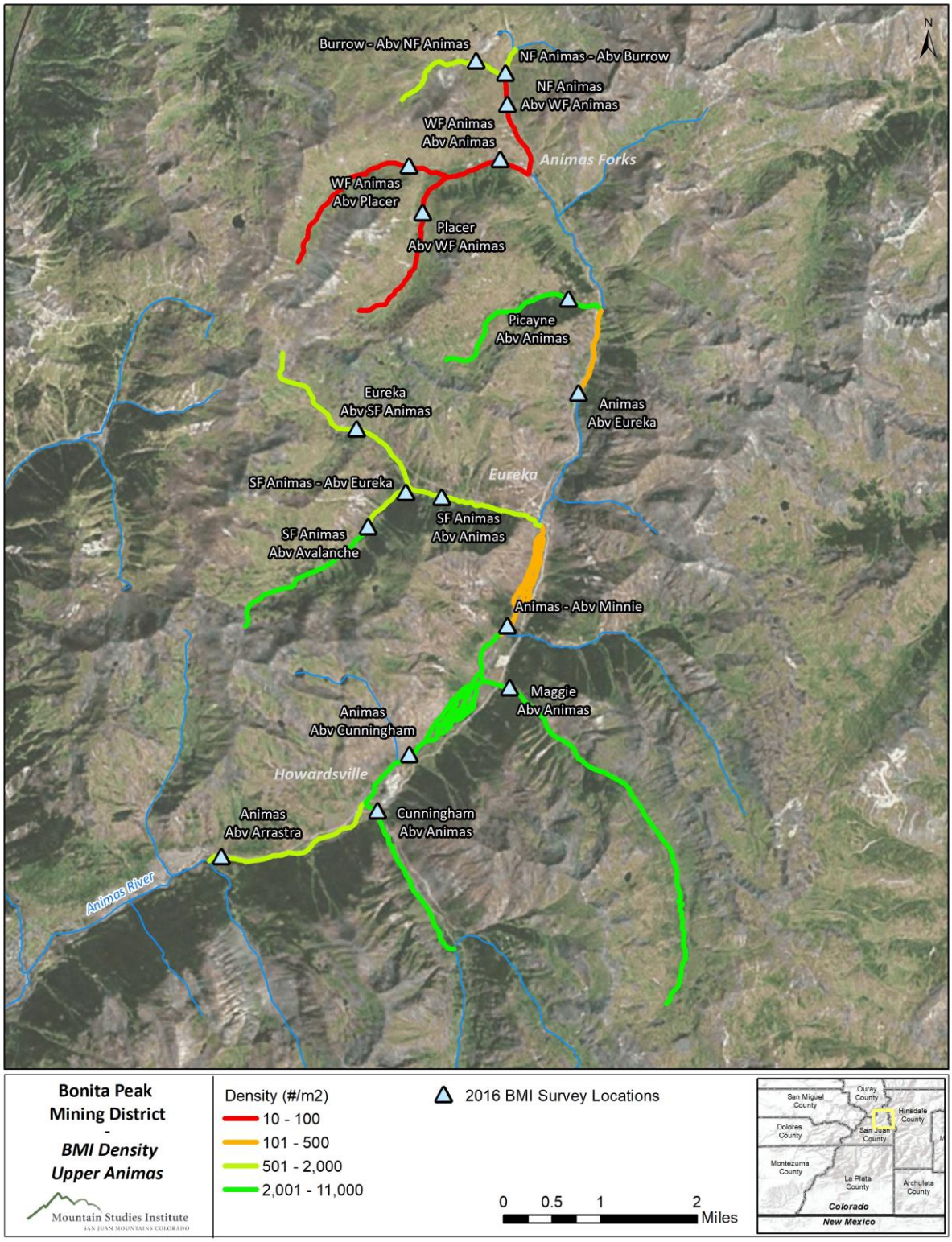
Map 6: Richness of metal-sensitive families (Ephemerellidae; Heptageniidae; Taeniopterygidae) – Mineral Creek



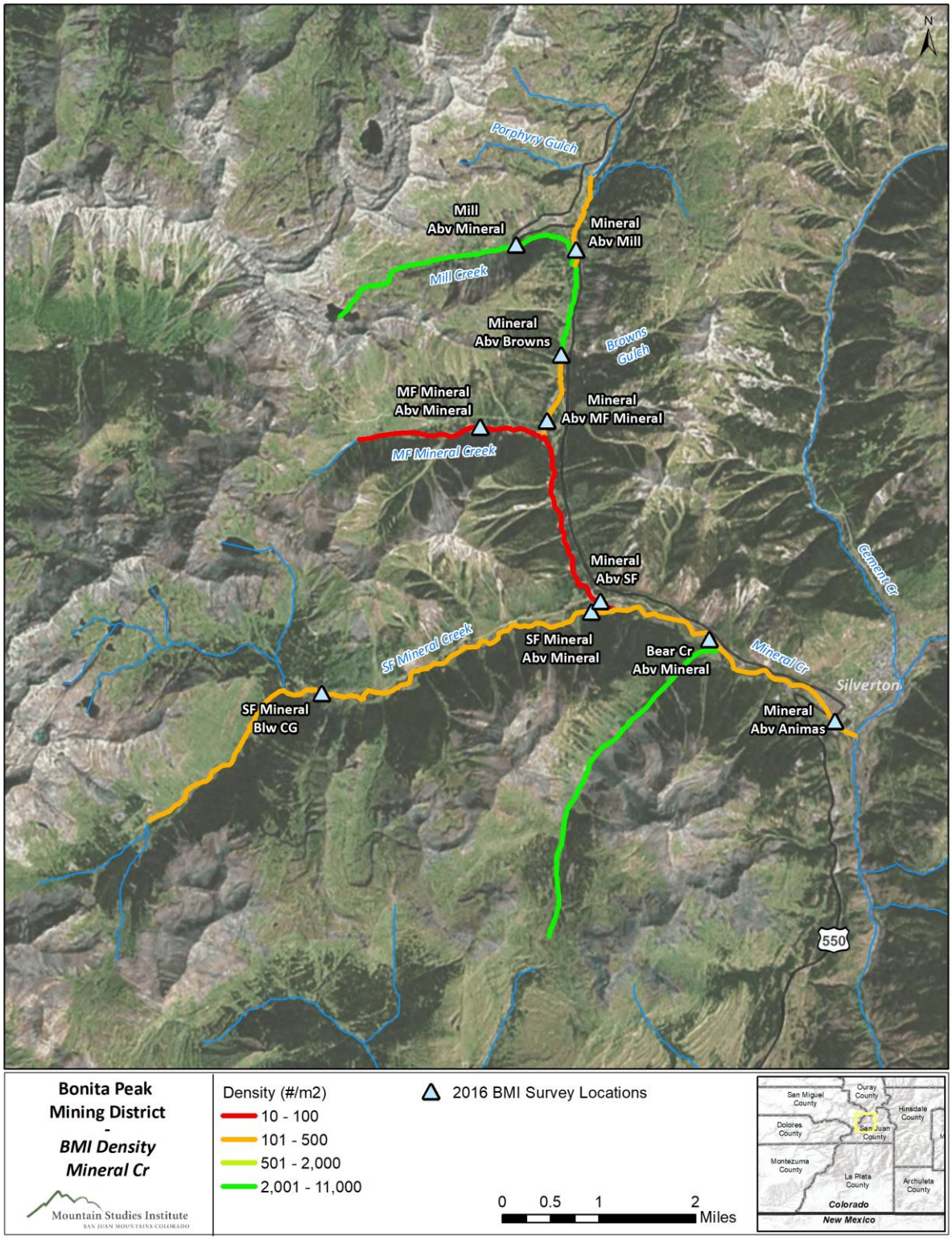
Map 7: Multi-metric Index – Upper Animas River



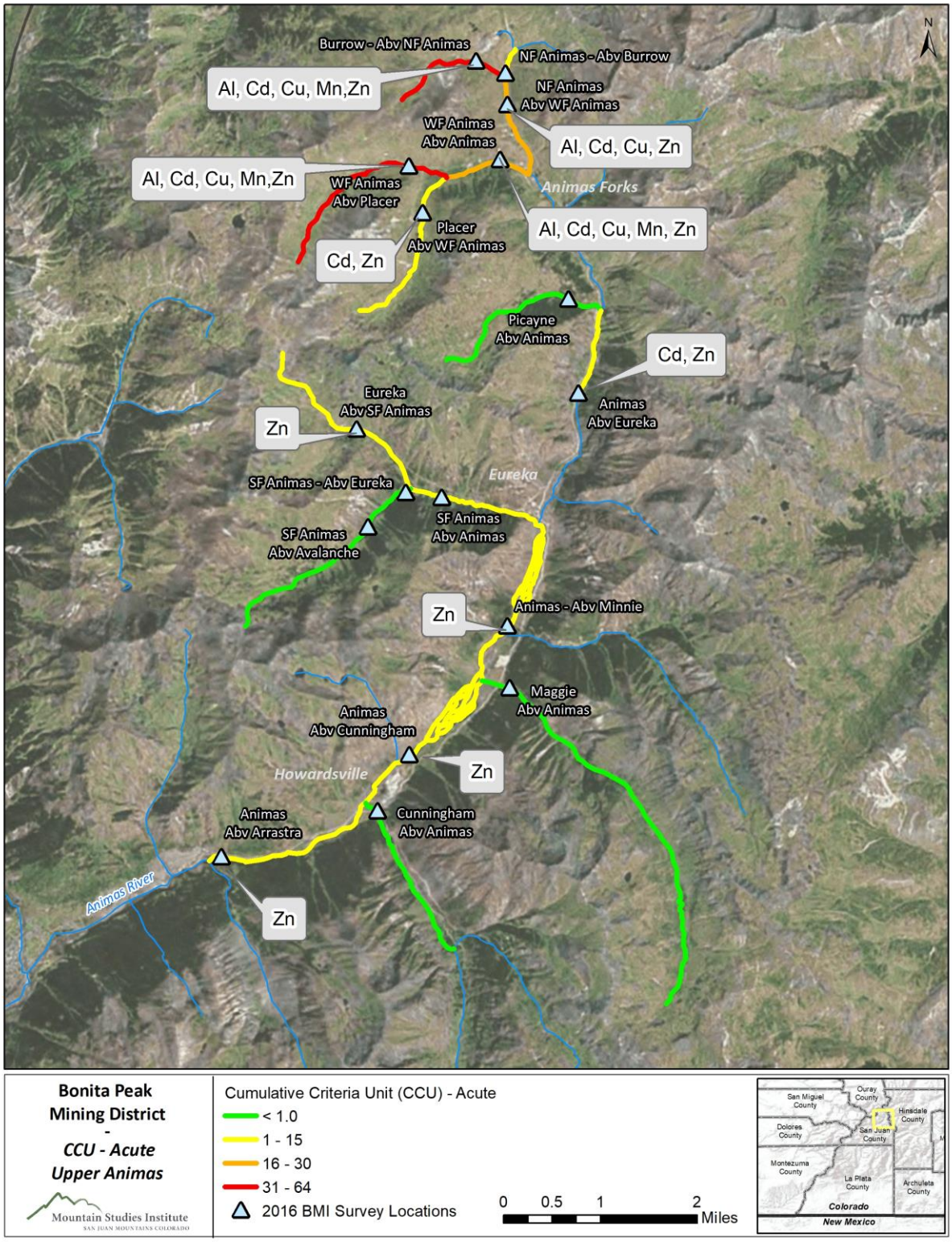
Map 8: Multi-metric Index – Mineral Creek



Map 9: BMI Density – Upper Animas River

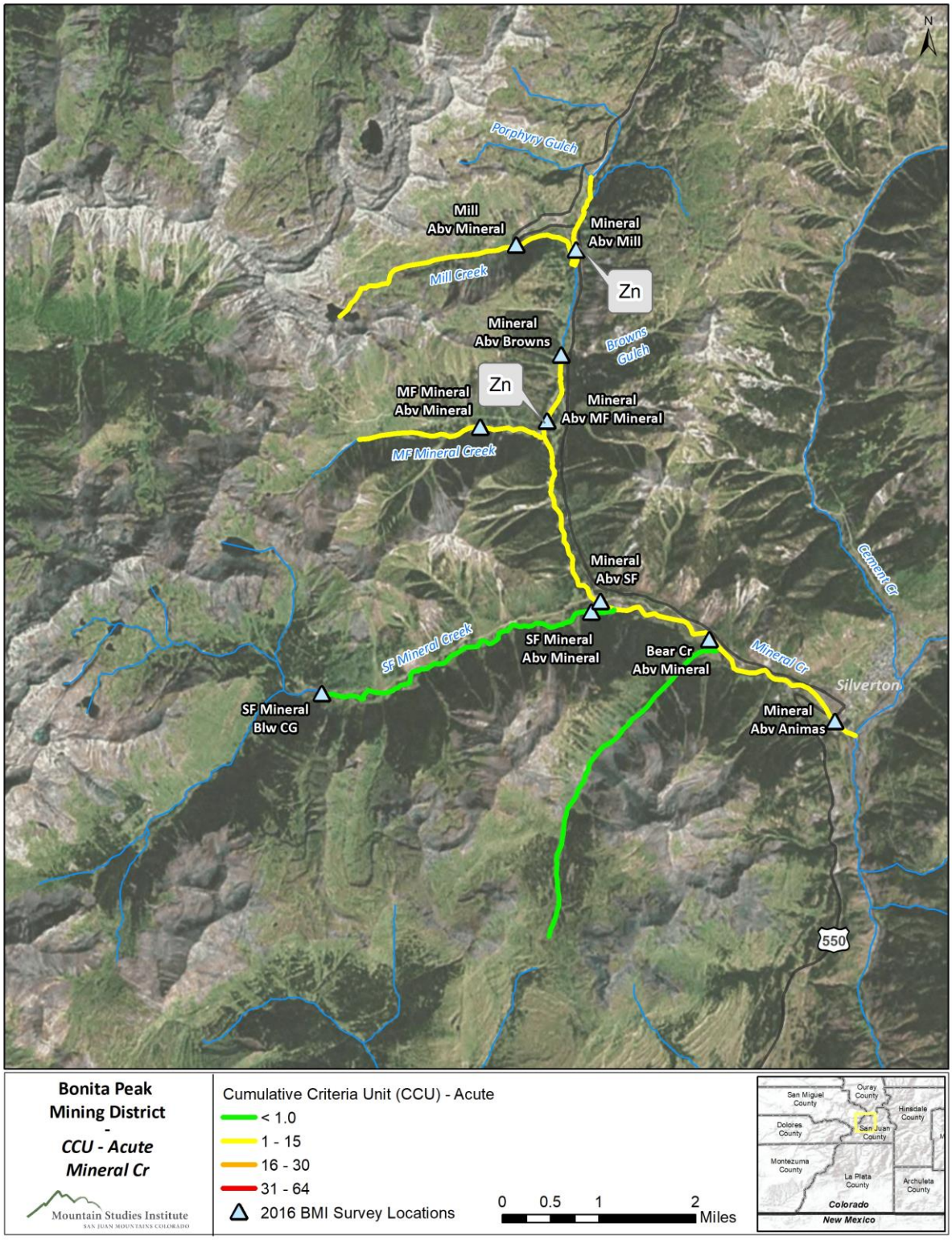


Map 10: BMI Density – Mineral Creek



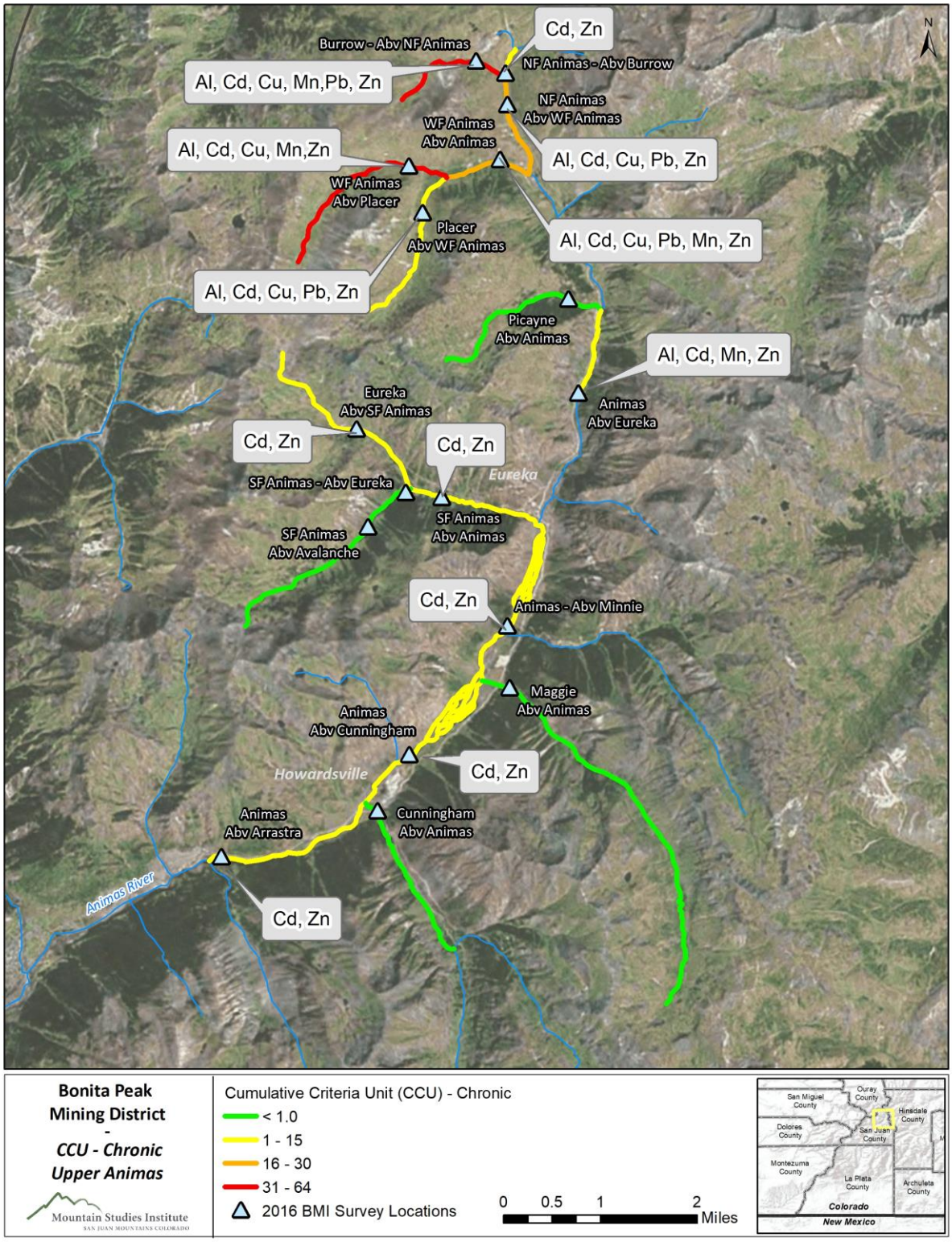
Map 11: Cumulative Criteria Unit (CCU), Acute – Upper Animas River

Note: Cumulative Criteria Unit (CCU) is the sum of Hazard Quotients (HQ) for each site (Table 26). Metals are labeled on the map if a single metal had a hazard quotient above 1.0 for that site.



