

**FINAL
PRELIMINARY ASSESSMENT/
REMOVAL SITE EVALUATION

COMBINED ASSESSMENT REPORT**

**RUBY MINING DISTRICT
PITKIN COUNTY, COLORADO**

U.S. EPA ID NO. CON000821139

**Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 8
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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA), under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), tasked the Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) to conduct field activities and prepare a combined assessment report (CAR) for the Ruby Mining District (site) in Pitkin County, Colorado (EPA Identification Number [No.] CON000821139). The CAR proceeded under Contract No. 68HE0820D001, Technical Direction (TD) No. 2083-2203-09. Field activities associated with this report were conducted by Tetra Tech and the Colorado Mixed-Ownership multi-agency group on July 13 and September 27, 2022. Photographic logs of conditions at the site were provided by Colorado Parks and Wildlife (CPW) ([Attachment 1](#)) and by Tetra Tech ([Appendix A](#)). An overview of sampling locations is provided on [Figure 1](#) and a summary of sample location descriptions is provided in [Table 1](#). Both figures and tables are organized from downstream sample locations to upstream sample locations. Sample locations are depicted on [Figure 2](#) through [Figure 4](#). [Figures 5](#) and [6](#) depict target distance limits for groundwater and surface water, respectively. Soil sample analytical data are summarized in [Table 2](#) and [Table 3](#) and are depicted on [Figure 7](#). Surface water sample analytical and monitoring data are summarized in [Table 4](#) through [Table 7](#) and are depicted on [Figure 8a](#) through [Figure 8d](#). Tables and figures follow the main text of the report.

This CAR includes two parts: a preliminary assessment (PA) and a removal site evaluation (RSE). The RSE is only partially evaluated because EPA was not granted access to the source, which is on private property. The PA/RSE is intended to provide a summary of analytical results and potential impacts to human health and the environment, in accordance with the CERCLA site assessment/removal assessment process. Information presented in this report is intended to be considered by decisionmakers and other stakeholders for decision making at the site.

The purpose of a PA is to review existing information about a site and its environs to assess the threats, if any, posed to human health or the environment and to evaluate whether further investigation under CERCLA/SARA is warranted. The scope of the PA includes reviewing information available from federal, state, and local agencies. Based on these sources of information, the site is evaluated according to EPA Hazard Ranking System (HRS) criteria to assess the relative threat associated with actual or potential releases of hazardous substances at the site. EPA adopted the HRS to set priorities for evaluation and remedial action at hazardous waste sites. The HRS is the primary method of determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites where EPA may conduct remedial response actions.

The purpose of a RSE is to provide all available and relevant information to assess whether a removal action under CERCLA/SARA is warranted. The report is used for subsequent removal action decision-making that considers all regulatory and other relevant information as required by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 *Code of Federal Regulations* [CFR]) and EPA Removal Action authorities.

This CAR was prepared in accordance with EPA's *Guidance for Performing Preliminary Assessments under CERCLA* (EPA 1991), *Guidance for Performing Site Inspections under CERCLA* (EPA 1992), and *Hazard Ranking System Final Rule* (EPA 2017). The RSE was prepared to assess whether imminent and substantial endangerment to public health, welfare, or the environment exists at the site in accordance with the NCP. Of particular note, and as applicable to the specific results of field investigations at this site, the CERCLA process specifically applies to anthropogenic sources of hazardous substances and does not address or consider clean-up actions associated with naturally occurring sources of metals. As discussed in subsequent sections in this report, a significant source of naturally occurring mineralization and associated, elevated metals discharges exist at this site (see [Attachment 3](#)).

2.0 OBJECTIVES

The objectives of this project are designed to support an assessment of hazardous conditions at the site based on current understanding. In addition to reviewing existing information and evaluating current conditions, the CAR also includes an evaluation of analytical results from surface water and soil samples collected in 2022.

The objectives of this combined assessment were to:

- Assess current and historical conditions at the site, including any industrial/worker or recreational uses.
- Evaluate previously collected data, records, and reference materials, as well as analytical results for surface water and soil samples collected in 2022 to identify sources of contamination and assess migration and exposure pathways. Drainage discharges from the source area were characterized, but the primary source area was not characterized due to private property access restrictions.
- Evaluate migration and exposure pathways that could potentially be impacted by hazardous substances, affecting human and environmental health.
- Identify whether the site warrants further investigation under CERCLA.
- Assess whether a removal action is warranted at the site based on NCP requirements.

3.0 SITE BACKGROUND

This section discusses the site background, including site location and description and previous investigations.

3.1 SITE LOCATION AND DESCRIPTION

Ruby Mine is located in Pitkin County, Colorado near Leadville ([Figure 1](#)). Ruby Mine is located in the tectonic structure of the Central Cordillera in the southern Rocky Mountains. It is situated along the eastern slopes of upper Lincoln Creek, which flows down to a confluence with Grizzly Creek where Grizzly Reservoir is established. Lincoln Creek is a headwater tributary to the Roaring Fork River whose source waters and tributaries host cutthroat trout and brook trout populations. Grizzly Reservoir, a 570-acre-foot waterbody (also known as Lincoln Gulch Diversion Dam), was constructed for the Independence Pass Transmountain Diversion System and is operated by the Twin Lakes Reservoir and Canal Company (TLRCC). Water in Grizzly Reservoir is stored from the natural stream flows of Lincoln and Grizzly Creeks and diversions from Roaring Fork River headwaters, Lost Man Creek, Brooklyn Creek, Tabor Creek, and New York Creek; the water is then transported under the Continental Divide through the Twin Lakes Tunnel to the Arkansas River watershed. Primarily, water stores are released for trans-basin diversion to eastern slope municipalities and agriculture, but some downstream releases are made for western slope water interests.

Located in a scenic high alpine valley characterized by dramatic peaks, high lakes, and willow-laden streams with abundant wildlife, Lincoln Creek and Grizzly Reservoir contribute to a diversity of popular high elevation recreational opportunities. Grizzly Reservoir is managed as a Coldwater Catchable Lake greater than [$>$] 30 acres by Colorado Parks and Wildlife (CPW). For over 50 years, CPW has stocked the reservoir annually with an average of 2,200 catchable rainbow trout to provide a “put-and-take” fishing opportunity. Though some wild brook trout may be present, their contribution to the fishery is minor. The reservoir contributes water to the Arkansas River valley, and releases water 6 miles down Lincoln Creek to the Roaring Fork River. The Portal Campground at the reservoir and the Lincoln Creek Campground and Dispersed Campsites downstream are managed and operated by the U.S. Forest Service. Lincoln Creek and Grizzly Reservoir are scenic and popular destinations for hiking, rock climbing, camping, and fishing for residents and visitors (CPW 2022).

Ruby Mine is situated 4 miles upstream of Grizzly Reservoir at an elevation of 11,480 feet above mean sea level and historically produced silver, lead, zinc, copper, and manganese (Western Mining History 2023). The host rock includes rhyolite, rhyodacite, and quartz latite (Howell 1919). Structurally, Ruby Mine is

associated with the Grizzly Peak Cauldron, Mt. Elbert volcanic depression, Sawatch uplift event, the Twin Lakes Batholith, and the Arkansas Valley Graben (Cruson 1973).

A separate and substantial drainage, termed the “Mineralized Tributary” in this report, was originally identified as part of the Ruby Mine discharge. Although this drainage is in the immediate area of the Ruby Mine, the origin of the Mineralized Tributary is suspected to be a naturally occurring, hydrothermally altered spring. This was confirmed by state geologists ([Attachment 4](#)) and available data support this conclusion ([Attachment 3](#)).