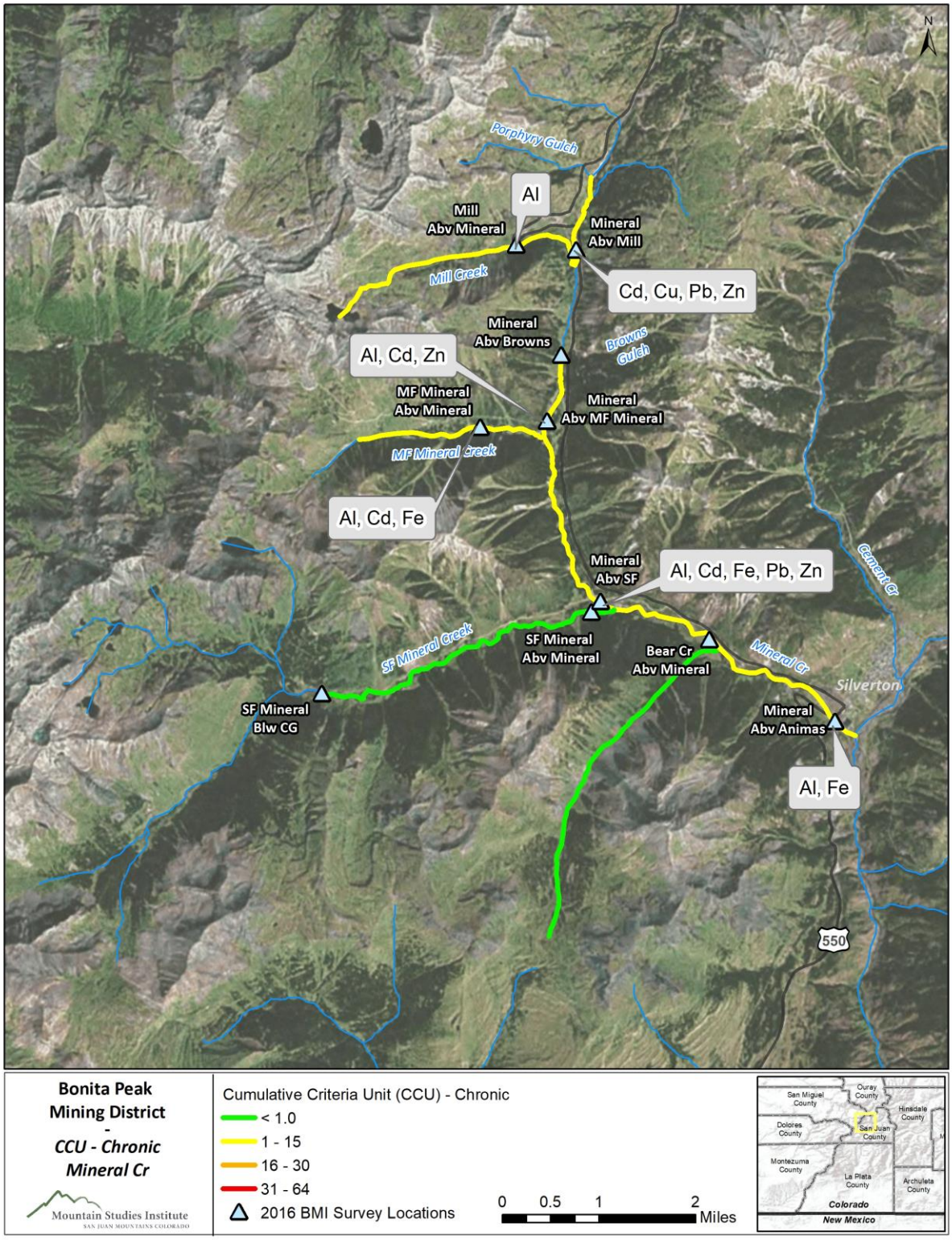
Map 12: Cumulative Criteria Unit (CCU), Acute – Mineral Creek

Note: Cumulative Criteria Unit (CCU) is the sum of Hazard Quotients (HQ) for each site (Table 26). Metals are labeled on the map if a single metal had a hazard quotient above 1.0 for that site.



Map 13: Cumulative Criteria Unit (CCU), Chronic – Upper Animas River

Note: Cumulative Criteria Unit (CCU) is the sum of Hazard Quotients (HQ) for each site (Table 26). Metals are labeled on the map if a single metal had a hazard quotient above 1.0 for that site.



Map 14: Cumulative Criteria Unit (CCU), Chronic – Mineral Creek

Note: Cumulative Criteria Unit (CCU) is the sum of Hazard Quotients (HQ) for each site (Table 26). Metals are labeled on the map if a single metal had a hazard quotient above 1.0 for that site.

Appendix C – Physical Habitat Field Data Sheet

Site:					Date:										
Habitat:															
	1			2			3			4			5		
	S1	Mod	Em	S2	Mod	Em	S3	Mod	Em	S4	Mod	Em	S5	Mod	Em
0															
5															
10															
15															
20															
25															
30															
35															
40															
45															
50															
55															
60															
65															
70															
75															
80															
85															
90															
95															
100															

Mod: A=Algae; M=Moss; V=Veg

Rows are transects; Columns are Positions along transects

Appendix D – Benthic macroinvertebrate taxa observed in 2016

The following are the unadjusted lab bench counts. As described in Section 3.4, we later subsampled these unadjusted counts to eliminate potential bias from differing sample sizes and to meet MMI parameters.

Mineral Cr	Abv Mill Cr	10/17/2016		
Class	Order	Family	Taxon	Count
Insecta	Ephemeroptera	Baetidae	Baetis	1
		Heptageniidae	Rhithrogena	5
	Plecoptera	Chloroperlidae	Suwallia	47
		Chloroperlidae	Sweltsa	3
		Perlodidae	Megarcys	9
		Taeniopterygidae	Taenionema	69
	Trichoptera	Brachycentridae	Brachycentrus	1
		Hydropsychidae	Arctopsyche	5
		Limnephilidae	Limnephilidae	5
		Rhyacophilidae	Rhyacophila_hyalinata	92
		Rhyacophilidae	Rhyacophila_vofixa	7
	Diptera	Ceratopogonidae	Bezzia_Palpomyia	24
		Chironomidae	Brillia	3
		Chironomidae	Chaetocladius	7
		Chironomidae	Cricotopus_Orthocladius	4
		Chironomidae	Diamesa	3
		Chironomidae	Eukiefferiella_claripennis	7
		Chironomidae	Tvetenia_bavarica	1
		Empididae	Neoplasta	3
		Empididae	Oreogeton	11
Arachnida	Trombidiformes	Lebertiidae	Lebertia	8
		Sperchonidae	Sperchon	16
Turbellaria			Turbellaria	65
Oligochaeta			Oligochaeta	1

Total Count	397
Fraction Processed	100%
Area Sampled	1.15 m^2

Mill Cr	Abv Mineral Cr	10/17/2016		
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	5
		Sperchonidae	Sperchon	8
Insecta	Diptera	Chironomidae	Brillia	1
		Chironomidae	Chaetocladius	2
		Chironomidae	Cricotopus_Orthocladius	13
		Chironomidae	Eukiefferiella_claripennis	1
		Chironomidae	Tvetenia_bavarica	3
		Empididae	Oreogeton	1
	Ephemeroptera	Ameletidae	Ameletus	1
		Baetidae	Baetis	8
		Ephemerellidae	Drunella_doddsii	267
		Ephemerellidae	Ephemerellidae	31
		Heptageniidae	Cinygmula	120
		Heptageniidae	Rhithrogena	7
	Plecoptera	Capniidae	Capnia	10
		Chloroperlidae	Suwallia	4
		Nemouridae	Zapada	21
		Perlodidae	Megarcys	19
		Taeniopterygidae	Taenionema	162
	Trichoptera	Limnephilidae	Dicosmoecus	17
		Limnephilidae	Psychoglypha	35
		Rhyacophilidae	Rhyacophila_hyalinata	20
Oligochaeta			Oligochaeta	1
Ostracoda			Ostracoda	5
Turbellaria			Turbellaria	28

Total Count	790
Fraction Processed	6.25%
Area Sampled	1.15 m^2

Mineral Cr	Abv Browns Gluch	10/17/2016		
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Aturidae	Aturus	1
		Lebertiidae	Lebertia	6
		Sperchonidae	Sperchon	3
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	2
		Chironomidae	Cricotopus_Orthocladius	4
		Chironomidae	Diamesa	8
		Chironomidae	Eukiefferiella_brehmi	2
		Dixidae	Dixa	1
	Ephemeroptera	Baetidae	Baetis	3
		Ephemerellidae	Drunella_doddsii	15
		Heptageniidae	Rhithrogena	23
	Plecoptera	Capniidae	Capnia	2
		Chloroperlidae	Suwallia	1
		Chloroperlidae	Sweltsa	4
		Nemouridae	Zapada	76
		Perlodidae	Megarcys	1
		Taeniopterygidae	Taenionema	370
	Trichoptera	Brachycentridae	Brachycentrus	1
		Hydropsychidae	Arctopsyche	11
		Rhyacophilidae	Rhyacophila_hyalinata	25
Ostracoda			Ostracoda	2
Turbellaria			Turbellaria	15

Total Count	576
Fraction Processed	18.75%
Area Sampled	1.15 m^2

Mineral Cr	Abv MF Mineral	10/14/2016		
Class	Order	Family	Taxon	Count
Insecta	Ephemeroptera	Baetidae	Baetis	1
	Plecoptera	Capniidae	Capnia	1
		Nemouridae	Zapada	67
		Taeniopterygidae	Taenionema	9
	Trichoptera	Hydropsychidae	Arctopsyche	20
		Limnephilidae	Psychoglypha	1
		Rhyacophilidae	Rhyacophila_hyalinata	6
	Diptera	Ceratopogonidae	Bezzia_Palpomyia	2
		Chironomidae	Chaetocladius	1
		Chironomidae	Cricotopus_Orthocladius	2
		Empididae	Clinocera	1
Arachnida	Trombidiformes	Lebertiidae	Lebertia	3
		Sperchonidae	Sperchon	3
Turbellaria			Turbellaria	2
Arachnoidea	Hydracarina	Hydracarina	Hydracarina	1

Total Count	120
Fraction Processed	100%
Area Sampled	1.15 m^2

MF of Mineral Cr	Abv Mineral Cr	10/14/2016		
Class	Order	Family	Taxon	Count
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	1
		Chironomidae	Brillia	3
		Chironomidae	Chaetocladius	22
		Chironomidae	Cricotopus_Orthocladius	1
		Chironomidae	Eukiefferiella_claripennis	1
		Chironomidae	Pseudodiamesa	2
		Empididae	Neoplasta	2
		Tipulidae	Ormosia	1
	Plecoptera	Capniidae	Capnia	1
		Nemouridae	Zapada	2
		Taeniopterygidae	Taenionema	2
	Trichoptera	Limnephilidae	Psychoglypha	3
		Rhyacophilidae	Rhyacophila_sibirica	4
		Rhyacophilidae	Rhyacophila_vofixa	2

Total Count	47
Fraction Processed	100%
Area Sampled	1.15 m^2

Mineral Cr	Abv SF Mineral	10/13/2016		
Class	Order	Family	Taxon	Count
Insecta	Coleoptera	Hydrophilidae	Hydrophilidae	2
	Plecoptera	Nemouridae	Zapada	20
		Taeniopterygidae	Taenionema	3
	Trichoptera	Limnephilidae	Psychoglypha	1
	Diptera	Ceratopogonidae	Bezzia_Palpomyia	2
		Chironomidae	Brillia	6
		Chironomidae	Chaetocladius	51
		Chironomidae	Cricotopus_Orthocladius	1
		Chironomidae	Tvetenia_bavarica	1
		Tipulidae	Dicranota	1
		Tipulidae	Ormosia	1
Arachnida	Sarcoptiformes	Trhypochthoniidae	Mucronothrus	1

Total Count	90
Fraction Processed	100%
Area Sampled	1.15 m^2

SF of Mineral Cr		Below CG Below Clear Lake Cr		10/13/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	1
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	4
		Chironomidae	Brillia	2
		Chironomidae	Chaetocladius	5
		Chironomidae	Cricotopus_Orthocladius	3
		Chironomidae	Diamesa	4
		Chironomidae	Eukiefferiella_brehmi	2
		Empididae	Oreogeton	2
	Ephemeroptera	Baetidae	Baetis	4
		Heptageniidae	Rhithrogena	8
	Plecoptera	Capniidae	Capnia	4
		Chloroperlidae	Suwallia	16
		Chloroperlidae	Sweltsa	8
		Leuctridae	Paraleuctra	2
		Nemouridae	Amphinemura	3
		Nemouridae	Zapada	93
		Perlodidae	Isoperla	12
		Perlodidae	Megarcys	3
		Taeniopterygidae	Taenionema	82
	Trichoptera	Hydropsychidae	Arctopsyche	10
		Limnephilidae	Hesperophylax	5
		Rhyacophilidae	Rhyacophila_hyalinata	1
		Rhyacophilidae	Rhyacophila_sibirica	1
		Rhyacophilidae	Rhyacophila_sibirica_atrata	1
		Rhyacophilidae	Rhyacophila_vofixa	1
		Uenoidae	Neothremma	1
Ostracoda			Ostracoda	6
Turbellaria			Turbellaria	1

Total Count	285
Fraction Processed	100%
Area Sampled	1.15 m^2

SF of Mineral Cr	Abv Mineral Cr	10/13/2016		
Class	Order	Family	Taxon	Count
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	13
		Chironomidae	Chaetocladius	6
		Chironomidae	Cricotopus_Orthocladius	121
		Chironomidae	Diamesa	10
		Chironomidae	Eukiefferiella_claripennis	8
		Empididae	Chelifera	4
	Ephemeroptera	Baetidae	Baetis	4
		Ephemerellidae	Drunella_doddsii	4
		Heptageniidae	Epeorus	2
	Plecoptera	Capniidae	Capnia	1
		Capniidae	Capnia	1
		Chloroperlidae	Suwallia	1
		Nemouridae	Podmosta	24
		Nemouridae	Zapada	159
		Perlodidae	Isoperla	2
		Perlodidae	Megarcys	1
		Taeniopterygidae	Taenionema	120
	Trichoptera	Rhyacophilidae	Rhyacophila_brunnea	5
		Rhyacophilidae	Rhyacophila_nevadensis	5
		Rhyacophilidae	Rhyacophila_sibirica_atrata	4
Ostracoda			Ostracoda	16

Total Count	511
Fraction Processed	100%
Area Sampled	1.15 m^2

Bear Cr	Abv Mineral Cr	10/12/2016		
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Sperchonidae	Sperchon	17
Insecta	Diptera	Chironomidae	Brillia	3
		Chironomidae	Eukiefferiella_brehmi	2
		Chironomidae	Eukiefferiella_gracei	4
		Chironomidae	Micropsectra	88
		Chironomidae	Tvetenia_bavarica	12
		Empididae	Clinocera	4
		Psychodidae	Pericoma	1
		Simuliidae	Simulium	2
		Tipulidae	Dicranota	3
	Ephemeroptera	Ameletidae	Ameletus	1
		Baetidae	Baetis	1
		Ephemerellidae	Drunella_doddsii	28
		Ephemerellidae	Ephemerellidae	2
		Heptageniidae	Cinygmula	16
		Heptageniidae	Rhithrogena	54
	Plecoptera	Chloroperlidae	Suwallia	16
		Nemouridae	Zapada	95
		Perlodidae	Isoperla	4
		Perlodidae	Megarcys	9
		Taeniopterygidae	Taenionema	94
	Trichoptera	Hydropsychidae	Arctopsyche	1
		Limnephilidae	Limnephilidae	1
		Rhyacophilidae	Rhyacophila_hyalinata	19
		Rhyacophilidae	Rhyacophila_sibirica	14
		Rhyacophilidae	Rhyacophila_vofixa	1
		Uenoidae	Neophylax	12
Oligochaeta			Oligochaeta	2
Ostracoda			Ostracoda	15
Turbellaria			Turbellaria	10

Total Count	531
Fraction Processed	18.75%
Area Sampled	1.15 m^2

Mineral Cr	Abv Animas River	10/12/2016		
Class	Order	Family	Taxon	Count
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	7
		Chironomidae	Brillia	1
		Chironomidae	Chaetocladius	5
		Chironomidae	Cricotopus_Orthocladius	1
		Chironomidae	Eukiefferiella_claripennis	4
	Ephemeroptera	Heptageniidae	Rhithrogena	1
	Plecoptera	Nemouridae	Zapada	120
		Taeniopterygidae	Taenionema	21
	Trichoptera	Hydropsychidae	Arctopsyche	16
		Limnephilidae	Psychoglypha	1
		Rhyacophilidae	Rhyacophila_sibirica	3

Total Count	180
Fraction Processed	100%
Area Sampled	1.15 m^2

NF Animas River		Abv Burrow Cr		10/7/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Feltriidae	Feltria	1
		Lebertiidae	Lebertia	2
		Sperchonidae	Sperchon	9
Insecta	Coleoptera	Elmidae	Heterlimnius	8
	Diptera	Chironomidae	Brillia	2
		Chironomidae	Chaetocladius	2
		Chironomidae	Cricotopus_Orthocladius	15
		Chironomidae	Diamesa	9
		Chironomidae	Eukiefferiella_gracei	6
		Chironomidae	Krenosmittia	1
		Chironomidae	Tanytarsus	2
		Empididae	Clinocera	1
		Psychodidae	Pericoma	4
		Tipulidae	Tipula	1
	Ephemeroptera	Ephemerellidae	Drunella_doddsii	4
		Ephemerellidae	Ephemerellidae	1
		Heptageniidae	Cinygmula	46
		Heptageniidae	Rhithrogena	46
	Plecoptera	Chloroperlidae	Suwallia	4
		Chloroperlidae	Sweltsa	8
		Nemouridae	Zapada	193
		Perlodidae	Isoperla	5
		Perlodidae	Megarcys	10
		Taeniopterygidae	Taenionema	85
	Trichoptera	Hydropsychidae	Arctopsyche	18
		Limnephilidae	Ecclisomyia	5
		Rhyacophilidae	Rhyacophila_hyalinata	7
		Rhyacophilidae	Rhyacophila_sibirica	1
		Rhyacophilidae	Rhyacophila_vofixa	15
		Uenoidae	Neophylax	8
Oligochaeta			Oligochaeta	3
Ostracoda			Ostracoda	1
Turbellaria			Turbellaria	9

Total Count	532
Fraction Processed	37.5%
Area Sampled	1.15 m^2

Burrow Creek	Abv NF Animas River			10/7/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Sperchonidae	Sperchon	1
Insecta	Diptera	Chironomidae	Chaetocladius	8
		Chironomidae	Eukiefferiella_brehmi	365
		Chironomidae	Eukiefferiella_claripennis	19
		Chironomidae	Parochlus	2
		Chironomidae	Rheotanytarsus	23
		Chironomidae	Thienemanniella_xena	27
		Empididae	Clinocera	37
	Plecoptera	Capniidae	Capniidae	2
	Trichoptera	Limnephilidae	Hesperophylax	12
		Limnephilidae	Psychoronia	12
Oligochaeta			Oligochaeta	1

Total Count	509
Fraction Processed	43.75%
Area Sampled	1.15 m^2

NF Animas River	Abv WF Animas Forks			10/7/2016
Class	Order	Family	Taxon	Count
Insecta	Coleoptera	Elmidae	Heterlimnius	1
	Diptera	Chironomidae	Chaetocladius	1
		Chironomidae	Tanypodinae	1
	Plecoptera	Capniidae	Capnia	1
		Nemouridae	Zapada	5
		Perlodidae	Megarcys	1
	Trichoptera	Rhyacophilidae	Rhyacophila_hyalinata	1
Oligochaeta			Oligochaeta	1

Total Count	12
Fraction Processed	100%
Area Sampled	1.15 m^2

WF Animas River	Abv Placer Gulch	10/10/2016		
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Arrenuridae	Arrenurus	1
Insecta	Coleoptera	Dytiscidae	Dytiscidae	1
	Diptera	Chironomidae	Chaetocladius	2
		Chironomidae	Micropsectra	1
		Empididae	Clinocera	2
		Tipulidae	Tipula	1
	Plecoptera	Capniidae	Capnia	11
		Nemouridae	Amphinemura	2
		Nemouridae	Zapada	3
	Trichoptera	Limnephilidae	Ecclisomyia	2
		Rhyacophilidae	Rhyacophila_vofixa	2
Oligochaeta			Oligochaeta	2
Ostracoda			Ostracoda	9
Turbellaria			Turbellaria	1

Total Count	40
Fraction Processed	100%
Area Sampled	1.15 m^2

Placer Gulch	Abv WF Animas River			10/10/2016
Class	Order	Family	Taxon	Count
Insecta	Plecoptera	Chloroperlidae	Suwallia	1
		Nemouridae	Zapada	34

Total Count	35
Fraction Processed	100%
Area Sampled	1.15 m^2

WF Animas Rvr		Abv Animas Rvr		10/7/2016
Class	Order	Family	Taxon	Count
Insecta	Diptera	Chironomidae	Chaetocladius	2
		Empididae	Clinocera	2
	Plecoptera	Capniidae	Capnia	3
		Nemouridae	Zapada	4
Turbellaria			Turbellaria	1

Total Count	12
Fraction Processed	100%
Area Sampled	1.15 m^2

Picayne Gulch		Abv Animas River		10/5/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Sperchonidae	Sperchon	8
Insecta	Diptera	Chironomidae	Cricotopus_Orthocladius	2
		Chironomidae	Diamesa	1
		Chironomidae	Eukiefferiella_brehmi	7
		Chironomidae	Eukiefferiella_devonica	3
		Chironomidae	Pagastia	1
		Chironomidae	Tanytarsus	5
	Ephemeroptera	Baetidae	Baetis	8
		Ephemerellidae	Drunella_doddsii	1
		Ephemerellidae	Ephemerellidae	27
		Heptageniidae	Cinygmula	24
		Heptageniidae	Rhithrogena	21
	Plecoptera	Chloroperlidae	Suwallia	6
		Chloroperlidae	Sweltsa	2
		Leuctridae	Paraleuctra	7
		Nemouridae	Zapada	77
		Perlodidae	Isoperla	7
		Perlodidae	Megarcys	10
		Taeniopterygidae	Taenionema	307
	Trichoptera	Hydropsychidae	Arctopsyche	3
		Rhyacophilidae	Rhyacophila_hyalinata	12
		Rhyacophilidae	Rhyacophila_sibirica	5
		Rhyacophilidae	Rhyacophila_vofixa	5
		Uenoidae	Neophylax	1
Oligochaeta			Oligochaeta	1
Ostracoda			Ostracoda	5
Turbellaria			Turbellaria	1

Total Count	557
Fraction Processed	7.815%
Area Sampled	1.15 m^2

Animas River	Above Eureka	10/11/2016		
Class	Order	Family	Taxon	Count
Insecta	Diptera	Chironomidae	Cricotopus_Orthocladius	3
	Ephemeroptera	Heptageniidae	Rhithrogena	1
	Plecoptera	Chloroperlidae	Sweltsa	1
		Nemouridae	Zapada	87
		Perlodidae	Megarcys	1
		Taeniopterygidae	Taenionema	46
	Trichoptera	Hydropsychidae	Arctopsyche	110
		Rhyacophilidae	Rhyacophila_hyalinata	6
		Rhyacophilidae	Rhyacophila_nevadensis	5

Total Count	260
Fraction Processed	100%
Area Sampled	1.15 m^2

SF Animas River		Abv Avalanche		10/8/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Feltriidae	Feltria	1
		Hydryphantoidea	Protzia	1
		Lebertiidae	Lebertia	1
		Sperchonidae	Sperchon	9
Insecta	Diptera	Chironomidae	Brillia	1
		Chironomidae	Cricotopus_Orthocladius	3
		Chironomidae	Diamesa	34
		Chironomidae	Eukiefferiella_brehmi	14
		Chironomidae	Parametriocnemus	2
		Chironomidae	Tvetenia_bavarica	2
	Ephemeroptera	Ameletidae	Ameletus	2
		Baetidae	Baetis	2
		Ephemerellidae	Drunella_doddsii	63
		Heptageniidae	Rhithrogena	175
	Plecoptera	Capniidae	Capnia	27
		Chloroperlidae	Suwallia	7
		Chloroperlidae	Sweltsa	3
		Leuctridae	Paraleuctra	2
		Nemouridae	Zapada	93
		Perlodidae	Megarcys	15
		Perlodidae	Perlinodes_aurea	2
		Taeniopterygidae	Taenionema	166
	Trichoptera	Limnephilidae	Ecclisomyia	3
		Rhyacophilidae	Rhyacophila_hyalinata	8
		Rhyacophilidae	Rhyacophila_sibirica	2
		Rhyacophilidae	Rhyacophila_vofixa	2
		Uenoidae	Neophylax	13
Oligochaeta			Oligochaeta	1
Ostracoda			Ostracoda	18
Turbellaria			Turbellaria	1

Total Count	673
Fraction Processed	12.5%
Area Sampled	1.15 m^2

SF Animas River		Abv Eureka Gulch		10/8/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Hydryphantoidea	Protzia	1
		Sperchonidae	Sperchon	2
Insecta	Diptera	Chironomidae	Brillia	6
		Chironomidae	Chaetocladius	3
		Chironomidae	Cricotopus_Orthocladius	9
		Chironomidae	Eukiefferiella_claripennis	34
		Empididae	Chelifera	1
		Tipulidae	Hexatoma	1
	Ephemeroptera	Ameletidae	Ameletus	2
		Heptageniidae	Rhithrogena	2
	Plecoptera	Chloroperlidae	Suwallia	11
		Nemouridae	Zapada	393
		Taeniopterygidae	Taenionema	3
	Trichoptera	Rhyacophilidae	Rhyacophila_hyalinata	6
		Rhyacophilidae	Rhyacophila_sibirica	19
		Rhyacophilidae	Rhyacophila_vofixa	6
Turbellaria			Turbellaria	2

Total Count	501
Fraction Processed	75%
Area Sampled	1.15 m^2

Eureka Gulch		Abv SF Animas River		10/6/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	6
		Sperchonidae	Sperchon	6
Insecta	Coleoptera	Hydrophilidae	Hydrophilidae	1
	Diptera	Ceratopogonidae	Bezzia_Palpomyia	1
		Chironomidae	Chaetocladius	5
		Chironomidae	Cricotopus_Orthocladius	101
		Chironomidae	Diamesa	19
		Chironomidae	Eukiefferiella_brehmi	1
		Chironomidae	Pagastia	1
		Simuliidae	Prosimulium	3
		Tipulidae	Tipula	3
	Ephemeroptera	Ameletidae	Ameletus	1
		Baetidae	Baetis	1
		Heptageniidae	Rhithrogena	36
	Plecoptera	Chloroperlidae	Suwallia	31
		Chloroperlidae	Sweltsa	13
		Nemouridae	Zapada	112
		Perlodidae	Isoperla	1
		Perlodidae	Megarcys	15
		Taeniopterygidae	Taenionema	67
	Trichoptera	Hydropsychidae	Arctopsyche	4
		Limnephilidae	Ecclisomyia	2
		Rhyacophilidae	Rhyacophila_sibirica	44
		Rhyacophilidae	Rhyacophila_vofixa	36
Oligochaeta			Oligochaeta	1
Ostracoda			Ostracoda	2
Turbellaria			Turbellaria	34

Total Count	547
Fraction Processed	88%
Area Sampled	1.15 m^2

SF Animas River	Above Animas River			10/6/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	3
		Sperchonidae	Sperchon	2
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	2
		Chironomidae	Brillia	2
		Chironomidae	Chaetocladius	2
		Chironomidae	Cricotopus_Orthocladius	24
		Chironomidae	Diamesa	2
		Chironomidae	Eukiefferiella_claripennis	3
	Ephemeroptera	Ameletidae	Ameletus	2
		Baetidae	Baetis	4
		Ephemerellidae	Drunella_doddsii	1
		Heptageniidae	Rhithrogena	37
	Plecoptera	Chloroperlidae	Suwallia	10
		Nemouridae	Zapada	229
		Perlodidae	Megarcys	1
		Taeniopterygidae	Taenionema	168
	Trichoptera	Hydropsychidae	Arctopsyche	3
		Rhyacophilidae	Rhyacophila_hyalinata	5
		Rhyacophilidae	Rhyacophila_vofixa	31
Turbellaria			Turbellaria	8

Total Count	539
Fraction Processed	37.5%
Area Sampled	1.15 m^2

Animas River	Abv Minnie	10/11/2016		
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Feltriidae	Feltria	2
		Lebertiidae	Lebertia	8
		Sperchonidae	Sperchon	12
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	19
		Chironomidae	Chaetocladius	3
		Chironomidae	Cricotopus_Orthocladius	110
		Chironomidae	Nanocladius_parvulus	2
		Chironomidae	Pagastia	4
		Empididae	Chelifera	1
	Ephemeroptera	Heptageniidae	Rhithrogena	10
	Plecoptera	Chloroperlidae	Suwallia	2
		Chloroperlidae	Sweltsa	1
		Nemouridae	Zapada	145
		Perlodidae	Isoperla	4
		Perlodidae	Megarcys	14
		Taeniopterygidae	Taenionema	78
	Trichoptera	Hydropsychidae	Arctopsyche	79
		Limnephilidae	Limnephilidae	1
		Rhyacophilidae	Rhyacophila_hyalinata	3
		Rhyacophilidae	Rhyacophila_nevadensis	3
Turbellaria			Turbellaria	2

Total Count	503
Fraction Processed	87.5%
Area Sampled	1.15 m^2

Maggie Gulch	Abv Animas River			10/4/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Sperchonidae	Sperchon	6
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	2
		Chironomidae	Brillia	2
		Chironomidae	Eukiefferiella_gracei	2
		Chironomidae	Micropsectra	5
		Chironomidae	Parametriocnemus	1
		Chironomidae	Tanytarsus	5
		Chironomidae	Tvetenia_bavarica	1
		Empididae	Oreogeton	4
		Psychodidae	Pericoma	81
	Ephemeroptera	Baetidae	Baetis	6
		Ephemerellidae	Drunella_doddsii	42
		Ephemerellidae	Ephemerellidae	7
		Heptageniidae	Rhithrogena	22
	Plecoptera	Chloroperlidae	Suwallia	13
		Chloroperlidae	Sweltsa	2
		Nemouridae	Zapada	49
		Perlodidae	Isoperla	2
		Perlodidae	Megarcys	2
		Taeniopterygidae	Taenionema	380
	Trichoptera	Hydropsychidae	Arctopsyche	2
		Rhyacophilidae	Rhyacophila_hyalinata	22
		Rhyacophilidae	Rhyacophila_sibirica	69
		Rhyacophilidae	Rhyacophila_sibirica_atrata	2
		Uenoidae	Neophylax	7
Oligochaeta			Oligochaeta	1
Ostracoda			Ostracoda	3
Turbellaria			Turbellaria	7

Total Count	747
Fraction Processed	6.25%
Area Sampled	1.15 m^2

Animas River	Abv Cunningham			10/4/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	6
		Sperchonidae	Sperchon	5
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	23
		Chironomidae	Cricotopus_Orthocladius	78
		Chironomidae	Eukiefferiella	1
		Chironomidae	Heterotrissocladius_marcidus	1
		Chironomidae	Hydrobaenus	1
		Chironomidae	Micropsectra	1
		Chironomidae	Pagastia	2
		Simuliidae	Simulium	1
	Ephemeroptera	Baetidae	Baetis	10
		Ephemerellidae	Drunella_doddsii	77
		Ephemerellidae	Ephemerellidae	6
		Heptageniidae	Epeorus	2
		Heptageniidae	Rhithrogena	51
	Plecoptera	Capniidae	Capniidae	6
		Chloroperlidae	Suwallia	2
		Chloroperlidae	Sweltsa	3
		Nemouridae	Zapada	14
		Perlodidae	Isoperla	2
		Perlodidae	Megarcys	2
		Taeniopterygidae	Taenionema	202
	Trichoptera	Hydropsychidae	Arctopsyche	6
		Rhyacophilidae	Rhyacophila_hyalinata	1
		Uenoidae	Neophylax	3
Ostracoda			Ostracoda	3

Total Count	509
Fraction Processed	18.75%
Area Sampled	1.15 m^2

Picayne Gulch	Abv Animas River			10/4/2016
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	7
		Sperchonidae	Sperchon	3
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	1
		Chironomidae	Micropsectra	1
		Empididae	Neoplasta	2
		Psychodidae	Pericoma	18
		Simuliidae	Simulium	10
		Tipulidae	Tipulidae	1
	Ephemeroptera	Baetidae	Baetis	4
		Ephemerellidae	Drunella_doddsii	109
		Ephemerellidae	Ephemerellidae	3
		Heptageniidae	Cinygmula	6
		Heptageniidae	Rhithrogena	19
	Plecoptera	Capniidae	Capnia	1
		Chloroperlidae	Suwallia	3
		Chloroperlidae	Sweltsa	2
		Nemouridae	Zapada	55
		Perlodidae	Isoperla	12
		Perlodidae	Megarcys	3
		Taeniopterygidae	Taenionema	237
	Trichoptera	Hydropsychidae	Arctopsyche	12
		Rhyacophilidae	Rhyacophila_brunnea	2
		Rhyacophilidae	Rhyacophila_hyalinata	1
		Rhyacophilidae	Rhyacophila_sibirica	68
		Rhyacophilidae	Rhyacophila_sibirica_atrata	4
		Uenoidae	Neophylax	2
		Uenoidae	Oligophlebodes	2
Ostracoda			Ostracoda	2
Turbellaria			Turbellaria	12

Total Count	602
Fraction Processed	12.5%
Area Sampled	1.15 m^2

Animas River	Abv Arrastra Cr	10/2/2016		
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	11
		Sperchonidae	Sperchon	5
Insecta	Diptera	Ceratopogonidae	Bezzia_Palpomyia	4
		Chironomidae	Cricotopus_Orthocladius	79
		Chironomidae	Eukiefferiella_gracei	2
		Chironomidae	Micropsectra	1
		Chironomidae	Parametriocnemus	1
		Psychodidae	Pericoma	1
		Simuliidae	Simulium	155
	Ephemeroptera	Baetidae	Baetis	16
		Ephemerellidae	Drunella_doddsii	52
		Heptageniidae	Rhithrogena	28
	Plecoptera	Capniidae	Capniidae	13
		Chloroperlidae	Suwallia	1
		Chloroperlidae	Sweltsa	1
		Nemouridae	Zapada	50
		Perlodidae	Isoperla	1
		Taeniopterygidae	Taenionema	24
	Trichoptera	Hydropsychidae	Arctopsyche	43
		Rhyacophilidae	Rhyacophila_hyalinata	2
		Rhyacophilidae	Rhyacophila_nevadensis	12
		Rhyacophilidae	Rhyacophila_sibirica_atrata	1
Turbellaria			Turbellaria	4

Total Count	507
Fraction Processed	25%
Area Sampled	1.15 m^2

Hermosa Cr	Above Ditch	9/30/2016		
Class	Order	Family	Taxon	Count
Arachnida	Trombidiformes	Lebertiidae	Lebertia	2
		Sperchonidae	Sperchon	3
		Torrenticolidae	Torrenticola	2
Insecta	Coleoptera	Elmidae	Optioservus	7
		Elmidae	Zaitzevia	31
	Diptera	Chironomidae	Cricotopus_Orthocladius	2
		Chironomidae	Eukiefferiella_gracei	11
		Chironomidae	Pagastia	1
		Chironomidae	Parametriocnemus	2
		Chironomidae	Rheotanytarsus	2
		Chironomidae	Thiennemannimyia	2
		Chironomidae	Virgatanytarsus	1
		Empididae	Chelifera	5
		Psychodidae	Pericoma	2
		Simuliidae	Prosimulium	11
		Tipulidae	Antocha	11
	Ephemeroptera	Ameletidae	Ameletus	2
		Baetidae	Baetis	230
		Ephemerellidae	Drunella_grandis	8
		Heptageniidae	Rhithrogena	2
		Leptophlebiidae	Paraleptophlebia	15
	Plecoptera	Chloroperlidae	Sweltsa	5
		Nemouridae	Zapada	1
		Perlidae	Hesperoperla	7
		Perlodidae	Isoperla	6
		Pteronarcyidae	Pteronarcella	7
		Taeniopterygidae	Taenionema	2
	Trichoptera	Hydropsychidae	Arctopsyche	10
		Hydropsychidae	Hydropsyche	133
		Lepidostomatidae	Lepidostoma	1
		Leptoceridae	Oecetis	1
		Rhyacophilidae	Rhyacophila_nevadensis	17
Oligochaeta			Oligochaeta	15

Total Count	557
Fraction Processed	31.5%
Area Sampled	1.15 m^2

Appendix E – EPA BPMD data collected in fall 2016

The following tables present data collected by EPA during the fall of 2016 and used in correlation and NMS analysis in this report.