Ruby Mine is on the Colorado Division of Reclamation, Mining and Safety (DRMS) list of abandoned mines. In 2016, DRMS conducted a survey of many abandoned mines across Colorado and observed high concentrations of aluminum, cadmium, copper, iron, lead, manganese, and zinc draining from Ruby Mine (CPW 2022). The legal description and location of Ruby Mine are presented below (Pitkin County 2023).

Legal Description and Location

Property Location	Location Details
Parcel ID	300112200012
Legal Description	Section: 12 Township: 12 Range: 83 IN THE LINCOLN MINING DISTRICT MINE: ST LAWRENCE 1 - 7730 100% 10.33 ACRES ALL SURFACE & MINERAL RIGHTS
Latitude	39.019892
Longitude	-106.607961
Elevation	11,480 feet above mean sea level

While the area is not a high-risk area for earthquakes, five shallow, low magnitude (less than [$<$] 3) seismic events were documented within 30 miles of Ruby Mine between 2020 and 2022 (USGS 2023a). Although not a high probability, subsurface, geological, or hydrogeological disturbances or groundwater flow changes could occur if repeated seismic events are strong enough and in the immediate vicinity of the former mine.

3.2 PREVIOUS INVESTIGATIONS

On August 31, 2021, a fish kill in Grizzly Reservoir was reported to CPW staff conducting Boreal Toad surveys in the area. CPW responded immediately, documenting fish mortalities near the inlet to Grizzly Reservoir that included 12 dead rainbow trout and four distressed trout swimming erratically at the water surface. CPW stocks the reservoir and does not have recent evidence that fish kills at Grizzly Reservoir are routine. In August 2021, a fish kill in Grizzly Reservoir prompted CPW’s initial 2021 water quality investigation (CPW 2022) and engagement with the Colorado Mixed-Ownership multi-agency group.

Evidence from sampling in 2021 demonstrated significant aquatic life water quality exceedances related to copper in Lincoln Creek and Grizzly Reservoir. In addition, CPW observed the reservoir to have a more pronounced turquoise color and a persistent turquoise color downstream of the reservoir to the Roaring Fork River (approximately 5 miles) (CPW 2022). NOTE: A TLRCC spokesperson reported that the turquoise water observed in August is not unusual (TLRCC 2023). Runoff from Ruby Mine upstream of Grizzly Reservoir on Lincoln Creek was noticeably discolored, with a white precipitate observed upstream of the mine in Lincoln Creek, and an orange color observed below the mine (CPW 2022). During CPW's fish kill investigation, the resident diversion operator (caretaker) also reported approximately 100 dead or dying fish two weeks earlier (immediately after they were stocked from a hatchery truck). Following conversations with associated hatchery personnel, CPW attributed the earlier mortalities primarily to transportation issues with hatchery fish at the time of stocking. CPW has indicated that the mortality observed during the August 31 investigation was unlikely to be associated with the stocking issue earlier in the month.

Aquatic life below the Ruby Mine is inhibited by water quality impacts associated with the Ruby Mine area drainages to Lincoln Creek. [Attachment 2](#) provides a detailed Fishery Summary prepared by a CPW aquatic biologist. Cutthroat trout are present in waters upstream of the mining area and in tributary waters throughout the watershed, including the unnamed tributary from Anderson Lake, New York Creek, and many high elevation lakes in the watershed. Recent surveys by CPW demonstrate Lincoln Creek is uninhabitable by both fish and macroinvertebrates below the mine. As a tolerance test, a trout captured only inches upstream in the confluence of a clean tributary with Lincoln Creek was exposed to the water collected a few inches downstream in Lincoln Creek and lost equilibrium within 45 seconds of exposure. Dead oligochaetes (worms) were the only macroinvertebrates found and documented by CPW during fishery surveys in Lincoln Creek between the mine and the reservoir. Farther downstream, only a few individual fish have been collected between Grizzly Reservoir and the confluence with the Roaring Fork River in multiple survey locations during repeated CPW fish surveys conducted periodically since 2018. A 2020 Macroinvertebrate Study (Miller and Espegren 2021) specifically evaluated the macroinvertebrate communities in lower Lincoln Creek, comparing them with a reference reach in the headwaters of the Roaring Fork River. Obvious and significant impacts on Lincoln Creek macroinvertebrate density, biomass, and community composition were reported when compared to the Roaring Fork River reference reach.

Since 1994, CPW and River Watch volunteers have collected water samples in the Lincoln Creek - Grizzly Reservoir watershed; in addition, DRMS monitors two sites. In 2015, water samples collected from the Roaring Fork River, Grizzly Reservoir outlet, and Grizzly Reservoir were analyzed following an

unintentional flush of reservoir sediments out of Grizzly Reservoir. The release caused public concern when the Roaring Fork River flows increased dramatically and yellow, turbid water flowed through the City of Aspen. A technical memorandum reports some of the samples had concentrations exceeding acute aquatic life standards for trace metals including total aluminum and total iron, and additional exceedances for dissolved copper and dissolved manganese (Hoblitzell 2015). In addition, a 2002 report from Colorado Division of Minerals and Geology regarding water quality in Lincoln Creek mentions issues beginning in the mid-1980s and multiple fish kills observed by local residents (Renner 2002). Immediately following the fish kill observed on August 31, 2021, CPW collected water quality samples on September 2, 7, and 8, 2021. Analytical results for these samples showed dissolved copper concentrations above the acute Colorado Department of Public Health and Environment (CDPHE) Regulation No. 31 Water Quality Standards (WQS) for Aquatic Life at all sites downstream of Ruby Mine on Lincoln Creek and within Grizzly Reservoir. Samples collected from Lincoln Creek below Ruby Mine indicate that dissolved copper and total aluminum concentrations are higher than in previous sampling events (before 2021). Water samples collected from Lincoln Creek approximately ½-mile upstream of Ruby Mine indicate that all metals were below the corresponding aquatic life standards, and in some cases below the method detection limit. These data were shared with multiple organizations, including EPA (CPW 2022).

Based on data collected from September 2001 to the present, concentrations of copper and other metals in Lincoln Creek, Ruby Mine runoff, and the Mineralized Tributary present in the Ruby Mine area have been increasing. A detailed analysis of historical trends is presented in [Attachment 3](#) and discussed in the [Section 7.0](#).

4.0 SOURCE DESCRIPTION AND WASTE CHARACTERISTICS

This section describes the source at the site and provides information on waste characteristics.

4.1 SOURCE DESCRIPTION

A source is defined as an area where a hazardous substance has been deposited, stored, or placed, as well as those soils that have become contaminated from the migration of a hazardous substance.

The source associated with the site is described below ([Figure 4](#)):

Source 1: The source associated with the site is the Ruby Mine area, including contaminated soil and mine tailings associated with Ruby Mine. Because of property access restrictions, EPA was unable to collect samples directly from the source, including the mine waste pile. Instead, sampling focused on accessible areas of contamination on U.S. Forest Service Property to assess the potential impacts to human health and the environment.

There are two metals-laden discharges in the vicinity of Ruby Mine that contribute to increased metals concentrations and metals loading in Lincoln Creek:

- One discharge emanates directly from the Ruby Mine portal; this drainage discharges into Lincoln Creek immediately west of the Ruby Mine area. Ruby Mine historically produced silver, lead, zinc, copper, and manganese (Western Mining History 2023).
- A second discharge is the Mineralized Tributary that originates from a steep slope in the valley above the Ruby Mine area; this drainage, which has been determined to be of natural origin,¹ discharges into Lincoln Creek just downgradient of the discharge emanating directly from the Ruby Mine portal. The exact source of the Mineralized Tributary is unknown.

Lincoln Creek flows north before entering Grizzly Reservoir approximately 4 miles downstream from Ruby Mine.