Source of EPA data used in BMI report										
Site				EPA Location ID	Sediment		Pore Water		Surface Water	
ID	EU	Stream Name	Site Name		*Date*	*SampleID*	*Date*	*SampleID*	*Date*	*SampleID*
Mineral Cr										
MaA	EU1	Mineral Cr	Above Animas River	M34	9/27/2016	MH1G69	9/27/2016	A8M5-2112	9/27/2016	A8M5-2109
MaSFM	EU2	Mineral Cr	Above SF Mineral	M27	9/27/2016	MH1G56	9/27/2016	A8M5-2078	9/27/2016	A8M5-2075
MaMFM	EU3	Mineral Cr	Above MF Mineral	M14B	9/28/2016	MH1G19	9/28/2016	A8M5-2008	9/28/2016	A8M5-2005
MaMIL	EU4	Mineral Cr	Above Mill Creek	M10A	9/30/2016	MH1F92	10/7/2016	A8M5-1967	9/30/2016	A8M5-1964
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	M28	9/27/2016	MH1G54	9/27/2016	A8M5-2074	9/27/2016	A8M5-2071
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	M20	9/29/2016	MH1G41	9/29/2016	A8M5-2049	9/29/2016	A8M5-2046
Upper Animas										
AaARR	EU7	Animas River	Above Arrastra Creek	A56	9/27/2016	MH1K28	9/27/2016	A8M5-1553	9/27/2016	A8M5-1550
CUaA	EU8	Cunningham Creek	Above Animas River	A48	9/27/2016	MH1K17	9/27/2016	A8M5-1531	9/27/2016	A8M5-1528
AaCU	EU9	Animas River	Above Cunningham	A45	9/28/2016	MH1K09	9/28/2016	A8M5-1516	9/28/2016	A8M5-1513
AaMINN	EU10	Animas River	Above Minnie Gulch	A40	9/29/2016	MH1J98	9/29/2016	A8M5-1498	9/29/2016	A8M5-1495
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	A36	9/27/2016	MH1J84	9/28/2016	A8M5-1467	9/27/2016	A8M5-1464
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	SW81-SW-00-EPA					10/18/2016	A8M5-2551
EUaSFA	EU12	Eureka Gulch	Above SF Animas	A37	9/27/2016	MH1J86	9/28/2016	A8M5-1471	9/27/2016	A8M5-1468
SFAaA	EU13	SF Animas River	Above Animas River	A34	9/27/2016	MH1J92	9/29/2016	A8M5-1483	9/27/2016	A8M5-1480
AaEU	EU14	Animas River	Above Eureka Gulch	A33	9/27/2016	MH1J90	9/29/2016	A8M5-1479	9/27/2016	A8M5-1476
WFAaA	EU15	WF Animas River	Above Animas River	A10	9/29/2016	MH1J60	9/29/2016	A8M5-1409	9/29/2016	A8M5-1406
PLaWFA	EU16	Placer Gulch	Above WF Animas River	A20	9/30/2017	MH1J42	9/30/2016	A8M5-1349	9/30/2016	A8M5-1346
WFAaPL	EU17	WF Animas River	Above Placer Gulch	A15	9/30/2017	MH1J44	9/30/2016	A8M5-1353	9/30/2016	A8M5-1350
NFAaWFA	EU18	NF Animas River	Above WF Animas River	A09	9/29/2016	MH1J58	9/29/2016	A8M5-1405	9/29/2016	A8M5-1402
BUaNFA	EU19	Burrows Creek	Above NF Animas River	A07	9/30/2017	MH1J28	9/30/2016	A8M5-1295	9/30/2016	A8M5-1292
Reference Sites										
MILaM	-	Mill Creek	Above Mineral Creek	M08	9/30/2017	MH1F88	10/7/2016	A8M5-1960	9/30/2016	A8M5-1957
BEaM	-	Bear Creek	Above Mineral Creek	M30	9/27/2016	MH1G63	9/27/2016	A8M5-2099	9/27/2016	A8M5-2096
MAGaA	-	Maggie Gulch	Above Animas River	A43	9/28/2016	MH1K03	9/28/2016	A8M5-1505	9/28/2016	A8M5-1502
PICaA	-	Picayne Gulch	Above Animas River	A26	9/29/2016	MH1K38	9/29/2016	A8M5-1602	9/29/2016	A8M5-1599
NFAaBU	-	NF Animas River	Above Burrows Creek	A05	9/30/2017	MH1J34	9/30/2016	A8M5-1334	9/30/2016	A8M5-1331
HERaD	-	Hermosa Creek	Above Animas River	HC01	10/4/2016	MH1K98	10/8/2016	A8M5-1606	10/4/2016	A8M5-1603

EPA - Sediment - collected Fall 2016													
Site				Al	Sb	As	Ba	Be	Cd	Ca	Ch	Co	Cu
ID	EU	Stream Name	Site Name	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
Mineral Cr													
MaA	EU1	Mineral Cr	Above Animas River	33600	1.90	53.10	109.00	4.70	2.80	2830	7.80	28.00	161.00
MaSFM	EU2	Mineral Cr	Above SF Mineral	10600	0.97	62.90	47.10	0.36	1.10	1370	2.00	6.60	68.90
MaMFM	EU3	Mineral Cr	Above MF Mineral	8580	0.88	48.00	45.40	0.33	2.00	1150	2.20	13.50	60.60
MaMIL	EU4	Mineral Cr	Above Mill Creek	6860	0.61	92.70	25.70	0.37	3.30	2040	1.30	6.10	168.00
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	12000	0.31	14.50	57.40	0.61	1.00	4640	3.20	13.90	18.90
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	12600	0.43	16.90	30.30	0.19	0.18	1640	1.60	4.90	12.80
Upper Animas													
AaARR	EU7	Animas River	Above Arrastra Creek	8750	1.20	6.00	45.70	0.66	2.80	2650	2.60	5.80	79.60
CUaA	EU8	Cunningham Creek	Above Animas River	10300	1.20	6.40	59.60	0.61	1.40	3300	2.70	6.80	37.50
AaCU	EU9	Animas River	Above Cunningham	9890	2.10	20.40	83.20	0.89	7.30	2680	2.80	8.70	250.00
AaMINN	EU10	Animas River	Above Minnie Gulch	9330	21.40	30.60	131.00	0.73	8.00	1940	3.70	3.90	372.00
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	11200	1.10	19.30	67.60	0.53	1.40	2590	4.90	10.20	80.60
EUaSFA	EU12	Eureka Gulch	Above SF Animas	18700	1.30	13.60	83.90	0.67	8.90	4260	3.90	10.50	194.00
SFAaA	EU13	SF Animas River	Above Animas River	12300	1.70	16.60	75.90	0.67	6.20	2660	6.50	15.80	193.00
AaEU	EU14	Animas River	Above Eureka Gulch	10000	6.30	51.90	58.80	2.20	7.40	2710	3.80	10.60	228.00
WFAaA	EU15	WF Animas River	Above Animas River	8170	1.10	18.30	31.70	0.62	1.20	1910	2.70	5.70	57.20
PLaWFA	EU16	Placer Gulch	Above WF Animas River	13200	13.10	66.40	167.00	3.50	23.90	800	3.50	35.40	595.00
WFAaPL	EU17	WF Animas River	Above Placer Gulch	17400	1.20	17.50	14.10	2.40	0.50	1440	3.70	6.20	110.00
NFAaWFA	EU18	NF Animas River	Above WF Animas River	11800	1.20	31.80	22.40	1.10	7.20	1680	1.80	19.90	87.90
BUaNFA	EU19	Burrows Creek	Above NF Animas River	18000	1.90	54.40	33.00	2.10	7.60	1180	2.00	26.80	171.00
Reference Sites													
MILaM	-	Mill Creek	Above Mineral Creek	7370	0.49	10.00	62.10	0.57	2.30	2880	0.87	9.90	15.70
BEaM	-	Bear Creek	Above Mineral Creek	9150	0.26	10.40	68.00	0.61	0.69	4250	3.80	11.50	21.20
MAGaA	-	Maggie Gulch	Above Animas River	9420	1.40	8.10	84.10	0.76	0.69	3940	3.20	10.50	21.70
PICaA	-	Picayne Gulch	Above Animas River	13200	2.70	48.80	117.00	1.30	1.60	3740	5.10	13.40	36.80
NFAaBU	-	NF Animas River	Above Burrows Creek	13100	1.30	74.60	85.40	1.10	9.10	3810	2.40	8.20	44.30
HERaD	-	Hermosa Creek	Above Animas River	17300	1.60	1.10	107.00	0.73	0.82	36900	23.00	7.00	11.50

EPA - Sediment - collected Fall 2016													
Site				Fe	Pb	Mg	Mn	Hg	Mo	Ni	Se	Ag	Tl
ID	EU	Stream Name	Site Name	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*	*mg/kg*
Mineral Cr													
MaA	EU1	Mineral Cr	Above Animas River	62000	365	2900	845	0.086	4.20	9.80	9.40	1.30	0.47
MaSFM	EU2	Mineral Cr	Above SF Mineral	62700	283	4050	818	0.058	3.90	2.30	1.90	0.68	0.68
MaMFM	EU3	Mineral Cr	Above MF Mineral	32600	173	3890	1190	0.026	2.50	3.30	1.40	0.80	0.63
MaMIL	EU4	Mineral Cr	Above Mill Creek	34100	761	2410	1020	0.025	2.30	2.20	0.70	0.57	0.15
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	28000	106	5670	1380	0.085	2.70	11.60	1.90	0.67	0.67
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	87300	67.2	5100	678	0.0084	4.90	1.10	1.50	0.65	0.65
Upper Animas													
AaARR	EU7	Animas River	Above Arrastra Creek	19600	512	4790	2770	0.12	2.00	3.30	0.90	0.59	0.59
CUaA	EU8	Cunningham Creek	Above Animas River	21900	386	5340	896	0.12	1.30	3.10	1.20	0.61	0.61
AaCU	EU9	Animas River	Above Cunningham	24700	1370	5160	8990	0.062	5.00	4.80	1.50	2.80	0.61
AaMINN	EU10	Animas River	Above Minnie Gulch	21800	2150	4640	14700	0.049	14.60	1.50	1.60	38.10	0.54
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	40600	146	5990	1360	0.0081	10.60	6.20	2.60	1.40	0.70
EUaSFA	EU12	Eureka Gulch	Above SF Animas	40200	452	12700	8710	0.035	2.10	7.80	1.50	1.50	0.63
SFAaA	EU13	SF Animas River	Above Animas River	38400	752	6810	5120	0.55	4.40	9.80	2.00	1.90	0.62
AaEU	EU14	Animas River	Above Eureka Gulch	22900	710	5140	9250	0.02	9.80	7.00	1.60	2.50	0.63
WFAaA	EU15	WF Animas River	Above Animas River	18700	455	4530	1660	0.11	5.20	2.40	0.84	1.30	0.57
PLaWFA	EU16	Placer Gulch	Above WF Animas River	29600	5500	3010	31100	0.73	9.40	8.80	4.60	8.50	2.10
WFAaPL	EU17	WF Animas River	Above Placer Gulch	28300	112	6330	2970	0.02	2.50	2.90	1.80	0.16	0.62
NFAaWFA	EU18	NF Animas River	Above WF Animas River	18200	400	4530	3910	0.12	7.70	3.30	1.40	0.68	1.00
BUaNFA	EU19	Burrows Creek	Above NF Animas River	25400	385	2700	7500	0.0051	12.70	5.50	1.40	1.10	1.10
Reference Sites													
MILaM	-	Mill Creek	Above Mineral Creek	16200	329	3930	1720	0.11	2.30	2.70	1.20	0.57	0.05
BEaM	-	Bear Creek	Above Mineral Creek	20500	41.8	5490	1270	0.0055	2.70	7.20	1.50	0.67	0.67
MAGaA	-	Maggie Gulch	Above Animas River	30500	34.8	4600	1290	0.037	2.70	5.70	1.90	0.70	0.69
PICaA	-	Picayne Gulch	Above Animas River	33200	134	6740	4850	0.13	5.40	8.60	1.70	0.80	0.67
NFAaBU	-	NF Animas River	Above Burrows Creek	24900	290	4560	2920	0.046	6.50	4.90	1.70	1.80	0.71
HERaD	-	Hermosa Creek	Above Animas River	22000	11.7	10200	323	0.16	3.30	15.00	2.40	0.82	0.82

EPA - Sediment - collected Fall 2016					
Site				Va	Zn
ID	EU	Stream Name	Site Name	*mg/kg*	*mg/kg*
Mineral Cr					
MaA	EU1	Mineral Cr	Above Animas River	45.30	1250
MaSFM	EU2	Mineral Cr	Above SF Mineral	17.10	1440
MaMFM	EU3	Mineral Cr	Above MF Mineral	15.30	296
MaMIL	EU4	Mineral Cr	Above Mill Creek	7.30	5900
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	11.40	386
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	23.50	121
Upper Animas					
AaARR	EU7	Animas River	Above Arrastra Creek	8.50	858
CUaA	EU8	Cunningham Creek	Above Animas River	16.10	338
AaCU	EU9	Animas River	Above Cunningham	14.90	1640
AaMINN	EU10	Animas River	Above Minnie Gulch	10.10	2520
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	20.40	307
EUaSFA	EU12	Eureka Gulch	Above SF Animas	20.40	2540
SFAaA	EU13	SF Animas River	Above Animas River	23.30	1710
AaEU	EU14	Animas River	Above Eureka Gulch	17.30	1870
WFAaA	EU15	WF Animas River	Above Animas River	14.20	359
PLaWFA	EU16	Placer Gulch	Above WF Animas River	14.60	4120
WFAaPL	EU17	WF Animas River	Above Placer Gulch	25.80	399
NFAaWFA	EU18	NF Animas River	Above WF Animas River	9.90	2600
BUaNFA	EU19	Burrows Creek	Above NF Animas River	7.60	730
Reference Sites					
MILaM	-	Mill Creek	Above Mineral Creek	7.20	431
BEaM	-	Bear Creek	Above Mineral Creek	17.20	251
MAGaA	-	Maggie Gulch	Above Animas River	19.80	124
PICaA	-	Picayne Gulch	Above Animas River	26.00	419
NFAaBU	-	NF Animas River	Above Burrows Creek	11.10	1180
HERaD	-	Hermosa Creek	Above Animas River	29.90	65.9

EPA - Pore Water - collected Fall 2016															
Site				Al		Sb		As		Be		Cd		Ca	
ID	EU	Stream Name	Site Name	D	T	D	T	D	T	D	T	D	T	D	T
				ug/L	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Mineral Cr															
MaA	EU1	Mineral Cr	Above Animas River	23.7	1460	0.5	2.5	0.5	3.91	2.0	2.0	0.1	0.5	40100	43900
MaSFM	EU2	Mineral Cr	Above SF Mineral	13200	15100	0.5	2.5	0.5	6.06	2.0	2.0	0.716	0.795	61300	67600
MaMFM	EU3	Mineral Cr	Above MF Mineral	47.1	10600	0.5	2.5	0.5	32.1	2.0	2.0	0.812	1.98	45500	47300
MaMIL	EU4	Mineral Cr	Above Mill Creek	20	47.6	0.5	2.5	0.5	2.5	2.0	2.0	1.65	1.54	35500	37400
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	7080	7950	0.5	2.5	0.5	2.5	2.0	2.0	1.35	1.16	88000	94700
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	7470	11700	2.5	2.5	2.5	2.5	2.0	2.0	1.2	1.09	105000	113000
Upper Animas															
AaARR	EU7	Animas River	Above Arrastra Creek	22.1	965	0.5	2.5	0.5	2.5	2.0	2.0	1.28	2.02	48800	50500
CUaA	EU8	Cunningham Creek	Above Animas River	20	3850	0.5	2.5	0.5	3.69	2.0	2.0	0.101	0.943	35500	39200
AaCU	EU9	Animas River	Above Cunningham	20	2260	0.5	2.5	0.5	4.84	2.0	2.0	0.607	3.13	45400	47500
AaMINN	EU10	Animas River	Above Minnie Gulch	50.1	467	0.5	2.5	0.5	2.5	2.0	2.0	2.1	2.15	47100	49400
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	24.6	585	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	61000	63400
EUaSFA	EU12	Eureka Gulch	Above SF Animas	24.8	223	0.5	2.5	0.5	2.5	2.0	2.0	0.429	0.553	41700	43700
SFAaA	EU13	SF Animas River	Above Animas River	27.9	169	0.5	2.5	0.5	2.5	2.0	2.0	0.527	0.5	56000	60100
AaEU	EU14	Animas River	Above Eureka Gulch	66.5	1310	0.5	2.5	0.5	2.5	2.0	2.0	3.64	3.75	43200	45900
WFAaA	EU15	WF Animas River	Above Animas River	274	4830	0.5	2.5	0.5	10	2.0	2.01	2.28	3.12	11800	11800
PLaWFA	EU16	Placer Gulch	Above WF Animas River	165	1320	0.5	2.5	0.5	2.5	2.0	2.0	2.54	3.49	30200	32300
WFAaPL	EU17	WF Animas River	Above Placer Gulch	8780	11900	0.5	2.5	0.5	3.44	14.1	16.3	10.8	11.3	46000	48600
NFAaWFA	EU18	NF Animas River	Above WF Animas River	1340	3190	0.5	2.5	0.5	2.5	2.0	2.0	7.35	7.39	26700	27700
BUaNFA	EU19	Burrows Creek	Above NF Animas River	11700	14200	0.5	2.5	0.5	2.5	3.45	3.7	16.9	18.8	21300	22300
Reference Sites															
MILaM	-	Mill Creek	Above Mineral Creek	20	211	0.5	2.5	0.5	2.5	2.0	2.0	0.162	0.5	22400	23300
BEaM	-	Bear Creek	Above Mineral Creek	37.8	641	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	25300	27700
MAGaA	-	Maggie Gulch	Above Animas River	20	235	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	34700	36700
PICaA	-	Picayne Gulch	Above Animas River	40.3	282	0.5	2.5	0.606	2.65	2.0	2.0	0.1	0.5	63400	68000
NFAaBU	-	NF Animas River	Above Burrows Creek	20	1570	0.5	2.5	0.5	6.21	2.0	2.0	0.664	1.91	32200	34200
HERaD	-	Hermosa Creek	Above Animas River	24.6	34.2	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	89400	94400

EPA - Pore Water - collected Fall 2016														
Site				Cl-	Ch		Cu		F-	Hardness	Fe		Pb	
ID	EU	Stream Name	Site Name	T	D	T	D	T	T	D	D	T	D	T
				mg/L	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*mg/L*	*mg/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Mineral Cr														
MaA	EU1	Mineral Cr	Above Animas River	0.7	1.0	5.0	0.739	24.5	0.1	116	100	3950	0.1	66.3
MaSFM	EU2	Mineral Cr	Above SF Mineral	1.7	1.0	5.0	15.7	29.5	1.4	187	63400	72000	85.6	114
MaMFM	EU3	Mineral Cr	Above MF Mineral	1	1.0	5.0	3.99	155	0.2	126	100	16000	0.978	369
MaMIL	EU4	Mineral Cr	Above Mill Creek	2	1.0	5.0	9.99	11.6	0.1	100	100	100	2.24	7.61
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	0.8	1.0	5.0	5.42	7.18	0.3	248	24100	27700	6.19	9.67
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	1.6	5.0	5.0	5.52	7.57	1.1	304	12600	35700	1.62	14.4
Upper Animas														
AaARR	EU7	Animas River	Above Arrastra Creek	4	1.0	5.0	1.39	16.2	0.6	135	100	1300	0.1	44.9
CUaA	EU8	Cunningham Creek	Above Animas River	0.6	1.1	5.0	1.4	22.4	0.2	98	100	4960	0.315	176
AaCU	EU9	Animas River	Above Cunningham	0.5	1.0	5.0	1.42	63.7	0.6	127	100	4120	0.1	254
AaMINN	EU10	Animas River	Above Minnie Gulch	0.4	1.0	5.0	4.04	10.7	0.8	133	100	130	0.205	5.38
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	0.4	1.0	5.0	1.3	5.94	0.4	167	100	1630	0.1	13.9
EUaSFA	EU12	Eureka Gulch	Above SF Animas	0.4	1.0	5.0	5.42	10.6	0.2	115	100	307	0.1	6.52
SFAaA	EU13	SF Animas River	Above Animas River	0.4	1.0	5.0	3.63	6.52	0.5	154	100	187	0.1	1.48
AaEU	EU14	Animas River	Above Eureka Gulch	0.4	1.0	5.0	6.06	25.7	1.2	125	100	100	0.299	3.04
WFAaA	EU15	WF Animas River	Above Animas River	0.5	1.0	5.0	8.11	74.6	0.6	34	100	5670	7.46	422
PLaWFA	EU16	Placer Gulch	Above WF Animas River	0.4	1.0	5.0	8.72	37.4	0.4	88	100	675	3.56	132
WFAaPL	EU17	WF Animas River	Above Placer Gulch	0.4	1.0	5.0	30.2	43.7	8.4	151	100	1790	0.413	20.1
NFAaWFA	EU18	NF Animas River	Above WF Animas River	0.4	1.0	5.0	16.8	19	0.4	84	100	100	14	15
BUaNFA	EU19	Burrows Creek	Above NF Animas River	0.4	1.0	5.0	52.1	67.8	1.3	68	109	1480	5.52	21.5
Reference Sites														
MILaM	-	Mill Creek	Above Mineral Creek	0.4	1.0	5.0	0.718	2.5	0.1	65	100	100	0.1	2.51
BEaM	-	Bear Creek	Above Mineral Creek	0.4	1.0	5.0	0.5	2.65	0.2	72	100	593	0.1	1.43
MAGaA	-	Maggie Gulch	Above Animas River	0.4	1.0	5.0	0.984	2.5	0.2	100	100	299	0.1	0.951
PICaA	-	Picayne Gulch	Above Animas River	0.7	1.42	5.0	0.836	3.19	0.2	181	100	505	0.1	2.73
NFAaBU	-	NF Animas River	Above Burrows Creek	0.4	1.0	5.0	0.933	6.09	0.1	100	100	1780	0.1	21.2
HERaD	-	Hermosa Creek	Above Animas River	0.8	2.94	5.0	0.5	2.5	0.2	275	292	282	0.1	0.5

EPA - Pore Water - collected Fall 2016															
Site				Mg		Mn		Ni		Nitrate/ Nitrite	Se		SiO2	
ID	EU	Stream Name	Site Name	D	T	D	T	D	T	T	D	T	D	T
				ug/L	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*mg/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Mineral Cr														
MaA	EU1	Mineral Cr	Above Animas River	3790	4070	7.21	846	0.5	2.5	0.1	1.0	5.0	8430	10500
MaSFM	EU2	Mineral Cr	Above SF Mineral	8300	8930	1960	2060	13.3	16.5	0.4	1.0	5.0	66200	68800
MaMFM	EU3	Mineral Cr	Above MF Mineral	2940	4030	51.3	1010	0.5	3.33	0.1	1.0	5.0	8880	24100
MaMIL	EU4	Mineral Cr	Above Mill Creek	2840	2960	12.5	18.2	0.5	2.5	0.1	1.0	5.0	5400	5530
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	6770	7170	1820	1900	8.59	9.74	0.2	1.0	5.0	59600	60000
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	10400	11000	1030	1270	2.95	3.99	0.4	5.0	5.0	20500	24600
Upper Animas														
AaARR	EU7	Animas River	Above Arrastra Creek	3220	3570	4.16	382	0.5	2.5	0.1	1.0	5.0	8140	10800
CUaA	EU8	Cunningham Creek	Above Animas River	2190	3460	2.0	387	0.5	2.5	0.1	1.0	5.0	5020	16800
AaCU	EU9	Animas River	Above Cunningham	3190	3990	2.0	1210	0.5	2.5	0.1	1.0	5.0	6370	12800
AaMINN	EU10	Animas River	Above Minnie Gulch	3710	3860	1640	1320	0.5	2.5	0.1	1.0	5.0	5610	5890
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	3690	3950	3.62	109	0.5	2.5	0.1	1.0	5.0	6250	7510
EUaSFA	EU12	Eureka Gulch	Above SF Animas	2720	2870	8.45	112	0.5	2.5	0.1	1.0	5.0	5010	5460
SFAaA	EU13	SF Animas River	Above Animas River	3400	3500	49.5	73.4	0.5	2.5	0.1	1.0	5.0	6200	6340
AaEU	EU14	Animas River	Above Eureka Gulch	4220	4310	3180	3270	1.35	2.5	0.2	1.0	5.0	5060	5350
WFAaA	EU15	WF Animas River	Above Animas River	1200	2000	863	1630	0.658	2.5	0.5	1.0	5.0	6500	16400
PLaWFA	EU16	Placer Gulch	Above WF Animas River	3080	3250	856	1300	2.34	3.05	0.1	1.0	5.0	6350	7290
WFAaPL	EU17	WF Animas River	Above Placer Gulch	8830	9330	23000	24200	12	14.4	0.1	1.0	5.0	10300	14400
NFAaWFA	EU18	NF Animas River	Above WF Animas River	4200	4290	1320	1340	3.07	3.35	0.1	1.0	5.0	4690	4840
BUaNFA	EU19	Burrows Creek	Above NF Animas River	3560	3730	4720	5070	9.95	14.2	0.1	1.0	5.0	8930	11800
Reference Sites														
MILaM	-	Mill Creek	Above Mineral Creek	2220	2390	44.8	67	0.5	2.5	0.1	1.0	5.0	3530	3680
BEaM	-	Bear Creek	Above Mineral Creek	2260	2560	3.53	125	0.5	2.5	0.1	1.0	5.0	6910	8630
MAGaA	-	Maggie Gulch	Above Animas River	3170	3410	2	21.7	0.5	2.5	0.1	1.0	5.0	4690	5380
PICaA	-	Picayne Gulch	Above Animas River	5500	5750	50	290	0.5	2.5	0.1	1.0	5.0	4710	5330
NFAaBU	-	NF Animas River	Above Burrows Creek	4680	5120	2.73	240	0.5	2.5	0.2	1.0	5.0	2500	7190
HERaD	-	Hermosa Creek	Above Animas River	12600	13500	195	205	0.5	2.5	0.2	1.0	5.0	7460	7690

EPA - Pore Water - collected Fall 2016														
Site				Ag		Sr		SO4	Tl		Alkalinity	Zn	
ID	EU	Stream Name	Site Name	D	T	D	T	T	D	T	T	D	T
				ug/L	*ug/L*	*ug/L*	*ug/L*	*mg/L*	*ug/L*	*ug/L*	*mgCaCO3/L*	*ug/L*	*ug/L*
Mineral Cr													
MaA	EU1	Mineral Cr	Above Animas River	0.5	2.5	361	407	124	1.0	5.0	8.54	23.6	64.3
MaSFM	EU2	Mineral Cr	Above SF Mineral	0.5	2.5	751	836	409	1.0	5.0	5.0	285	315
MaMFM	EU3	Mineral Cr	Above MF Mineral	0.5	2.5	648	664	134	1.0	5.0	6.35	317	664
MaMIL	EU4	Mineral Cr	Above Mill Creek	0.5	2.5	696	721	99.1	1.0	7.76	15.2	589	586
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	0.5	2.5	533	587	184	2.02	10.4	5.0	153	157
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	2.5	2.5	936	990	402	5.0	8.82	5.0	140	144
Upper Animas													
AaARR	EU7	Animas River	Above Arrastra Creek	0.5	2.5	481	514	107	1.0	5.0	32.1	597	716
CUaA	EU8	Cunningham Creek	Above Animas River	0.5	2.5	361	407	52.1	1.0	5.0	49.8	13.2	163
AaCU	EU9	Animas River	Above Cunningham	0.5	2.5	425	459	106	1.0	5.0	26.2	234	623
AaMINN	EU10	Animas River	Above Minnie Gulch	0.5	2.5	391	409	124	1.0	5.0	19.5	589	607
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	0.5	2.5	586	597	156	1.0	5.0	19.7	25.1	72.3
EUaSFA	EU12	Eureka Gulch	Above SF Animas	0.5	2.5	548	562	91.9	1.0	11.9	29.7	200	247
SFAaA	EU13	SF Animas River	Above Animas River	0.5	2.5	598	612	138	1.0	5.0	25.2	150	170
AaEU	EU14	Animas River	Above Eureka Gulch	0.5	2.5	266	270	119	1.0	5.0	18.1	968	1060
WFAaA	EU15	WF Animas River	Above Animas River	0.5	2.5	70.3	72	34.2	1.0	5.0	14.9	779	1010
PLaWFA	EU16	Placer Gulch	Above WF Animas River	0.5	2.5	199	209	92.3	1.0	5.0	5.0	1120	1330
WFAaPL	EU17	WF Animas River	Above Placer Gulch	0.5	2.5	247	255	236	1.0	5.0	5.0	3380	3460
NFAaWFA	EU18	NF Animas River	Above WF Animas River	0.5	2.5	74.3	75.1	96.4	1.0	5.0	5.0	1180	1190
BUaNFA	EU19	Burrows Creek	Above NF Animas River	0.5	2.5	57.7	59.3	145	1.0	5.0	5.0	2940	3000
Reference Sites													
MILaM	-	Mill Creek	Above Mineral Creek	0.5	2.5	484	505	55.9	1.0	5.0	14.3	34.5	38.8
BEaM	-	Bear Creek	Above Mineral Creek	0.5	2.5	115	131	38.9	1.0	5.0	39.2	10.0	27.9
MAGaA	-	Maggie Gulch	Above Animas River	0.5	2.5	408	439	49.3	1.0	5.0	54.8	10.0	10.0
PICaA	-	Picayne Gulch	Above Animas River	0.5	2.5	704	749	132	1.0	8.32	62	10.0	21.6
NFAaBU	-	NF Animas River	Above Burrows Creek	0.5	2.5	93.4	97.3	87.9	1.0	8.08	15.3	120	271
HERaD	-	Hermosa Creek	Above Animas River	0.5	2.5	1490	1610	148	1.0	8.24	148	10.0	10.0

EPA - Surface Water - collected Fall 2016															
Site				Al		Sb		As		Be		Cd		Ca	
ID	EU	Stream Name	Site Name	D	T	D	T	D	T	D	T	D	T	D	T
				ug/L	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Mineral Cr															
MaA	EU1	Mineral Cr	Above Animas River	38	1630	0.5	2.5	0.5	2.5	2.0	2.0	0.46	0.5	41600	44700
MaSFM	EU2	Mineral Cr	Above SF Mineral	1980	3880	0.5	2.5	0.5	2.5	2.0	2.0	1.01	0.823	63000	66400
MaMFM	EU3	Mineral Cr	Above MF Mineral	47	1020	0.5	2.5	0.5	2.5	2.0	2.0	0.891	0.85	44200	45400
MaMIL	EU4	Mineral Cr	Above Mill Creek	67	172	0.5	2.5	0.5	2.5	2.0	2.0	1.41	1.41	27600	28800
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	97	598	0.5	2.5	0.5	2.5	2.0	2.0	0.139	0.5	31700	33500
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	7330	10600	2.5	2.5	2.5	2.5	2.0	2.0	1.04	0.955	103000	112000
Upper Animas															
AaARR	EU7	Animas River	Above Arrastra Creek	46.6	114	0.5	2.5	0.5	2.5	2.0	2.0	0.61	0.635	42700	44200
CUaA	EU8	Cunningham Creek	Above Animas River	20	31.1	0.5	2.5	0.5	2.5	2.0	2.0	0.16	0.5	35600	37100
AaCU	EU9	Animas River	Above Cunningham	33.5	213	0.5	2.5	0.5	2.5	2.0	2.0	0.85	0.901	44900	46800
AaMINN	EU10	Animas River	Above Minnie Gulch	43.5	694	0.5	2.5	0.5	2.5	2.0	2.0	1.93	2.29	46800	49600
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	71.8	427	0.5	2.5	0.5	2.5	2.0	2.0	0.228	0.5	58600	61700
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	20	28	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	49400	50200
EUaSFA	EU12	Eureka Gulch	Above SF Animas	51.3	83.6	0.5	2.5	0.5	2.5	2.0	2.0	0.582	0.615	42000	43700
SFAaA	EU13	SF Animas River	Above Animas River	69.7	179	0.5	2.5	0.5	2.5	2.0	2.0	0.671	0.74	55900	59500
AaEU	EU14	Animas River	Above Eureka Gulch	71.6	1240	0.5	2.5	0.5	2.5	2.0	2.0	3.55	3.71	42200	43000
WFAaA	EU15	WF Animas River	Above Animas River	3790	5480	0.5	2.5	0.5	2.5	7.01	8.57	7.48	7.69	41100	43200
PLaWFA	EU16	Placer Gulch	Above WF Animas River	156	966	0.5	2.5	0.5	2.5	2.0	2.0	2.72	2.95	30700	32900
WFAaPL	EU17	WF Animas River	Above Placer Gulch	9170	11000	0.5	2.5	0.5	2.5	15.3	17.3	10.4	11.5	46600	48600
NFAaWFA	EU18	NF Animas River	Above WF Animas River	1560	2900	0.5	2.5	0.5	2.5	2.0	2.0	7.12	7.3	26700	28100
BUaNFA	EU19	Burrows Creek	Above NF Animas River	11500	11900	0.5	2.5	0.5	2.5	3.4	3.51	17.7	18.6	21200	22300
Reference Sites															
MILaM	-	Mill Creek	Above Mineral Creek	53.9	265	0.5	2.5	0.5	2.5	2.0	2.0	0.218	0.5	19100	19800
BEaM	-	Bear Creek	Above Mineral Creek	36.6	68.3	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	25600	27300
MAGaA	-	Maggie Gulch	Above Animas River	38.8	73.5	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	34500	36100
PICaA	-	Picayne Gulch	Above Animas River	52	81.9	0.5	2.5	0.579	2.5	2.0	2.0	0.1	0.5	64100	67400
NFAaBU	-	NF Animas River	Above Burrows Creek	20	76.7	0.5	2.5	0.5	2.5	2.0	2.0	0.762	0.989	31900	34000
HERaD	-	Hermosa Creek	Above Animas River	32.9	31	0.5	2.5	0.5	2.5	2.0	2.0	0.1	0.5	83700	88600