DRMS conducted several site visit/tours to assess the potential source of the Mineralized Tributary ([Attachment 4](#)). [Attachment 3](#) contains a thorough review of field and analytical data concluding that Ruby Mine drainage and Mineralized Tributary water chemistry are very different from one another and that the Mineralized Tributary is natural and not of direct anthropogenic origin. DRMS believes that most of the water quality impacts to Lincoln Creek originate from non-anthropogenic (natural) sources in the area of

¹ Natural mineralization occurs when hydrothermal fluids, derived from magmas at depth, carry metals toward the surface and deposit minerals to create disseminated ore deposits. These deposits are known to be sources of copper and other heavy metals.

Ruby Mine. During recent field visits to the Ruby Mine area, DRMS concluded that there were no identified mining sources observed within the Mineralized Tributary. While historical mining does appear to play a role in some of the impacts to Lincoln Creek, all of the data and observations point to natural sources as the major component of metals loading into Lincoln Creek ([Attachment 4](#)).

4.2 WASTE CHARACTERISTICS

In July 2022, EPA collected three grab surface soil samples (GR/LC SO-WRP01-01, GR/LC SO-WRP01-02, and GR/LC SO-WRP01-03) and one field duplicate sample (GR/LC SO-WRP01-02-DUP) from the vicinity of Ruby Mine to characterize the concentrations of metals in surface soil. Due to property access restrictions, EPA was unable to collect samples directly from the source (including the mine waste pile). Instead, sampling focused on accessible areas of contamination on U. S. Forest Service Property, which may not represent the worst-case concentrations from the source. In addition, one background soil sample (GR/LC SO-BKG-01-GRB) was collected ([Figure 1](#), [Figure 4](#), and [Figure 7](#); [Table 1](#)).

A number of metals were detected in soil samples at concentrations that document observed contamination (that is, exceeding three times the background levels), including aluminum, arsenic, beryllium, copper, iron, lead, mercury, molybdenum, uranium, and zinc ([Table 2](#)); analytical results for arsenic, beryllium, mercury, and molybdenum meet the requirements for “observed contamination” based on the HRS Rule which states, “if the hazardous substance of concern is not detected in the background sample the release sample concentration must be greater than or equal to its detection limit.”

This PA uses background concentrations to identify whether analytical results for samples meet the observed contamination criterion for the soil exposure component of the soil exposure and subsurface intrusion pathway. The area of soil with observed contamination is defined as the area in which metal concentrations equal or exceed three times background levels. When considering all inorganics, all collected samples had at least one inorganic analyte that meets the observed contamination criterion ([Table 2](#)). The use of EPA regional screening levels (RSL) for comparison is considered conservative. The residential RSL would be applicable if waste or contamination was observed at Grizzly Reservoir where the full-time caretaker lives. The industrial RSL represents the potential for risks associated with an onsite worker scenario if a removal action were determined to be needed.

5.0 MIGRATION AND EXPOSURE PATHWAYS

This section presents the groundwater migration, surface water migration, soil exposure and subsurface intrusion, and air migration and exposure pathways. For each migration and exposure pathway, the text presents pathway characteristics, information on potential targets associated with each pathway, sampling and analytical data (if available), and conclusions regarding the significance of the pathway.

5.1 GROUNDWATER MIGRATION PATHWAY

This section presents the groundwater migration pathway, including pathway characteristics (regional geology), information on potential groundwater targets, sampling and analytical data, and conclusions regarding the significance of the pathway.

5.1.1 Regional Geology

The site lies within the Grizzly Peak Cauldron complex located in the eroded core of the Sawatch uplifted block. The horst occupies an area 80 miles by 30 miles, with a minimum of 9,000 feet of structural relief along its western margin and over 10,000 feet along its western margin. The uplifted block was a structural high in the Pennsylvanian and Permian periods. During the Mesozoic era, much of the area now occupied by the Sawatch uplifted block was covered by the Curtis Sea. Dating of widespread ash-flow sheets has shown that most, if not all, of the present topographic relief of the area east of the Sawatch Range is from the mid- to late- Tertiary age. The presence of the Paleozoic section indicates that erosion did not remove many of the rocks by the end of the Oligocene period, and most of the topography and associated erosion is late Tertiary in age. Upper Cenozoic volcanism, block faulting, and igneous activity in the Elk Mountains just west of the Grizzly Peak Cauldron complex are widespread regional features that have affected the geologic setting of the cauldron complex. The cauldron complex is within the Colorado Mineral Belt and may be genetically related to it (Cruson 1973).

The Colorado Mineral Belt is a region of dominantly metamorphic rocks containing a number of Tertiary intrusives and associated mineral deposits. The intrusives are aligned in a distinct, northeasterly direction. The mineral belt is narrow and well-defined in the Front Range and the northwest portion of the San Juan Mountains. Where this belt crosses the Sawatch Range, it is broader and more difficult to define. The two largest, presently exposed, Tertiary intrusives in the mineral belt (the Mt. Princeton and Twin Lakes Batholiths) are in the Sawatch Range. The mineral belt relates to Precambrian shear zones that have been reactivated repeatedly throughout geologic time and have localized igneous activity. The Independence Pass shear zone is an example that trends northeast along the northern boundary of the cauldron complex (Cruson 1973).

The central portion of Colorado has been subject to a late Tertiary overprint of normal block faulting. The most outstanding example of this tectonic style is the Rio Grande rift. The Arkansas Valley, the northern portion of the rift, is 8 miles east of the complex; faults with similar orientation within the cauldron complex include the Lincoln Gulch fault and the north-northwest trending faults along the northeast portion of the complex. The Sheep Creek fault southeast of the area may be a similar structure (Cruson 1973).

The Grizzly Peak volcanic field originally may have been a portion of a single composite volcanic field of Oligocene and younger age that covered most of the southern half of Colorado. As many as nine cauldrons may have served as sources for the voluminous ash-flow eruptions and flows in this field. The volcanic sequence is characterized by large volumes of intermediate rocks in the early stages, followed by abundant silicic ash flows and later by a less voluminous bimodal assemblage of mafic and silicic components. The Grizzly Peak volcanic field differs from the other centers due to the absence of a bimodal assemblage. The Grizzly Peak volcanics grade from acidic to intermediate in composition, with no mafic members present (Cruson 1973).

5.1.2 Groundwater Targets

Potential groundwater targets can include (1) people who obtain drinking water from private domestic wells within the 4-mile radius target distance limit (TDL) of the site, and (2) people supplied drinking water from public water suppliers whose water source is from groundwater wells within the 4-mile TDL ([Figure 5](#)).

According to available information, one groundwater well is located south of the site between the ¼-mile and ½-mile distance rings; this well is designated for drinking and sanitary use in a commercial business (Colorado Division of Water Resources [CDWR] 2023; EDR 2023). According to available information, three groundwater wells are located north and west of the site between the 3- and 4-mile distance rings; these wells are designated for household use (CDWR 2023). No other information regarding private, domestic well use was readily available for this assessment. No public drinking water systems are located within 4 miles of the site (Tetra Tech 2023a).

5.1.3 Groundwater Sampling and Analytical Results

Groundwater samples have not been collected at the site to evaluate whether a release to groundwater attributable to the site has occurred, but this pathway is not considered a significant pathway based on the target information presented in [Section 5.1.2](#).

5.1.4 Groundwater Migration Pathway Conclusions

The groundwater migration pathway may be a pathway of potential concern at the site. Groundwater samples have not been collected at the site to evaluate whether a release to groundwater attributable to the site has occurred. Contaminants associated with the site could migrate to and impact groundwater. However, groundwater is not considered a significant pathway of concern at the site based on the minimal number of targets associated with the pathway and the distance of the groundwater supply wells from the site.

5.2 SURFACE WATER MIGRATION PATHWAY

This section presents the surface water migration pathway, including pathway characteristics (hydrologic setting), information on potential targets, sampling and analytical data, and conclusions regarding the significance of the pathway.

5.2.1 Hydrologic Setting

The site is located within the Roaring Fork River watershed, which encompasses an area of 1,451 square miles. As part of the larger Colorado River Basin, which supplies water to nearly 40 million people in the arid southwest, the Roaring Fork River watershed contributes about 856,000-acre feet or 279 billion gallons of water each year to the Colorado River (Roaring Fork Conservancy 2023).

As a headwater tributary to the Roaring Fork River, Lincoln Creek originates on the White River National Forest as a first order stream (Strahler classification) on Colorado's Western Slope. Lincoln Creek flows into and through Grizzly Reservoir which collects water from other proximal watersheds and delivers it to the Eastern Slope via a transmountain diversion tunnel to Twin Lakes. The reservoir property is owned by the U.S. Forest Service and provides recreational opportunities for camping, fishing, and non-motorized lake recreation. CPW manages the fishery for cold-water fishing opportunities (CPW 2022). Water enters the reservoir from several sources, including Lincoln Creek; contributions to the reservoir vary in ratio throughout the year, depending on the reservoir operation management and distribution system.

Surface water discharge from an adit in the Ruby Mine source area flows directly into Lincoln Creek; this discharge apparently is a perennial flow. Importantly, another tributary (referred to as the Mineralized Tributary), occurs just downgradient (north) of Ruby Mine and also flows into Lincoln Creek below the discharge from Ruby Mine; this discharge also apparently is a perennial flow. Lincoln Creek flows into Grizzly Reservoir approximately 4 miles downstream from the Ruby Mine source and the Mineralized Tributary. While discharges from both sources impact Lincoln Creek, the stream discharge and metals

loading rates from the Ruby Mine adit versus the Mineralized Tributary vary significantly. Based on stream flow and water quality laboratory results, the Mineralized Tributary is estimated to contribute more than 90% of the copper contribution to Lincoln Creek ([Attachment 5](#)). It is estimated that Ruby Mine drainage is a minor contribution to the overall loading to Lincoln Creek. A detailed analysis of the contributions from Ruby Mine versus the Mineralized Tributary is presented in [Attachment 3](#).

Lincoln Creek below Grizzly Reservoir has a mean flow rate that ranges from less than one cubic foot per second (cfs) in winter months to approximately 40 cfs in spring and summer months (USGS 2023b). Lincoln Creek flows north-northwest into the Roaring Fork River approximately 9 miles downstream from the site. The Roaring Fork River encompasses the remainder of the 15-mile downstream TDL ([Figure 6](#)).

5.2.2 Surface Water Targets

No surface drinking water intakes are located within the 15-mile TDL (Tetra Tech 2023a). Although not used directly as a drinking water source, Grizzly Reservoir is a major reservoir in the Independence Pass Transmountain Diversion System. Water from the headwaters of the Roaring Fork River, Lost Man Creek, Lincoln Creek, Brooklyn Creek, Tabor Creek, New York Creek, and Grizzly Creek is diverted into Grizzly Reservoir before a portion of the water is pumped under the continental divide, across the basin, and into Twin Lakes Reservoir (located approximately 15 miles east of the site in the Arkansas River watershed) (CPW 2022). Twin Lakes Reservoir serves as a staging water supply for distribution to multiple entities, including Colorado Springs and Aurora, Colorado (U.S. Department of Interior Bureau of Reclamation [DOI BOR] 2013). One surface water drinking water intake is located along the Roaring Fork River beyond the 15-mile TDL; this intake services the City of Glenwood Springs, Colorado and is located approximately 50 miles downstream from the site (Tetra Tech 2023a).

In Lincoln Creek above (upstream and south of) Ruby Mine, there is a sustaining native cutthroat trout population. Below (downstream and north of) Ruby Mine, fish are absent down to the confluence with New York Creek and sparse between New York Creek and the Roaring Fork River; and stocked fish in Grizzly Reservoir struggle. On August 31, 2021, a fish kill in Grizzly Reservoir approximately 4 miles downstream from Ruby Mine was reported to CPW. CPW documented 12 dead rainbow trout and four distressed trout swimming erratically at the water surface near the inlet to Grizzly Reservoir.

Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River are fisheries that are home to multiple species including rainbow trout, brown trout, cutthroat trout, brook trout, and mountain whitefish (CPW 2023a). Cutthroat trout populations inhabit the headwaters of Lincoln Creek and most of the tributaries. Federal endangered and threatened fish species that could be associated with the 15-mile TDL include the

endangered bonytail (*Gila elegans*), Colorado pikeminnow (*Ptycholcheilus Lucius*), razorback sucker (*Xyrauchen texanus*), and threatened humpback chub (*Gila cypha*). Other federal endangered and threatened species that could be associated with the 15-mile TDL include the endangered gray wolf (*Canis lupis*), Uncompaghre fritillary butterfly (*Boloria acrocneuma*), and threatened Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), yellow-billed cuckoo (*coccyzus americanus*), and Ute ladies'-tresses (*Spiranthes diluvialis*) (U.S. Fish and Wildlife Service [USFWS] 2023a). Additionally, Lincoln Creek and the Roaring Fork River upstream are listed as a habitat range for many species, including the state-endangered Boreal Toad (*Bufo boreas boreas*, *Bufo boreas complex*) (CPW 2023a). Indeed, three boreal toad breeding locations are known and monitored by CPW within the site, one in a pond adjacent to Grizzly Reservoir and two in wetlands adjacent to the mainstream of Lincoln Creek (downstream of the dam). Other active toad populations are also monitored along the Roaring Fork River upstream of Aspen.

Approximately 8,877 feet of wetland frontage is located within the 15-mile TDL, primarily along Lincoln Creek (Tetra Tech 2023b; USFWS 2023b).

5.2.3 Surface Water Samples and Analytical Results

To support this PA, surface water grab samples were collected at the Grizzly Reservoir inlet and throughout the Lincoln Creek watershed. A total of 16 grab surface water samples were collected in July 2022 (including two field duplicate samples) and 21 grab surface water samples were collected in September 2022 (including two field duplicate samples) throughout the Lincoln Creek watershed, including locations in Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River. A team of federal, state, and local partners were organized and led by EPA to collect samples in July and September 2022. The results would help evaluate whether a release attributable to the site has occurred. With a few exceptions, the same locations were sampled during the July and September sampling events to evaluate seasonal variations. Samples were collected and analyzed for total recoverable metals, dissolved metals, and wet chemistry parameters in accordance with the EPA-approved Final Sampling and Analysis Plan (Tetra Tech 2022). Samples were submitted to EPA Region 8 Environmental Services Assistance Team Laboratory (ESAT) in Lakewood, Colorado for analysis. Upon receipt of the final laboratory data packages, START conducted a Stage 2A data validation of the laboratory analytical results in accordance with the Tetra Tech Programmatic Quality Assurance Project Plan (PQAPP) for Emergency Response and Site Assessment Task Orders, START V, EPA Region 8, Revision 4 (May 2021) and the EPA National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review (November 2020). For total and dissolved metals, EPA Method 200.7 via inductively coupled plasma - optical emission (ICP-OE) and Method 200.8 via inductively coupled plasma

- mass spectrometry (ICP-MS) were used to analyze samples in accordance with the EPA-approved Final Sampling and Analysis Plan (Tetra Tech 2022). Due to interference issues associated with high concentrations of multiple metals, dilutions were required (>20x) for some samples analyzed by ICP-MS. This occurred when copper concentrations were above 700 micrograms per liter (µg/L). For these samples, the laboratory data packages were revised following data validation to report ICP-OE when metal results are detected above corresponding method detection limits, otherwise the ICP-MS results are reported. Data validation was not performed on the updated metals results reported with ICP-OE. These data are notated in [Table 5](#). Laboratory data packages are provided in [Attachment 6](#). Data validation reports are provided in [Appendix B](#).