EPA - Surface Water - collected Fall 2016														
Site				Cl-	Ch		Cu		F-	Hardness	Fe		Pb	
ID	EU	Stream Name	Site Name	T	D	T	D	T	T	D	D	T	D	T
				mg/L	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*mg/L*	*mg/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Mineral Cr														
MaA	EU1	Mineral Cr	Above Animas River	0.6	1.0	5.0	1.51	6.34	0.3	119	1340	2040	0.1	2.17
MaSFM	EU2	Mineral Cr	Above SF Mineral	0.9	1.0	5.0	12.5	15.3	0.5	179	3630	4700	5.17	7.18
MaMFM	EU3	Mineral Cr	Above MF Mineral	1.1	1.0	5.0	7.03	18.1	0.2	122	126	581	0.414	10.1
MaMIL	EU4	Mineral Cr	Above Mill Creek	1.6	1.0	5.0	11	20.7	0.1	81	100	201	10.9	34.3
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	0.4	1.0	5.0	0.534	2.5	0.2	91	294	448	0.1	0.5
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	1.6	5.0	5.0	4.63	5.25	1.1	300	13900	17200	0.5	0.713
Upper Animas														
AaARR	EU7	Animas River	Above Arrastra Creek	0.6	1.0	5.0	2.05	4.67	0.5	119	100	100	0.17	1.45
CUaA	EU8	Cunningham Creek	Above Animas River	0.5	1.09	5.0	1.34	2.5	0.2	98	100	100	0.462	0.989
AaCU	EU9	Animas River	Above Cunningham	0.4	1.0	5.0	2.17	4.8	0.5	126	100	100	0.103	1.39
AaMINN	EU10	Animas River	Above Minnie Gulch	0.4	1.0	5.0	3.18	14.9	0.8	132	100	100	0.609	2.71
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	0.4	1.0	5.0	2.71	9.53	0.4	161	135	449	0.1	0.5
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	0.4	1.0	5.0	0.893	2.5	0.3	135	100	100	0.1	0.5
EUaSFA	EU12	Eureka Gulch	Above SF Animas	0.4	1.0	5.0	5.14	7.13	0.3	116	100	100	0.268	1.06
SFAaA	EU13	SF Animas River	Above Animas River	0.4	1.0	5.0	4.83	8.58	0.4	154	100	134	0.1	0.5
AaEU	EU14	Animas River	Above Eureka Gulch	0.4	1.0	5.0	5.9	31.4	1.1	122	100	100	0.301	2.95
WFAaA	EU15	WF Animas River	Above Animas River	0.4	1.0	5.0	25.1	30.9	4.2	127	136	204	4.31	5.66
PLaWFA	EU16	Placer Gulch	Above WF Animas River	0.4	1.0	5.0	9.55	14.1	0.5	90	141	185	5.14	7.81
WFAaPL	EU17	WF Animas River	Above Placer Gulch	0.5	1.0	5.0	23.7	30.3	8	153	122	172	0.414	0.894
NFAaWFA	EU18	NF Animas River	Above WF Animas River	0.4	1.0	5.0	17	23.4	0.4	84	100	100	10.7	12.5
BUaNFA	EU19	Burrows Creek	Above NF Animas River	0.4	1.0	5.0	54.2	54.9	1.3	68	100	114	5.56	5.9
Reference Sites														
MILaM	-	Mill Creek	Above Mineral Creek	0.4	1.0	5.0	0.978	2.5	0.1	56	100	100	0.247	0.777
BEaM	-	Bear Creek	Above Mineral Creek	0.4	1.0	5.0	0.54	2.5	0.2	73	100	100	0.1	0.5
MAGaA	-	Maggie Gulch	Above Animas River	0.4	1.18	5.0	0.893	2.5	0.2	99	100	100	0.1	0.5
PICaA	-	Picayne Gulch	Above Animas River	0.6	1.98	5.0	0.783	2.5	0.2	183	100	100	0.1	0.5
NFAaBU	-	NF Animas River	Above Burrows Creek	0.4	1.0	5.0	0.927	2.5	0.1	99	100	100	0.1	1.1
HERaD	-	Hermosa Creek	Above Animas River	0.8	2.58	5.0	0.661	2.5	0.2	257	100	100	0.1	0.5

EPA - Surface Water - collected Fall 2016														
Site				Mg		Mn		Ni		Nitrate/ Nitrite	Se		SiO2	
ID	EU	Stream Name	Site Name	D	T	D	T	D	T	T	D	T	D	T
				ug/L	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*mg/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*
Mineral Cr														
MaA	EU1	Mineral Cr	Above Animas River	3720	3900	228	235	0.842	2.5	0.1	1.0	5.0	9390	10100
MaSFM	EU2	Mineral Cr	Above SF Mineral	5180	5430	480	488	1.05	2.5	0.2	1.0	5.0	13500	14000
MaMFM	EU3	Mineral Cr	Above MF Mineral	2770	2860	209	211	0.5	2.5	0.1	1.0	5.0	8060	8360
MaMIL	EU4	Mineral Cr	Above Mill Creek	3020	3110	243	246	0.641	2.5	0.1	1.0	5.0	4340	4350
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	2920	3000	81.2	84.2	0.5	2.5	0.1	1.0	5.0	7170	7430
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	10400	10900	949	990	2.5	3.27	0.4	5.0	5.0	20400	21400
Upper Animas														
AaARR	EU7	Animas River	Above Arrastra Creek	2940	3100	383	391	0.5	2.5	0.1	1.0	5.0	6240	6310
CUaA	EU8	Cunningham Creek	Above Animas River	2260	2340	2.85	3.72	0.5	2.5	0.1	1.0	5.0	4950	5030
AaCU	EU9	Animas River	Above Cunningham	3320	3420	481	510	0.5	2.5	0.1	1.0	5.0	6310	6370
AaMINN	EU10	Animas River	Above Minnie Gulch	3750	3860	1160	1680	0.5	2.5	0.1	1.0	5.0	5590	5810
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	3670	3800	135	140	0.5	2.5	0.1	1.0	5.0	6250	6400
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	2700	2740	2.15	3.25	0.5	2.5	0.1	1.0	5.0	5210	4930
EUaSFA	EU12	Eureka Gulch	Above SF Animas	2700	2820	100	103	0.5	2.5	0.1	1.0	5.0	5230	5210
SFAaA	EU13	SF Animas River	Above Animas River	3380	3420	132	137	0.5	2.5	0.1	1.0	5.0	6280	6330
AaEU	EU14	Animas River	Above Eureka Gulch	4080	4040	2890	2970	0.972	2.5	0.2	1.0	5.0	5010	5290
WFAaA	EU15	WF Animas River	Above Animas River	5980	6130	12700	13000	6.68	7.42	0.1	1.0	5.0	8530	8620
PLaWFA	EU16	Placer Gulch	Above WF Animas River	3190	3260	991	1030	2.42	2.53	0.1	1.0	5.0	6400	6560
WFAaPL	EU17	WF Animas River	Above Placer Gulch	8920	9160	23800	24100	11.6	13.4	0.1	1.0	5.0	10600	10700
NFAaWFA	EU18	NF Animas River	Above WF Animas River	4140	4300	1330	1340	3.14	3.26	0.1	1.0	5.0	4740	4810
BUaNFA	EU19	Burrows Creek	Above NF Animas River	3560	3660	4670	4810	11.8	10.6	0.1	1.0	5.0	8870	8960
Reference Sites														
MILaM	-	Mill Creek	Above Mineral Creek	2040	2120	85.3	87.1	0.5	2.5	0.1	1.0	5.0	3470	3490
BEaM	-	Bear Creek	Above Mineral Creek	2280	2400	6.31	9.64	0.5	2.5	0.1	1.0	5.0	6880	6910
MAGaA	-	Maggie Gulch	Above Animas River	3250	3330	2.09	4.3	0.5	2.5	0.1	1.0	5.0	4720	4770
PICaA	-	Picayne Gulch	Above Animas River	5510	5720	124	151	0.5	2.5	0.1	1.0	5.0	4730	4750
NFAaBU	-	NF Animas River	Above Burrows Creek	4670	4850	2.28	14.7	0.5	2.5	0.2	1.0	5.0	2480	2660
HERaD	-	Hermosa Creek	Above Animas River	11700	12600	2.0	2.0	0.5	2.5	0.2	1.0	5.0	6340	6630

EPA - Surface Water - collected Fall 2016													
Site				Ag		Sr		SO4	Tl		Alkalinity	Zn	
ID	EU	Stream Name	Site Name	D	T	D	T	T	D	T	T	D	T
				ug/L	*ug/L*	*ug/L*	*ug/L*	*mg/L*	*ug/L*	*ug/L*	*mgCaCO3/L*	*ug/L*	*ug/L*
Mineral Cr													
MaA	EU1	Mineral Cr	Above Animas River	0.5	2.5	368	413	122	1.0	5.0	12.7	98	109
MaSFM	EU2	Mineral Cr	Above SF Mineral	0.5	2.5	705	781	214	1.0	5.0	5.0	220	210
MaMFM	EU3	Mineral Cr	Above MF Mineral	0.5	2.5	678	674	132	1.0	5.0	8.56	220	224
MaMIL	EU4	Mineral Cr	Above Mill Creek	0.5	2.5	571	594	77.2	1.0	5.0	14.3	475	466
SFMaM	EU5	SF Mineral Cr	Above Mineral Creek	0.5	2.5	228	255	75	1.0	5.0	25.3	16.9	23.4
MFMaM	EU6	MF Mineral Cr	Above Mineral Creek	2.5	2.5	931	998	397	5	8.16	5.0	129	129
Upper Animas													
AaARR	EU7	Animas River	Above Arrastra Creek	0.5	2.5	439	470	90.5	1.0	5.0	37	204	205
CUaA	EU8	Cunningham Creek	Above Animas River	0.5	2.5	373	399	51.9	1.0	5.0	50.2	26.3	22.6
AaCU	EU9	Animas River	Above Cunningham	0.5	2.5	439	463	103	1.0	5.0	30.3	310	309
AaMINN	EU10	Animas River	Above Minnie Gulch	0.5	2.5	391	408	124	1.0	5.0	20.5	566	609
SFAaEU	EU11	SF Animas River	Above Eureka Gulch	0.5	2.5	545	557	148	1.0	5.0	22	45.6	55.2
SFAaAV	EU11	SF Animas River	Above Avalanche Zone	0.5	2.5	513	511	116	1.0	5.0		36.9	36.3
EUaSFA	EU12	Eureka Gulch	Above SF Animas	0.5	2.5	560	573	93.7	1.0	13.1	29.4	247	241
SFAaA	EU13	SF Animas River	Above Animas River	0.5	2.5	590	607	136	1.0	5.0	25.6	224	238
AaEU	EU14	Animas River	Above Eureka Gulch	0.5	2.5	262	258	114	1.0	5.0	18	929	1050
WFAaA	EU15	WF Animas River	Above Animas River	0.5	2.5	232	237	170	1.0	5.0	5.0	2630	2670
PLaWFA	EU16	Placer Gulch	Above WF Animas River	0.5	2.5	205	211	95.3	1.0	5.0	5.0	1220	1260
WFAaPL	EU17	WF Animas River	Above Placer Gulch	0.5	2.5	244	252	235	1.0	5.0	5.0	3450	3420
NFAaWFA	EU18	NF Animas River	Above WF Animas River	0.5	2.5	73.2	75.4	96.5	1.0	5.0	5.0	1180	1190
BUaNFA	EU19	Burrows Creek	Above NF Animas River	0.5	2.5	57.3	58.9	145	1.0	8.85	5.0	2920	2960
Reference Sites													
MILaM	-	Mill Creek	Above Mineral Creek	0.5	2.5	399	406	43.3	1.0	5.0	17.8	37.1	42.1
BEaM	-	Bear Creek	Above Mineral Creek	0.5	2.5	114	128	38.8	1.0	5.0	40.9	10.0	10.0
MAGaA	-	Maggie Gulch	Above Animas River	0.5	2.5	411	434	49.1	1.0	5.0	55.4	10.0	10.0
PICaA	-	Picayne Gulch	Above Animas River	0.5	2.5	702	745	132	1.0	5.0	61.6	10.0	12.3
NFAaBU	-	NF Animas River	Above Burrows Creek	0.5	2.5	91.9	94	87.7	1.0	5.0	15.2	134	148
HERaD	-	Hermosa Creek	Above Animas River	0.5	2.5	1430	1540	135	1.0	5.0	142	10.0	10.0

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Burrus Gulch					CROSS-SECTION NO.: 1 - High flow
CROSS-SECTION LOCATION: Above Gorge, below kettle ponds					
DATE: 8/26/24	OBSERVERS: KB RU LM				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY:	WATERSHED:		WATER DIVISION:		DOW WATER CODE:
MAP(S):	USGS:				
	USFS:				

SUPPLEMENTAL DATA

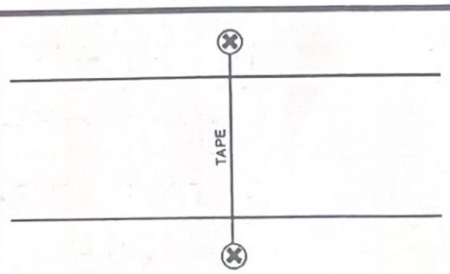
SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE:			
METER NUMBER:	DATE RATED:	CALIB/SPIN: _____ sec	TAPE WEIGHT: _____ lbs/foot	TAPE TENSION: _____ lbs
CHANNEL BED MATERIAL SIZE RANGE:	PHOTOGRAPHS TAKEN: YES/NO	NUMBER OF PHOTOGRAPHS:		

CHANNEL PROFILE DATA

6.60

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	~
⊗ Tape @ Stake RB	0.0	~
① WS @ Tape LB/RB	0.0	6.63 / 6.60
② WS Upstream	> 0	6.45
③ WS Downstream	16.7	6.72
SLOPE	1.6 ft/ft	

SKETCH



LEGEND:
- Stake ⊗
- Station ①
- Photo ①
- Direction of Flow

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO	DISTANCE ELECTROFISHED: _____ ft	FISH CAUGHT: YES/NO	WATER CHEMISTRY SAMPLED: YES/NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:

COMMENTS

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Burroughs Creek | CROSS-SECTION NO: 1 High Flow | DATE: 8/26/24 | SHEET 1 OF 2

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT (RIGHT) | Gage Reading: _____ ft | TIME: 12:09

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0.75		5.88								
Bkf	0.92		6.35								
RW	3.32		6.64	0							
TOE	3.7		6.90	0.28							
	4.38		6.97	0.4							
	5.0		6.93	0.35							
	5.5		6.90	0.3							
	6		6.91	0.35							
	6.5		6.85	0.26							
	7		6.84	0.25							
	7.5		6.88	0.22							
	8		6.72	0.18							
	8.5		6.64	0.10							
	9		6.76	0.22							
	9.5		6.87	0.32							
	10		6.78	0.25							
	10.5		6.91	0.40							
	11		6.80	0.28							
	11.5		6.50	0							
	12		6.76	0.25							
	12.5		6.86	0.35							
	13		6.74	0.20							
	13.5		6.90	0.39							
	14		7.02	0.50							
	14.5		7.11	0.55							
	15		6.97	0.44							
TOE	15.4		6.94	0.40							
LW	15.6		6.65	0							
Bkf	16.8		6.35								
	19.6		5.77								
LS	24.5		5.63								
TOTALS:											

End of Measurement | Time: 12:59 | Gage Reading: _____ ft | CALCULATIONS PERFORMED BY: | CALCULATIONS CHECKED BY:

COLORADO WATER CONSERVATION BOARD

FIELD DATA FOR INSTREAM FLOW DETERMINATIONS

COLORADO DIVISION OF WILDLIFE

LOCATION INFORMATION

STREAM NAME: Burrows Gulch					CROSS-SECTION NO.: 3-High Q
CROSS-SECTION LOCATION: Above XS 2					
UTM 12S 273295 4203163					
DATE: 8/26/24	OBSERVERS: KB RH LM				
LEGAL DESCRIPTION	¼ SECTION:	SECTION:	TOWNSHIP: N/S	RANGE: E/W	PM:
COUNTY:	WATERSHED:		WATER DIVISION:		DOW WATER CODE:
MAP(S):	USGS:				
	USFS:				

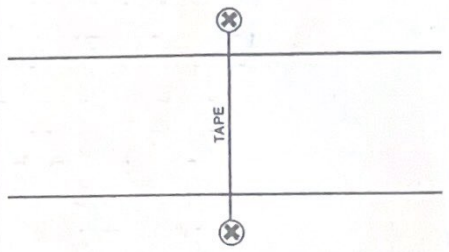
SUPPLEMENTAL DATA

SAG TAPE SECTION SAME AS DISCHARGE SECTION: YES / NO	METER TYPE:			
METER NUMBER:	DATE RATED:	CALIB/SPIN: _____ sec	TAPE WEIGHT: _____ lbs/foot	TAPE TENSION: _____ lbs
CHANNEL BED MATERIAL SIZE RANGE:	PHOTOGRAPHS TAKEN: YES/NO	NUMBER OF PHOTOGRAPHS:		

CHANNEL PROFILE DATA

STATION	DISTANCE FROM TAPE (ft)	ROD READING (ft)
⊗ Tape @ Stake LB	0.0	~
⊗ Tape @ Stake RB	0.0	~
① WS @ Tape LB/RB	0.0	/
② WS Upstream	0	5.76
③ WS Downstream	11.9	5.94
SLOPE	1.5%	

SKETCH



LEGEND:
Stake ⊗
Station ①
Photo ①→
Direction of Flow ← →

AQUATIC SAMPLING SUMMARY

STREAM ELECTROFISHED: YES/NO	DISTANCE ELECTROFISHED: _____ft	FISH CAUGHT: YES/NO	WATER CHEMISTRY SAMPLED: YES/NO

LENGTH - FREQUENCY DISTRIBUTION BY ONE-INCH SIZE GROUPS (1.0-1.9, 2.0-2.9, ETC.)