In addition, EPA, CPW, DRMS, the Roaring Fork Conservancy, and Pitkin County Public Health collected a total of 12 grab samples from the inlet into Grizzly Reservoir from April to July 2022. The samples were collected to assess the range of metals concentrations entering the reservoir from Lincoln Creek during runoff season. Due to restricted road and snow conditions that limited access into the reservoir area during the early spring, pre-prepared sample bottles and sample collection training were provided to the on-site reservoir caretaker who was able to snowmobile to the inlet and collect weekly samples before and during the run-off period beginning in April through July.

The end of the report provides tables that summarize the analytical results. The probable point of entry (PPE) into Lincoln Creek for runoff and drainage from the site is identified as sampling location GR/LC SW-3372-A ([Figure 4](#) [sample location] and [Figure 6](#) [PPE]).

April to July 2022 Surface Water Grab Sampling at Grizzly Reservoir Inlet

A summary of the analytical results for total recoverable metals (TRM) in surface water samples collected between April to July 2022 from Lincoln Creek at the inlet to Grizzly Reservoir, including a comparison to CDPHE WQS, is provided below (no background samples were collected during the weekly sampling events). Analytical results for TRM, particularly copper, identify the highest concentrations in the initial round of sampling (April 7, pre-snow melt/runoff), with generally decreasing results during subsequent rounds of sampling until approximately June 16, when concentrations began steadily increasing over time through July 7 ([Table 4](#)):

- The following analytes exceeded one or both of the CDPHE WQS for Aquatic Life in one or more samples:
 - Aluminum was present at concentrations exceeding the acute and chronic Aquatic Life standards in 12 of 12 samples.

- Iron was present at concentrations exceeding the chronic Aquatic Life standard in 5 of 12 samples.
- No analytes exceeded the CDPHE WQS for Domestic Water Supply or Water and Fish.

A summary of the analytical results for dissolved metals (DM) in surface water samples collected between April to July 2022 from Lincoln Creek at the inlet to Grizzly Reservoir, including a comparison to CDPHE WQS, is provided below (no background samples were collected during the weekly sampling events) ([Table 4](#)):

- The following analytes exceeded one or both of the CDPHE WQS for Aquatic Life in one or more samples:
 - Copper was present at concentrations exceeding the acute and chronic Aquatic Life standards in 12 of 12 samples.
 - Cadmium was present at concentrations exceeding the chronic Aquatic Life standard in 1 of 12 samples.
 - Zinc was present at concentrations exceeding the chronic Aquatic Life standard for sculpin in 7 of 12 samples.
- The following analytes exceeded the CDPHE WQS for Domestic Water Supply in one or more samples:
 - Iron was present at concentrations exceeding the Domestic Water Supply standard in 1 of 12 samples.
 - Manganese was present at concentrations exceeding the Domestic Water Supply standard in 3 of 12 samples.

July and September 2022 Surface Water Sampling in the Lincoln Creek Watershed

July 2022 Surface Water Sampling - The July 2022 sampling event represented high flow, runoff conditions at the site. Analytical results for TRM in surface water samples collected in July 2022 from Lincoln Creek downstream of Ruby Mine document an observed release of aluminum, arsenic, copper, iron, lead, uranium, and zinc (that is, three times the background concentration or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample). Downstream locations also had multiple exceedances of CDPHE WQS as summarized below ([Figure 1](#) to [Figure 4](#) and [Figure 8a](#) to [Figure 8d](#); [Table 5](#)):

- The following analytes exceeded one or both of the CDPHE WQS for Aquatic Life in one or more samples:
 - Aluminum was present at concentrations exceeding the acute Aquatic Life standard in 10 of 16 samples and the chronic Aquatic Life standard in 14 of 16 samples.
 - Iron was present at concentrations exceeding the chronic Aquatic Life standard in 8 of 16 samples.

- The following analytes exceeded the CDPHE WQS for Domestic Water Supply in one or more samples:
 - Arsenic was present at a concentration exceeding the Domestic Water Supply standard in 1 of 16 samples. The sample that contained arsenic was collected from the Mineralized Tributary.
 - Cadmium was present at concentrations exceeding the Domestic Water Supply standard in 2 of 16 samples.
 - Chromium was present at concentrations exceeding the Domestic Water Supply standard in 1 of 16 samples.
 - Copper was present at concentrations exceeding the Domestic Water Supply standard in 2 of 16 samples.
 - Nickel was present at concentrations exceeding the Domestic Water Supply standard in 2 of 16 samples.
 - Uranium was present at concentrations exceeding the Domestic Water Supply standard in 1 of 16 samples.
- The following analytes exceeded the CDPHE standards for Water and Fish in one or more samples:
 - Arsenic was present at concentrations exceeding the Water and Fish standard in 1 of 16 samples. The sample that contained arsenic was collected from the Mineralized Tributary.
 - Chromium was present at concentrations exceeding the Water and Fish standard in 1 of 16 samples.
 - Copper was present at concentrations exceeding the Water and Fish standard in 2 of 16 samples.
 - Nickel was present at concentrations exceeding the Water and Fish standard in 1 of 16 samples.
- Other analytes present at concentrations exceeding three times background or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample include: barium, cadmium, calcium, chromium, cobalt, magnesium, manganese, nickel, potassium, silica, sodium, and vanadium. These analytes are not part of the observed release because they were not identified in samples collected from source material within accessible areas of contamination associated with the site. EPA was unable to collect samples directly from the source at the site due to property access restrictions and, as a result, samples were instead collected from accessible areas of contamination downgradient of the source.

Analytical results for DM in surface water samples collected in July 2022 from Lincoln Creek downstream of Ruby Mine document an observed release of aluminum, arsenic, beryllium, copper, iron, lead, uranium, and zinc. Downstream locations also had multiple exceedances of CDPHE WQS as summarized below (Figure 1 to Figure 4 and Figure 8a to Figure 8d; Table 5):

- The following analytes exceeded one or both of the CDPHE acute and chronic WQS for Aquatic Life in one or more samples:
 - Cadmium was present at concentrations exceeding the acute and chronic Aquatic Life standards in 2 of 16 samples.
 - Chromium was present at concentrations exceeding the acute and chronic Aquatic Life standards in 1 of 16 samples.
 - Copper was present at concentrations exceeding the acute and chronic Aquatic Life standards

in 14 of 16 samples.

- Lead was present at concentrations exceeding the chronic Aquatic Life standard in 1 of 16 samples.
- Manganese was present at concentrations exceeding the acute and chronic Aquatic Life standards in 1 of 16 samples.
- Nickel was present at concentrations exceeding the chronic Aquatic Life standard in 1 of 16 samples.
- Zinc was present at concentrations exceeding the acute Aquatic Life standard in 2 of 16 samples and the chronic Aquatic Life standards in 8 of 16 samples.
- The following analytes exceeded the CDPHE WQS for Domestic Water Supply in one or more samples:
 - Iron was present at concentrations exceeding the Domestic Water Supply standard in 8 of 16 samples.
 - Manganese was present at concentrations exceeding the Domestic Water Supply standard in 3 of 16 samples.
- Other analytes present at concentrations exceeding three times background or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample include: barium, cadmium, calcium, chromium, cobalt, magnesium, manganese, nickel, potassium, silica and sodium; these analytes are not part of the observed release because they were not identified in samples collected from source material within accessible areas associated with the site. EPA was unable to collect samples directly from the source at the site due to property access restrictions and, as a result, samples were instead collected from accessible areas of contamination downgradient of the source.

September 2022 Surface Water Sampling - The September sampling event represented low flow conditions at the site. Analytical results for TRM in surface water samples collected in September 2022 from Lincoln Creek downstream of Ruby Mine document an observed release of aluminum, arsenic, beryllium, copper, iron, lead, uranium, and zinc. Downstream locations also had multiple exceedances of CDPHE WQS as summarized below ([Figure 1](#) to [Figure 4](#) and [Figure 8a](#) to [Figure 8d](#); [Table 5](#)):

- The following analytes exceeded one or both of the CDPHE WQS for Aquatic Life in one or more samples:
 - Aluminum was present at concentrations exceeding the acute Aquatic Life standard in 12 of 19 samples and the chronic Aquatic Life standard in 17 of 19 samples.
 - Iron was present at concentrations exceeding the chronic Aquatic Life standard in 9 of 19 samples.
- The following analytes exceeded the CDPHE WQS for Domestic Water Supply in one or more samples:
 - Arsenic was present at concentrations exceeding the Domestic Water Supply standard in 1 of 19 samples. The sample that contained arsenic was collected from the Mineralized Tributary.
 - Beryllium was present at concentrations exceeding the Domestic Water Supply standard in 1 of 19 samples.

- o Cadmium was present at concentrations exceeding the Domestic Water Supply standard in 2 of 19 samples.
- o Chromium was present at concentrations exceeding the Domestic Water Supply standard in 1 of 19 samples.
- o Copper was present at concentrations exceeding the Domestic Water Supply standard in 5 of 19 samples.
- o Nickel was present at concentrations exceeding the Domestic Water Supply standard in 2 of 19 samples.
- o Uranium was present at concentrations exceeding the Domestic Water Supply standard in 1 of 19 samples.
- The following analytes exceeded the CDPHE WQS for Water and Fish in one or more samples:
 - o Arsenic was present at concentrations exceeding the Water and Fish standard in 1 of 19 samples. The sample that contained arsenic was collected from the Mineralized Tributary.
 - o Chromium was present at concentrations exceeding the Water and Fish standard in 1 of 19 samples.
 - o Copper was present at concentrations exceeding the Water and Fish standard in 5 of 19 samples.
 - o Nickel was present at concentrations exceeding the Water and Fish standard in 1 of 19 samples.
- Other analytes present at concentrations exceeding three times background or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample include: barium, cadmium, calcium, chromium, cobalt, magnesium, manganese, nickel, potassium, silica, sodium, and vanadium; these analytes are not part of the observed release because they were not identified in the source associated with the site. EPA was unable to collect samples directly from the source at the site due to property access restrictions and, as a result, samples were instead collected from accessible areas of contamination downgradient of the source.

Analytical results for DM in surface water samples collected in September 2022 from Lincoln Creek downstream of Ruby Mine document an observed release of copper, aluminum, arsenic, beryllium, iron, lead, uranium, and zinc. Downstream locations also had multiple exceedances of CDPHE WQS as summarized below ([Figure 1](#) to [Figure 4](#) and [Figure 8a](#) to [Figure 8d](#); [Table 5](#)):

- The following analytes exceeded one or both of the CDPHE WQS for Aquatic Life in one or more samples:
 - o Cadmium was present at concentrations exceeding the acute and chronic Aquatic Life standards in 2 of 19 samples.
 - o Chromium was present at concentrations exceeding the acute and chronic Aquatic Life standards in 1 of 19 samples.
 - o Copper was present at concentrations exceeding the acute and chronic Aquatic Life standards in 17 of 19 samples.
 - o Lead was present at concentrations exceeding the chronic Aquatic Life standard in 1 of 19 samples.
 - o Manganese was present at concentrations exceeding the acute and chronic Aquatic Life

standards in 1 of 19 samples.

- o Nickel was present at concentrations exceeding the chronic Aquatic Life standard in 2 of 19 samples.
- o Selenium was present at concentrations exceeding the acute and chronic Aquatic Life standards in 1 of the 19 samples.
- o Silver was present at concentrations exceeding the acute and chronic Aquatic Life standards in 1 of 19 samples.
- o Zinc was present at concentrations exceeding the acute Aquatic Life standard in 4 of 19 samples and the chronic Aquatic Life standard in 11 of 19 samples.
- The following analytes exceeded the CDPHE WQS for Domestic Water Supply in one or more samples:
 - o Iron was present at concentrations exceeding the Domestic Water Supply standard in 7 of 19 samples.
 - o Manganese was present at concentrations exceeding the Domestic Water Supply standard in 8 of 19 samples.
- Other analytes present at concentrations exceeding three times background or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample include: barium, cadmium, calcium, chromium, cobalt, magnesium, manganese, nickel, potassium, selenium, silica, silver and sodium; these analytes are not part of the observed release because they were not identified in the source associated with the site. EPA was unable to collect samples directly from the source at the site due to property access restrictions and, as a result, samples were instead collected from accessible areas of contamination downgradient of the source.

Analytical results for TRM in one surface water sample (GR/LC SW-RF-DNS-01) collected in September 2022 from the Roaring Fork River downstream of Ruby Mine indicate concentrations that document an observed release of aluminum, copper, and iron based on comparison to the background sample for the Roaring Fork River (GR/LC SW-RF-UPS-01). The downstream location also had one exceedance of CDPHE WQS as summarized below (Figure 1, Figure 2, and Figure 8b; Table 5):

- Aluminum was present at concentrations exceeding the chronic Aquatic Life standard.
- No analytes exceed the CDPHE WQS for Domestic Water Supply or Water and Fish.
- Other analytes present at concentrations exceeding three times background or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample include: barium, cobalt, and manganese; these analytes are not part of the observed release because they were not identified in the source associated with the site. EPA was unable to collect samples directly from the source at the site due to property access restrictions and, as a result, samples were instead collected from accessible areas of contamination downgradient of the source.

Analytical results for DM in one surface water sample (GR/LC SW-RF-DNS-01) collected in September 2022 from the Roaring Fork River downstream of Ruby Mine indicate concentrations that document an observed release of copper based on comparison to the background sample for the Roaring Fork River (GR/LC SW-RF-UPS-01). The downstream location also had one exceedance of CDPHE WQS as

summarized below ([Figure 1](#), [Figure 2](#), and [Figure 8b](#); [Table 5](#)):

- Copper was present at concentrations exceeding the acute and chronic Aquatic Life standards.
- No analytes exceed the CDPHE WQS for Domestic Water Supply.
- Cobalt and manganese were also detected at concentrations above the sample detection limits but were not detected in the background sample; however, these analytes are not part of the observed release because they were not identified in the source associated with the site. EPA was unable to collect samples directly from the source at the site due to property access restrictions and, as a result, samples were instead collected from accessible areas of contamination downgradient of the source.

5.2.4 Surface Water Pathway Conclusions

Surface water runoff containing hazardous substances associated with the site source (the Ruby Mine area, including contaminated soil and mine tailings associated with Ruby Mine), flows into Lincoln Creek. Analytical results for surface water samples collected from downgradient discharges flowing from the Ruby Mine portal and from the PPE into Lincoln Creek downstream from Ruby Mine document an observed release of contaminants, including aluminum, beryllium, copper, iron, lead, uranium and zinc. Multiple analytes exceeded acute and/or chronic CDPHE WQS for Aquatic Life, including aluminum, cadmium, copper, iron, lead, manganese, and zinc. The high concentrations of these metals are toxic to aquatic life and make Lincoln Creek uninhabitable for fish. In addition, cadmium, copper, iron, and nickel were present at concentrations exceeding the CDPHE WQS for Domestic Water Supply.