SPECIES (FILL IN)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15	TOTAL

AQUATIC INSECTS IN STREAM SECTION BY COMMON OR SCIENTIFIC ORDER NAME:

COMMENTS

FORM #ISF FD 1-85

DISCHARGE/CROSS SECTION NOTES

STREAM NAME: Burroughs Creek | CROSS-SECTION NO.: 3 High Water | DATE: 8/26/24 | SHEET 2 OF 2

BEGINNING OF MEASUREMENT | EDGE OF WATER LOOKING DOWNSTREAM: (0.0 AT STAKE) LEFT / RIGHT | Gage Reading: ____ ft | TIME: 1:37

Features: Stake (S) Grassline (G) Waterline (W) Rock (R)	Distance From Initial Point (ft)	Width (ft)	Total Vertical Depth From Tape/Inst (ft)	Water Depth (ft)	Depth of Observation (ft)	Revolutions	Time (sec)	Velocity (ft/sec): At Point	Velocity (ft/sec): Mean in Vertical	Area (ft^2)	Discharge (cfs)
RS	0	PH	5.25								
Bkf	~~8~~ 1.4		~~5.61~~	5.37							
TOB	5.2		5.61								
RW	5.82		5.84								
TOE	6		6.11	0.30							
	6.5		6.09	0.22							
	7		6.02	0.14							
	7.5		6.0	0.16							
	8	PH	5~~8~~.95	0.1							
	8.5		5.95	0.1							
	9		5.91	0.1							
	9.5		5.89	0.1							
	10		5.94	0.12							
	10.5		5.87	0.1							
	11		5.92	0.14							
	11.5		5.96	0.18							
	12		5.93	0.18							
	12.5		5.93	0.18							
	13		5.91	0.16							
	13.5		6.02	0.20							
	14		6.02	0.18							
	14.5		6.02	0.20							
	15		6.08	0.23							
	15.5		6.10	0.24							
	16		6.13	0.32							
	16.5		6.13	0.32							
	17		6.17	0.35							
	17.5		6.16	0.38							
	18		6.32	0.50							
TOE	18.5		5.95	0.15							
LW	18.8		5.82	0		PH					
PH ~~Bkf~~	19.3		~~5.61~~			5.60					
Bkf	20		5.14								
LS	23.3		4.35								
TOTALS:											

End of Measurement | Time: | Gage Reading: ____ ft | CALCULATIONS PERFORMED BY: | CALCULATIONS CHECKED BY:

Discharge Measurement Summary

Site name	Burrows
Site number	082624
Operator(s)	Kb
File name	Burrows_20240826-194558.ft
Comment	

Start time	8/26/2024 7:02 PM
End time	8/26/2024 7:24 PM
Start location latitude	37.947
Start location longitude	-107.580
Calculations engine	FlowTracker2

Sensor type	Top Setting
Handheld serial number	FT2H2113010
Probe serial number	FT2P2114008
Probe firmware	1.30
Handheld software	1.6.4

# Stations	Avg interval (s)	Total discharge (ft³/s)
23	40	2.651

Total width (ft)	Total area (ft²)	Wetted Perimeter (ft)
5.500	2.775	6.071

Mean SNR (dB)	Mean depth (ft)	Mean velocity (ft/s)
36.915	0.505	0.955

Mean temp (°F)	Max depth (ft)	Max velocity (ft/s)
47.873	0.750	1.491

Discharge Uncertainty		
Category	**ISO**	**IVE**
Accuracy	1.0%	1.0%
Depth	0.4%	4.3%
Velocity	1.0%	8.7%
Width	0.1%	0.1%
Method	2.0%	
# Stations	2.2%	
Overall	**3.3%**	**9.8%**

Discharge equation	Mid Section
Discharge uncertainty	IVE
Discharge reference	Rated

Data Collection Settings	
Salinity	0.000 PSS-78
Temperature	-
Sound speed	-
Mounting correction	0.000 %

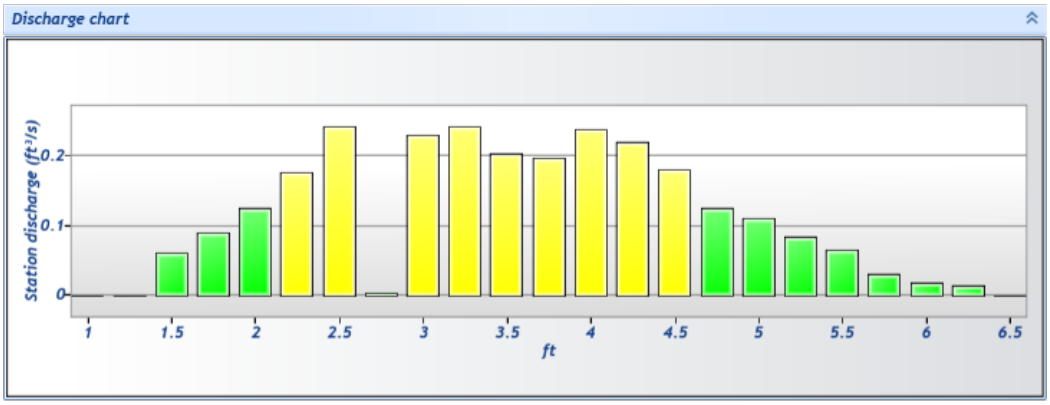
Summary overview

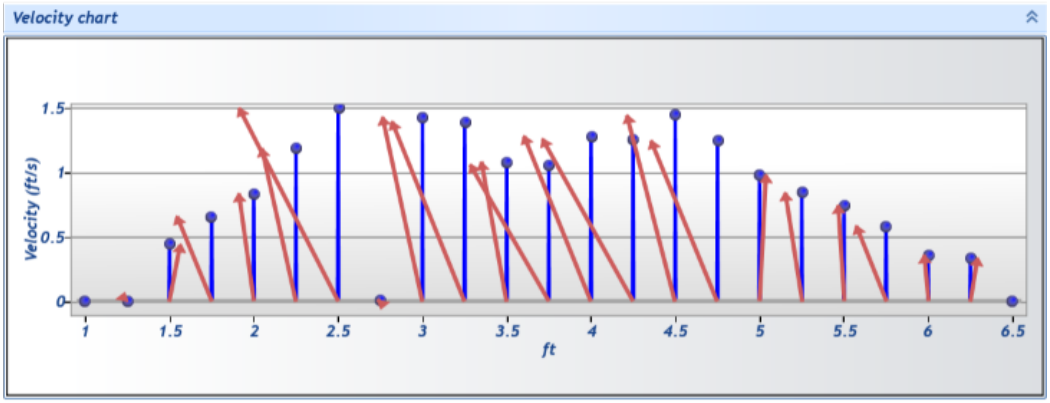
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Quality control warnings

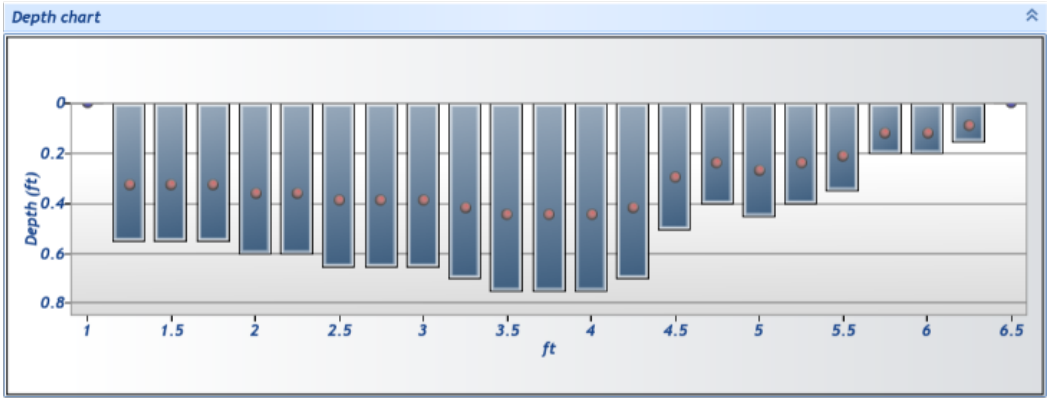
Discharge Measurement Summary

Site name	Burrows
Site number	082624
Operator(s)	Kb
File name	Burrows_20240826-194558.ft
Comment	

Station Warning Settings	
Station discharge OK	Station discharge < 5.000%
Station discharge caution	5.000% >= Station discharge < 10.000%
Station discharge warning	Station discharge >= 10.000%







Discharge Measurement Summary

Site name	Burrows
Site number	082624
Operator(s)	Kb
File name	Burrows_20240826-194558.ft
Comment	

Measurement results

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Samples	Velocity (ft/s)	Correction	Mean Velocity (ft/s)	Area (ft²)	Flow (ft³/s)	%Q	
0	7:02 PM	1.000	None	0.000	0.000	0.000	0	0.000		-0.002	0.000	0.000	0.000	✓
1	7:03 PM	1.250	0.6	0.550	0.600	0.330	62	-0.002	1.000	-0.002	0.138	0.000	-0.009	✓
2	7:04 PM	1.500	0.6	0.550	0.600	0.330	64	0.440	1.000	0.440	0.138	0.060	2.281	✓
3	7:05 PM	1.750	0.6	0.550	0.600	0.330	63	0.656	1.000	0.656	0.138	0.090	3.400	✓
4	7:06 PM	2.000	0.6	0.600	0.600	0.360	62	0.834	1.000	0.834	0.150	0.125	4.720	✓
5	7:07 PM	2.250	0.6	0.600	0.600	0.360	63	1.182	1.000	1.182	0.150	0.177	6.685	✓
6	7:08 PM	2.500	0.6	0.650	0.600	0.390	62	1.491	1.000	1.491	0.163	0.242	9.140	✓
7	7:09 PM	2.750	0.6	0.650	0.600	0.390	80	0.016	1.000	0.016	0.163	0.003	0.095	✓
8	7:10 PM	3.000	0.6	0.650	0.600	0.390	63	1.421	1.000	1.421	0.163	0.231	8.709	✓
9	7:11 PM	3.250	0.6	0.700	0.600	0.420	62	1.387	1.000	1.387	0.175	0.243	9.157	✓
10	7:12 PM	3.500	0.6	0.750	0.600	0.450	62	1.079	1.000	1.079	0.188	0.202	7.628	✓
11	7:13 PM	3.750	0.6	0.750	0.600	0.450	61	1.055	1.000	1.055	0.188	0.198	7.463	✓
12	7:14 PM	4.000	0.6	0.750	0.600	0.450	62	1.275	1.000	1.275	0.188	0.239	9.014	✓
13	7:15 PM	4.250	0.6	0.700	0.600	0.420	61	1.253	1.000	1.253	0.175	0.219	8.270	✓
14	7:16 PM	4.500	0.6	0.500	0.600	0.300	62	1.437	1.000	1.437	0.125	0.180	6.773	✓
15	7:17 PM	4.750	0.6	0.400	0.600	0.240	62	1.240	1.000	1.240	0.100	0.124	4.679	✓
16	7:18 PM	5.000	0.6	0.450	0.600	0.270	62	0.976	1.000	0.976	0.113	0.110	4.143	✓
17	7:19 PM	5.250	0.6	0.400	0.600	0.240	61	0.839	1.000	0.839	0.100	0.084	3.164	✓
18	7:20 PM	5.500	0.6	0.350	0.600	0.210	62	0.740	1.000	0.740	0.088	0.065	2.444	✓
19	7:21 PM	5.750	0.6	0.200	0.600	0.120	62	0.581	1.000	0.581	0.050	0.029	1.097	✓
20	7:22 PM	6.000	0.6	0.200	0.600	0.120	61	0.357	1.000	0.357	0.050	0.018	0.672	✓
21	7:23 PM	6.250	0.6	0.150	0.600	0.090	62	0.337	1.000	0.337	0.038	0.013	0.476	✓
22	7:24 PM	6.500	None	0.000	0.000	0.000	0	0.000		0.337	0.000	0.000	0.000	✓

Discharge Measurement Summary

Site name	Burrows
Site number	082624
Operator(s)	Kb
File name	Burrows_20240826-194558.ft
Comment	

Quality Control Settings	
Maximum depth change	50.000%
Maximum spacing change	100.000%
SNR threshold	10.000 dB
Standard error threshold	0.033 ft/s
Spike threshold	10.000%
Maximum velocity angle	20.000 deg
Maximum tilt angle	5.000 deg

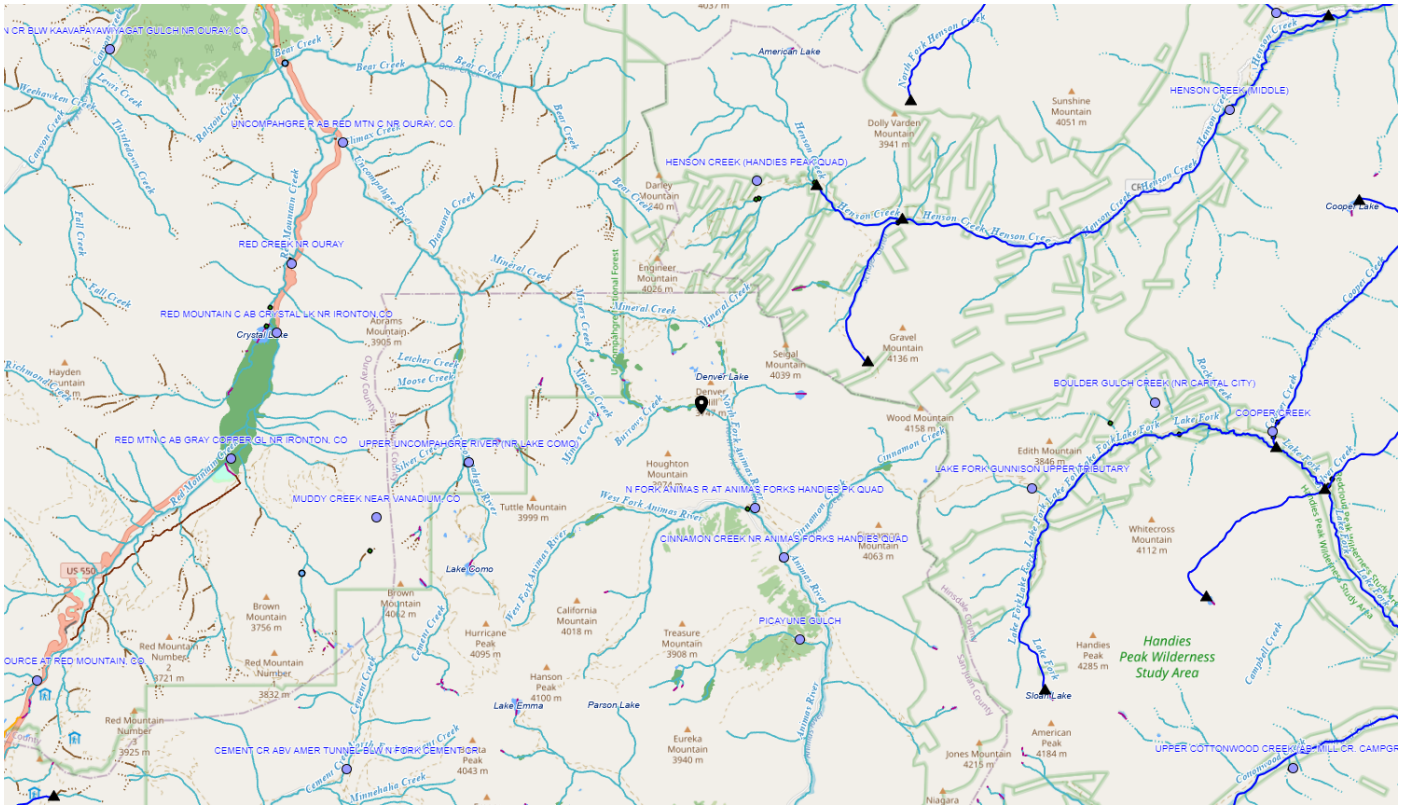
Quality control warnings

St#	Time	Location (ft)	Method	Depth (ft)	%Depth	Measured Depth (ft)	Warnings
1	7:03 PM	1.250	0.6	0.550	0.600	0.330	Boundary Interference,Large SNR Variation
2	7:04 PM	1.500	0.6	0.550	0.600	0.330	Large SNR Variation,Standard Error > QC
3	7:05 PM	1.750	0.6	0.550	0.600	0.330	Standard Error > QC
4	7:06 PM	2.000	0.6	0.600	0.600	0.360	Standard Error > QC
6	7:08 PM	2.500	0.6	0.650	0.600	0.390	Standard Error > QC,Velocity Angle > QC
7	7:09 PM	2.750	0.6	0.650	0.600	0.390	Boundary Interference,Large SNR Variation,Standard Error > QC
8	7:10 PM	3.000	0.6	0.650	0.600	0.390	Boundary Interference,Standard Error > QC
9	7:11 PM	3.250	0.6	0.700	0.600	0.420	Standard Error > QC
10	7:12 PM	3.500	0.6	0.750	0.600	0.450	Standard Error > QC
11	7:13 PM	3.750	0.6	0.750	0.600	0.450	Standard Error > QC,Velocity Angle > QC
13	7:15 PM	4.250	0.6	0.700	0.600	0.420	Velocity Angle > QC

R2Cross RESULTS

Stream Name: Burrows Gulch
Stream Locations: Above Gorge, Below Kettle Ponds
Fieldwork Date: 08/26/2024
Cross-section: 1
Observers: KB RU LM
Coordinate System: UTM Zone 13
X (easting): 273333
Y (northing): 4203131
Date Processed: 09/25/2024
Slope: 0.0162
Discharge: Entered Value: 2.65 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: Burrows_XS1_8-26-2024_Q=2.651 cfs.xlsx
R2Cross version: 2.0.4

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 15.88

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	0.97
Percent Wetted Perimeter (%)	50.0	0.11
Mean Velocity (ft/s)	1.0	5.42

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	6.35	15.88	0.42	0.76	6.64	16.51	100.0	0.4	0.08	1.21	8.06
	6.37	15.65	0.41	0.74	6.34	16.27	98.57	0.39	0.09	1.16	7.37
	6.39	15.41	0.39	0.72	6.04	16.04	97.13	0.38	0.09	1.11	6.72
	6.41	15.18	0.38	0.7	5.75	15.8	95.7	0.36	0.09	1.06	6.1
	6.43	14.95	0.37	0.68	5.47	15.56	94.26	0.35	0.09	1.01	5.51
	6.45	14.71	0.35	0.67	5.19	15.33	92.83	0.34	0.1	0.96	4.96
	6.46	14.48	0.34	0.65	4.91	15.09	91.4	0.33	0.1	0.91	4.44
	6.48	14.25	0.33	0.63	4.63	14.85	89.96	0.31	0.1	0.85	3.96
	6.5	14.01	0.31	0.61	4.37	14.61	88.48	0.3	0.11	0.8	3.51
	6.52	13.71	0.3	0.59	4.1	14.29	86.57	0.29	0.11	0.76	3.11
	6.54	13.4	0.29	0.57	3.85	13.98	84.67	0.28	0.11	0.71	2.75
Waterline	6.56	13.12	0.27	0.55	3.61	13.68	82.87	0.26	0.12	0.67	2.43
	6.56	13.1	0.27	0.55	3.59	13.66	82.76	0.26	0.12	0.67	2.41
	6.58	12.8	0.26	0.53	3.35	13.35	80.85	0.25	0.12	0.63	2.1
	6.6	12.5	0.25	0.51	3.11	13.03	78.95	0.24	0.12	0.58	1.81
	6.62	12.2	0.24	0.49	2.87	12.72	77.04	0.23	0.13	0.54	1.55
	6.63	11.9	0.22	0.48	2.64	12.4	75.13	0.21	0.14	0.5	1.31
	6.65	11.56	0.21	0.46	2.42	12.04	72.95	0.2	0.14	0.45	1.1
	6.67	11.25	0.2	0.44	2.2	11.71	70.91	0.19	0.15	0.41	0.91
	6.69	10.94	0.18	0.42	1.99	11.37	68.88	0.18	0.16	0.37	0.74
	6.71	10.64	0.17	0.4	1.79	11.04	66.84	0.16	0.17	0.33	0.59
	6.73	10.36	0.15	0.38	1.59	10.73	64.98	0.15	0.18	0.29	0.46
	6.75	10.05	0.14	0.36	1.39	10.38	62.88	0.13	0.2	0.25	0.35
	6.77	9.63	0.13	0.34	1.21	9.93	60.17	0.12	0.21	0.22	0.26
	6.79	9.12	0.11	0.32	1.03	9.38	56.82	0.11	0.23	0.19	0.19