The naturally occurring Mineralized Tributary discharges below Ruby Mine and flows into Lincoln Creek below the Ruby Mine source area. The metals loading from the Mineralized Tributary is significantly greater than the metals loading from Ruby Mine discharge. Analytical results for surface water samples collected from the Mineralized Tributary just downgradient from Ruby Mine document significantly higher concentrations of contaminants, particularly aluminum, copper, iron, nickel and uranium, than those observed in discharges from Ruby Mine. In addition, these samples contained arsenic at concentrations exceeding the CDPHE WQS for Domestic Water Supply and Water and Fish. Current data and EPA and DRMS professional opinions indicate the primary source to be naturally occurring (see [Attachment 3](#) and [Attachment 4](#)).

Analytical results for surface water samples collected downstream of Ruby Mine in Lincoln Creek, from Grizzly Reservoir, and from Lincoln Creek downstream of the reservoir document the presence of copper and aluminum at concentrations exceeding acute and/or chronic CDPHE WQS for Aquatic Life in every sample. Iron and zinc were also present at concentrations exceeding acute and/or chronic CDPHE WQS for Aquatic Life in numerous samples, including some from Grizzly Reservoir and Lincoln Creek downstream

of the reservoir. The data collected indicate that the water quality in Lincoln Creek is toxic to aquatic life. Multiple contaminants also exceed CDPHE WQS for Domestic Water Supply in samples collected as far downstream as the inlet to Grizzly Reservoir, including copper, iron and manganese. Note, however, that the comparison of detected concentrations to CDPHE WQS for Domestic Water Supply is provided only for relative perspective since the surface water in Lincoln Creek and Grizzly Reservoir is not used as a direct drinking water source.

One surface water sample collected from the Roaring Fork River downstream of its confluence with Lincoln Creek documents an observed release of contaminants, including aluminum, copper, and iron. Copper exceeds the acute CDPHE WQS for Aquatic Life and aluminum exceeds the chronic CDPHE WQS for Aquatic Life at this location.

No surface water drinking water intakes are located within the 15-mile TDL (Tetra Tech 2023a). Grizzly Reservoir, Lincoln Creek below the reservoir, and the Roaring Fork River are designated as fully supporting for water supply use, recreational use, and agricultural use according to the CDPHE Use Attainment Table included in the 2022 Integrated Water Quality Monitoring and Assessment Report (CDPHE 2022). Although not used directly as a drinking water source, Grizzly Reservoir is a major reservoir (570 acre feet) in the Independence Pass Transmountain Diversion System and provides recreation for campers and anglers. Water from the headwaters of the Roaring Fork River, Lost Man Creek, Lincoln Creek, Brooklyn Creek, Tabor Creek, New York Creek, and Grizzly Creek is diverted into Grizzly Reservoir before a portion of the water flows through the Independence Pass Transmountain Diversion System across the basin to Twin Lakes Reservoir located approximately 15 miles east in the Arkansas River watershed (CPW 2022). Twin Lakes Reservoir provides water storage which multiple entities, including Colorado Springs and Aurora, then deliver to other storage facilities before it is used for public drinking water (DOI BOR 2013).

One surface water drinking water intake is located along the Roaring Fork River beyond the 15-mile TDL; this intake services the City of Glenwood Springs, Colorado and is located approximately 50 miles downstream from the site (Tetra Tech 2023a). Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River are fisheries within the 15-mile TDL (CPW 2023b). Beyond the 15-mile TDL, the Roaring Fork River, from the Fryingpan River to the Colorado River, is designated as a gold-medal fishery (CDPHE 2022). Therefore, there is the potential for human consumption of fish caught in these water bodies. Federal endangered and threatened fish species that could be associated with the 15-mile TDL include the endangered bonytail (*Gila elegans*), Colorado pikeminnow (*Ptycholcheilus lucius*), and razorback sucker (*Xyrauchen texanus*), and threatened Humpback Chub (*Gila cypha*). Other federal endangered and threatened species that could be associated with the 15-mile TDL include the endangered gray wolf (*Canis*

lupis) and Uncompahgre fritillary butterfly (*Boloria acrocneuma*), and threatened Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), yellow-billed cuckoo (*Coccyzus americanus*), and Ute ladies'-tresses (*Spiranthes diluvialis*) (USFWS 2023a). Additionally, Lincoln Creek and the Upper Roaring Fork River are listed as habitat range for many species, including the state-endangered boreal toad (*Bufo boreas boreas*, *Bufo boreas complex*) (CPW 2023a).

Approximately 8,877 feet of wetland frontage is located within the 15-mile TDL, primarily along Lincoln Creek (Tetra Tech 2023b; USFWS 2023b).

5.3 SOIL EXPOSURE AND SUBSURFACE INTRUSION PATHWAY

This section discusses the soil exposure component of the soil exposure and subsurface intrusion pathway, including physical characteristics (soil type), targets (exposure component targets), soil sampling and analytical results, and pathway conclusions. In addition to soil contamination, EPA site Inspection guidance includes specific requirements for assessment of vapor intrusion into residential or commercial buildings. The subsurface intrusion component of this pathway was not evaluated because the source at the site consists of metals-contaminated soil.

5.3.1 Physical Characteristics

Soil near the site generally consists of cobbly sandy loam (USDA 2023).

5.3.2 Soil Exposure Component Targets

No residents live within ½-mile of the site. A total of 21 residents live within 4 miles of the site (Tetra Tech 2023c). Although this is a remote area with limited nearby human populations, a full-time caretaker lives at Grizzly Reservoir and there are several other occupied residences in the valley. Targets for the soil exposure component include residents within 4 miles of the site as well as recreational users (that is, hikers, fishermen) that may be exposed to contaminants. According to local and state officials, there is heavy recreational use of the Ruby Mine area and vicinity. In addition, runoff from the area of observed contamination enters Lincoln Creek.

5.3.3 Soil Sampling and Analytical Results

As discussed in [Section 4.0](#), EPA was unable to collect samples directly from the source, including the mine waste pile. Instead, sampling focused on accessible areas of contamination on U.S. Forest Service Property to assess the potential impacts to human health and the environment. Therefore, the analytical results may underestimate the concentrations present in the actual source area. A total of 5 grab surface soil samples

were collected in July 2022, including three surface soil samples and one field duplicate sample from the vicinity of Ruby Mine and one background sample to characterize the concentrations of metals in surface soil. Samples were collected and analyzed for metals in accordance with the EPA-approved Final Sampling and Analysis Plan (Tetra Tech 2022). Samples were submitted to EPA Region 8 ESAT in Lakewood, Colorado for analysis. Upon receipt of the final laboratory data packages, START conducted a Stage 2A data validation of the laboratory analytical results in accordance with the Tetra Tech PQAPP for Emergency Response and Site Assessment Task Orders (Tetra Tech 2021) and the NFG for Inorganic Superfund Methods Data Review (EPA 2020). Laboratory data packages are provided in [Attachment 6](#). Data validation reports are provided in [Appendix B](#). [Tables 2](#) and [3](#) summarize the analytical results.

All collected surface soil samples had concentrations of at least one metal that meets the criterion for observed contamination (three times background concentration or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample) including aluminum, arsenic, beryllium, copper, iron, lead, mercury, molybdenum, uranium, and/or zinc.

In addition, arsenic was present at concentrations exceeding both the EPA residential and industrial RSLs in each of the four samples documenting observed contamination, and iron was present at concentrations exceeding the EPA residential RSL in each of the four samples documenting observed contamination. Iron also exceeds the EPA residential removal management level (RML) in each of the four samples documenting observed contamination.