	6.81	8.47	0.1	0.3	0.86	8.7	52.68	0.1	0.25	0.16	0.14
	6.83	7.78	0.09	0.28	0.71	7.98	48.32	0.09	0.28	0.14	0.1
	6.84	6.85	0.08	0.27	0.57	7.01	42.45	0.08	0.3	0.12	0.07
	6.86	5.55	0.08	0.25	0.45	5.67	34.34	0.08	0.3	0.12	0.05
	6.88	4.79	0.07	0.23	0.35	4.89	29.6	0.07	0.33	0.1	0.04
	6.9	4.3	0.06	0.21	0.27	4.37	26.46	0.06	0.38	0.08	0.02
	6.92	3.1	0.06	0.19	0.2	3.16	19.13	0.06	0.37	0.08	0.02
	6.94	2.52	0.06	0.17	0.15	2.56	15.51	0.06	0.4	0.07	0.01
	6.96	1.72	0.06	0.15	0.11	1.76	10.64	0.06	0.38	0.08	0.01
	6.98	1.15	0.07	0.13	0.08	1.19	7.18	0.07	0.35	0.09	0.01
	7.0	1.01	0.06	0.11	0.06	1.03	6.26	0.06	0.4	0.07	0.0
	7.01	0.86	0.05	0.09	0.04	0.88	5.34	0.05	0.47	0.05	0.0
	7.03	0.69	0.04	0.08	0.03	0.71	4.31	0.04	0.57	0.04	0.0
	7.05	0.52	0.03	0.06	0.01	0.53	3.23	0.03	0.72	0.02	0.0
	7.07	0.35	0.02	0.04	0.01	0.36	2.15	0.02	1.01	0.01	0.0
	7.09	0.17	0.01	0.02	0.0	0.18	1.08	0.01	1.8	0.0	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	2.65	(cfs)
Calculated Flow (Qc) =	2.54	(cfs)
(Qm-Qc)/Qm * 100 =	4.05%	
Measured Waterline (WLm) =	6.64	(ft)
Calculated Waterline (WLc) =	6.56	(ft)
(WLm-WLc)/WLm * 100 =	1.31%	
Max Measured Depth (Dm) =	0.55	(ft)
Max Calculated Depth (Dc) =	0.55	(ft)
(Dm-Dc)/Dm * 100 =	-0.37%	
Mean Velocity =	0.71	(ft/s)
Manning's n =	0.11	
0.4 * Qm =	1.06	(cfs)
2.5 * Qm =	6.63	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0.75	5.88		
Bankfull	0.92	6.35		
Waterline	3.32	6.64	0	
	3.7	6.9	0.28	
	4.38	6.97	0.4	
	5	6.93	0.35	
	5.5	6.9	0.3	
	6	6.91	0.35	
	6.5	6.85	0.26	
	7	6.84	0.25	
	7.5	6.88	0.22	
	8	6.72	0.18	
	8.5	6.64	0.1	
	9	6.76	0.22	
	9.5	6.87	0.32	
	10	6.78	0.25	
	10.5	6.91	0.4	
	11	6.8	0.28	
	11.5	6.5	0	
	12	6.76	0.25	
	12.5	6.86	0.35	
	13	6.74	0.2	
	13.5	6.9	0.39	
	14	7.02	0.5	
	14.5	7.11	0.55	
	15	6.97	0.44	
	15.4	6.94	0.4	
Waterline	15.6	6.65	0	
Bankfull	16.8	6.35		
	19.6	5.77		

	24.5	5.63	

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.46	0.28	0.15	0.11	4.11
0.68	0.4	0.26	0.19	7.21
0.62	0.35	0.2	0.14	5.43
0.5	0.3	0.15	0.11	4.16
0.5	0.35	0.17	0.13	4.85
0.5	0.26	0.13	0.1	3.6
0.5	0.25	0.12	0.09	3.46
0.5	0.22	0.11	0.08	3.05
0.52	0.18	0.09	0.07	2.5
0.51	0.1	0.05	0.04	1.39
0.51	0.22	0.11	0.08	3.05
0.51	0.32	0.16	0.12	4.43
0.51	0.25	0.12	0.09	3.46
0.52	0.4	0.2	0.15	5.54
0.51	0.28	0.14	0.1	3.88
0.58	0	0	0	0
0.56	0.25	0.12	0.09	3.46
0.51	0.35	0.17	0.13	4.85
0.51	0.2	0.1	0.07	2.77
0.52	0.39	0.2	0.14	5.41
0.51	0.5	0.25	0.18	6.93
0.51	0.55	0.28	0.2	7.62
0.52	0.44	0.2	0.15	5.49
0.4	0.4	0.12	0.09	3.33
0.35	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	0	0	0

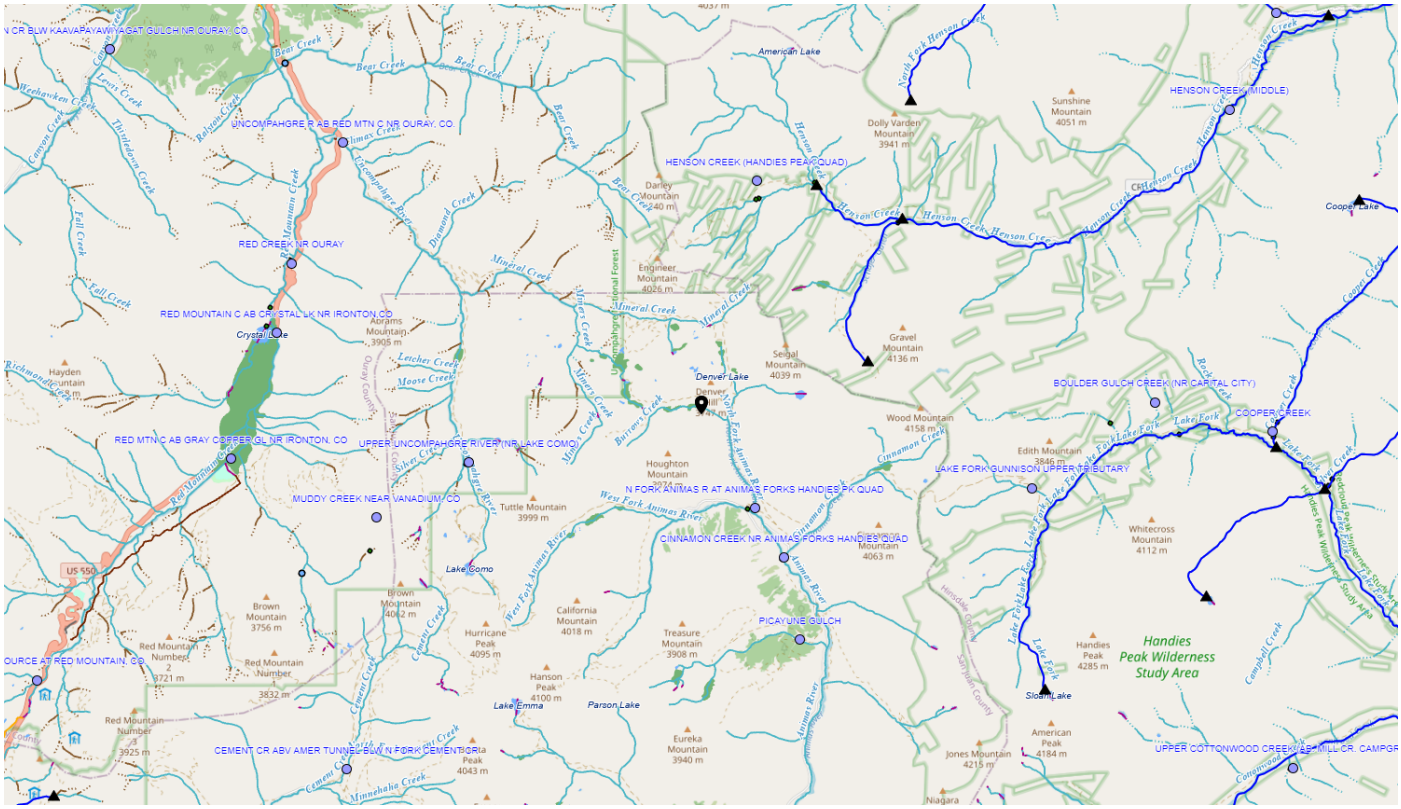
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R2Cross RESULTS

Stream Name: Burrows Gulch
Stream Locations: Above XS 2
Fieldwork Date: 08/26/2024
Cross-section: 1
Observers: KB RU LM
Coordinate System: UTM Zone 13
X (easting): 273295
Y (northing): 4203163
Date Processed: 09/25/2024
Slope: 0.0151
Discharge: Entered Value: 2.65 (cfs)
Computation method: Ferguson VPE
R2Cross data filename: Burrows_XS3_8-26-2024_Q=2.651 cfs.xlsx
R2Cross version: 2.0.4

LOCATION



ANALYSIS RESULTS

Habitat Criteria Results

Bankfull top width (ft) = 18.25

	Habitat Criteria	Discharge (cfs) Meeting Criteria
Mean Depth (ft)	0.2	2.63
Percent Wetted Perimeter (%)	50.0	0.59
Mean Velocity (ft/s)	1.0	2.6

STAGING TABLE

Feature	Distance to Water (ft)	Top Width (ft)	Mean Depth (ft)	Maximum Depth (ft)	Area (sq ft)	Wetted Perimeter (ft)	Percent Wetted Perimeter	Hydraulic Radius (ft)	Manning's n	Mean Velocity (ft/s)	Discharge (cfs)
Bankfull	5.37	18.25	0.51	0.95	9.25	18.77	100.0	0.49	0.04	3.0	27.79
	5.39	17.84	0.49	0.93	8.82	18.35	97.76	0.48	0.04	2.93	25.83
	5.42	17.43	0.48	0.9	8.4	17.93	95.53	0.47	0.04	2.85	23.97
	5.44	17.01	0.47	0.88	7.99	17.51	93.29	0.46	0.04	2.78	22.18
	5.46	16.6	0.46	0.85	7.59	17.09	91.05	0.44	0.04	2.7	20.49
	5.49	16.19	0.45	0.83	7.2	16.67	88.81	0.43	0.04	2.62	18.87
	5.51	15.78	0.43	0.81	6.83	16.25	86.58	0.42	0.04	2.54	17.34
	5.54	15.36	0.42	0.78	6.46	15.83	84.34	0.41	0.04	2.46	15.88
	5.56	14.95	0.41	0.76	6.1	15.41	82.1	0.4	0.04	2.38	14.5
	5.58	14.54	0.4	0.74	5.75	14.99	79.86	0.38	0.04	2.3	13.2
	5.61	14.12	0.38	0.71	5.4	14.57	77.6	0.37	0.04	2.22	11.98
	5.63	13.97	0.36	0.69	5.07	14.41	76.75	0.35	0.04	2.09	10.59
	5.66	13.85	0.34	0.67	4.74	14.28	76.07	0.33	0.04	1.95	9.26
	5.68	13.74	0.32	0.64	4.41	14.15	75.39	0.31	0.05	1.82	8.01
	5.7	13.62	0.3	0.62	4.09	14.03	74.72	0.29	0.05	1.68	6.85
	5.73	13.5	0.28	0.59	3.77	13.9	74.04	0.27	0.05	1.53	5.78
	5.75	13.38	0.26	0.57	3.45	13.77	73.36	0.25	0.05	1.39	4.79
	5.77	13.26	0.24	0.55	3.13	13.65	72.68	0.23	0.05	1.25	3.9
	5.8	13.15	0.21	0.52	2.82	13.52	72.0	0.21	0.06	1.1	3.1
Waterline	5.81	13.07	0.2	0.51	2.61	13.43	71.56	0.19	0.06	1.01	2.63
	5.82	13.03	0.19	0.5	2.51	13.39	71.33	0.19	0.06	0.96	2.4
	5.84	12.92	0.17	0.47	2.2	13.27	70.69	0.17	0.07	0.81	1.79
	5.87	12.85	0.15	0.45	1.89	13.18	70.22	0.14	0.07	0.67	1.26
	5.89	12.3	0.13	0.43	1.59	12.62	67.21	0.13	0.08	0.56	0.89
	5.92	10.89	0.12	0.4	1.32	11.18	59.55	0.12	0.09	0.51	0.67

	5.94	8.71	0.12	0.38	1.08	8.97	47.8	0.12	0.09	0.52	0.57
	5.96	7.2	0.12	0.36	0.9	7.44	39.62	0.12	0.09	0.52	0.47
	5.99	6.8	0.11	0.33	0.73	7.02	37.39	0.1	0.1	0.43	0.31
	6.01	6.24	0.09	0.31	0.57	6.43	34.27	0.09	0.11	0.34	0.2
	6.04	4.7	0.1	0.28	0.45	4.87	25.95	0.09	0.1	0.36	0.16
	6.06	4.29	0.08	0.26	0.34	4.43	23.61	0.08	0.12	0.28	0.09
	6.08	3.83	0.06	0.24	0.24	3.95	21.05	0.06	0.14	0.2	0.05
	6.11	2.78	0.06	0.21	0.17	2.88	15.35	0.06	0.15	0.18	0.03
	6.13	1.76	0.06	0.19	0.11	1.85	9.83	0.06	0.15	0.18	0.02
	6.15	1.43	0.05	0.17	0.07	1.51	8.03	0.05	0.18	0.13	0.01
	6.18	0.64	0.07	0.14	0.05	0.71	3.77	0.06	0.14	0.21	0.01
	6.2	0.53	0.06	0.12	0.03	0.59	3.14	0.05	0.16	0.16	0.01
	6.22	0.43	0.05	0.09	0.02	0.47	2.51	0.04	0.19	0.12	0.0
	6.25	0.32	0.04	0.07	0.01	0.35	1.88	0.03	0.24	0.08	0.0
	6.27	0.21	0.02	0.05	0.01	0.24	1.26	0.02	0.34	0.04	0.0
	6.3	0.11	0.01	0.02	0.0	0.12	0.63	0.01	0.6	0.01	0.0

This Manning's roughness coefficient was calculated based on velocity estimates from the Ferguson VPE method

MODEL SUMMARY

Measured Flow (Qm) =	2.65	(cfs)
Calculated Flow (Qc) =	2.64	(cfs)
(Qm-Qc)/Qm * 100 =	0.47%	
Measured Waterline (WLm) =	5.83	(ft)
Calculated Waterline (WLc) =	5.81	(ft)
(WLm-WLc)/WLm * 100 =	0.29%	
Max Measured Depth (Dm) =	0.5	(ft)
Max Calculated Depth (Dc) =	0.51	(ft)
(Dm-Dc)/Dm * 100 =	-1.37%	
Mean Velocity =	1.01	(ft/s)
Manning's n =	0.061	
0.4 * Qm =	1.06	(cfs)
2.5 * Qm =	6.63	(cfs)

FIELD DATA

Feature	Station (ft)	Rod Height (ft)	Water depth (ft)	Velocity (ft/s)
	0	5.25		
Bankfull	1.4	5.37		
	5.2	5.61		
Waterline	5.82	5.84	0	
	6	6.11	0.3	
	6.5	6.09	0.22	
	7	6.02	0.14	
	7.5	6	0.16	
	8	5.95	0.1	
	8.5	5.95	0.1	
	9	5.91	0.1	
	9.5	5.89	0.1	
	10	5.94	0.12	
	10.5	5.87	0.1	
	11	5.92	0.14	
	11.5	5.96	0.18	
	12	5.93	0.18	
	12.5	5.93	0.18	
	13	5.91	0.16	
	13.5	6.02	0.2	
	14	6.02	0.18	
	14.5	6.02	0.2	
	15	6.08	0.23	
	15.5	6.1	0.24	
	16	6.13	0.32	
	16.5	6.13	0.32	
	17	6.17	0.35	
	17.5	6.16	0.38	
	18	6.32	0.5	
	18.5	5.95	0.15	

Waterline	18.8	5.82	0
	19.3	5.6	
Bankfull	20	5.14	
	23.3	4.35	

COMPUTED FROM MEASURED FIELD DATA

Wetted Perimeter (ft)	Water Depth (ft)	Area (ft^2)	Discharge (cfs)	Percent Discharge
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0.32	0.3	0.1	0.1	3.9
0.5	0.22	0.11	0.11	4.21
0.5	0.14	0.07	0.07	2.68
0.5	0.16	0.08	0.08	3.06
0.5	0.1	0.05	0.05	1.91
0.5	0.1	0.05	0.05	1.91
0.5	0.1	0.05	0.05	1.91
0.5	0.1	0.05	0.05	1.91
0.5	0.12	0.06	0.06	2.3
0.5	0.1	0.05	0.05	1.91
0.5	0.14	0.07	0.07	2.68
0.5	0.18	0.09	0.09	3.45
0.5	0.18	0.09	0.09	3.45
0.5	0.18	0.09	0.09	3.45
0.5	0.16	0.08	0.08	3.06
0.51	0.2	0.1	0.1	3.83
0.5	0.18	0.09	0.09	3.45
0.5	0.2	0.1	0.1	3.83
0.5	0.23	0.12	0.12	4.4
0.5	0.24	0.12	0.12	4.59
0.5	0.32	0.16	0.16	6.13
0.5	0.32	0.16	0.16	6.13
0.5	0.35	0.17	0.18	6.7
0.5	0.38	0.19	0.19	7.27
0.52	0.5	0.25	0.25	9.57
0.62	0.15	0.06	0.06	2.3

0.33	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

DISCLAIMER

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General Site Field Visit Data Report *(Filters: Name begins with Burrows Creek; Division = 7;)*

Type		Div	Name	CWCB Case Number	Segment ID	Visit Date	Location Description	Watershed Name
Stream		7	Burrows Creek		25/7/A-001	9/7/2023	Burrows Creek above confluence with Animas River	Animas
	Remarks	Date	Remark					
		07/09/23 10:32	Site visit with members from BLM and CPW for meeting about aquisition, R2Cross survey, and observation of natural environment. Blue skies and brisk.					
	GPS Log	No GPS Log records for this visit.						
	Photo Log	No Photo Log records for this visit.						