5.3.4 Soil Exposure Component Conclusions

One area of contaminated or potentially contaminated soil has been associated with the site. Analytical results for soil samples collected at the site have documented observed contamination, including aluminum, arsenic, beryllium, copper, iron, lead, mercury, molybdenum, uranium, and zinc. Multiple exceedances of the EPA industrial and residential RSLs were identified for arsenic, and multiple exceedances of the EPA residential RSLs and residential RMLs were identified for iron ([Figure 1](#), [Figure 4](#), and [Figure 7](#); [Table 2](#)).

No residents live within ½-mile of the site. A total of 21 residents live within 4 miles of the site (Tetra Tech 2023c). Although this is a remote area with limited nearby human populations, a full-time caretaker lives at Grizzly Reservoir and there are several other occupied residences in the valley. Residents within 4 miles of the site and recreational users (that is, hikers, fishermen) may be exposed to contaminants. According to local and state officials, there is heavy recreational use of the Ruby Mine area and vicinity. In addition, runoff from the area of observed contamination enters Lincoln Creek.

5.4 AIR MIGRATION PATHWAY

This section discusses the air migration pathway, including its physical characteristics, targets, sampling and analytical results, and conclusions.

5.4.1 Physical Characteristics

As previously discussed, the source at the site consists of metals-contaminated soil. The documented contaminated soil present at the site is sparsely vegetated to bare soil and mine tailings; therefore, there is the potential for the contaminated soil to migrate by means of windblown air dispersion and deposition.

5.4.2 Air Migration Pathway Targets

The population that resides within a 4-mile radius of the site is presented in the table below (Tetra Tech 2022c):

Radial Distance from Site (miles)	Population (number of persons)
0 - 0.25	0
>0.25 - 0.50	0
>0.50 - 1.0	1
>1.0 - 2.0	5
>2.0 - 3.0	7
>3.0 - 4.0	8

Notes: > = greater than; < = less than

Federal endangered and threatened fish species that could be associated with the 15-mile TDL include the endangered bonytail (*Gila elegans*), Colorado pikeminnow (*Ptycholcheilus Lucius*), and razorback sucker (*Xyrauchen texanus*), and threatened humpback chub (*Gila cypha*). Other federal endangered and threatened species that could be associated with the site include the endangered gray wolf (*Canis lupis*) and Uncompaghre fritillary butterfly (*Boloria acrocneema*), and threatened Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), yellow-billed cuckoo (*coccyzus americanus*), and Ute ladies'-tresses (*Spiranthes diluvialis*) (USFWS 2023a). Additionally, Lincoln Creek and the Upper Roaring Fork River are listed as habitat range for many species, including the state-endangered boreal toad (*Bufo boreas boreas*, *Bufo boreas complex*) (CPW 2023a).

The wetland acreage within a 4-mile radius of the site is provided in the table below (Tetra Tech 2022b):

Radial Distance from Site (miles)	Wetlands (acreage)
0 - 0.25	11.37
>0.25 - 0.50	41.5
>0.50 - 1.0	75.78
>1.0 - 2.0	161.11
>2.0 - 3.0	557.89
>3.0 - 4.0	604.78

Notes: > = greater than; < = less than

5.4.3 Air Sampling and Analytical Results

Air samples have not been collected at the site.

5.4.4 Air Migration Pathway Conclusions

Because the source at the site is largely bare contaminated soil, the air migration pathway is a potential pathway of concern.

6.0 REMOVAL SITE EVALUATION

The EPA Removal Program is required to evaluate and determine whether the site represents an imminent threat in accordance with the NCP Chapter I Part 300.415 Removal Action, Section b (2), which states that the following factors shall be considered in determining the appropriateness of a removal action pursuant to this section (Title 40 CFR):

- i. *Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;*
- ii. *Actual or potential contamination of drinking water supplies or sensitive ecosystems;*
- iii. *Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;*
- iv. *High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;*
- v. *Weather condition that may cause hazardous substances or pollutants or contaminants to migrate or be released;*
- vi. *Threat of fire or explosion;*
- vii. *The availability of other appropriate federal or state response mechanisms to respond to the release; and*
- viii. *Other situations or factors that may pose threats to public health or welfare of the United States or the environment.*

An imminent threat may be determined based on any or a combination of the above factors and the use of relevant EPA human health screening benchmarks and Colorado WQS based on the designated use of stream segments.

The source associated with the site consists of the Ruby Mine area, including contaminated soil/mine tailings and a discharging adit associated with Ruby Mine. According to the Pitkin County Assessor, the tax parcel associated with the Ruby Mine area (Parcel ID 300112200012) covers approximately 21.802 acres (Pitkin County 2023). Because of property access restrictions, EPA was unable to collect samples directly from the source, including the mine waste pile. Instead, sampling focused on the closest available downgradient wastes in accessible areas of contamination (soil samples collected on U.S. Forest Service Property) and downgradient discharges from the mine adit portal (surface water samples). According to local and state officials, there is heavy recreational use of the Ruby Mine area and vicinity.

Analytical results for soil samples collected from the site are summarized below (also see [Table 2](#)):

- Arsenic (up to 12.2 milligrams per kilogram [mg/kg]) was present in each of the four soil samples at concentrations exceeding EPA residential and industrial RSLs.

- Iron (up to 374,000 mg/kg) was present in each of the four soil samples at concentrations exceeding the EPA residential RSL and the EPA residential RML.
- No other analytes exceed the RSLs for residential or industrial soil. The use of residential RSLs for comparison is considered conservative (protective) based on the expected exposure scenario for this site. The comparison to the residential RSL is considered conservative because there are no residences in the site area.
- In accordance with the HRS rule, the following analytes were present at concentrations that document observed contamination based on (1) results that exceed three times the concentrations identified in the site-specific background sample or (2) the hazardous substance of concern is not detected in the background sample and the release sample concentration is greater than or equal to its detection limit: aluminum (up to 42,100 mg/kg); arsenic (up to 12.2 mg/kg); beryllium (up to 5.05 mg/kg); copper (up to 766 mg/kg); iron (up to 374,000 mg/kg); lead (up to 79.5 mg/kg); mercury (up to 0.144 mg/kg); molybdenum (up to 10.7 mg/kg); uranium (up to 2.42 mg/kg); and zinc (up to 253 mg/kg).

Analytical results for surface water samples collected from mine adit discharges and runoff from the site as well as the Mineralized Tributary located downgradient from Ruby Mine are summarized below (also see [Table 5](#)). The table below presents concentrations by general sample location, date, and specific sample location:

Analyte	Ruby Mine Adit Discharge and Runoff	Mineralized Tributary	
	September 2022	July 2022	September 2022
	GR/LC SW-RMA1 (µg/L)	GR/LC SW-3371-A (µg/L)	GR/LC SW-3371-A (µg/L)
Aluminum	71,200	823,000	1,090,000
Arsenic	40 U	71.4 J	80.9 J
Cadmium	23.2 J	24.8	16.3 J
Cobalt	164	767	949
Copper	3,250	50,700	61,400
Iron	272,000	940,000	1,240,000
Lead	38.4	20 U	30 U
Manganese	10,600	1,050	1,280
Nickel	107	672	684
Sodium	12,500	3,200 J	50,000 U
Uranium	11.1	28.2	41.8
Zinc	1,320	2,220	2,520

Notes: All results are Total Recoverable Metals.

µg/L = micrograms per liter

J = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).

As indicated by the results presented above, concentrations of metals of concern were significantly higher in the Mineralized Tributary than in the discharge drainage associated with the Ruby Mine adit. In addition, concentrations in the Mineralized Tributary were higher in the sample collected in September 2022 than in

the sample collected in July 2022. The origin of the Mineralized Tributary is suspected to be a naturally occurring, hydrothermally altered spring emanating from a steep slope in the valley above the Ruby Mine area. This was confirmed by state geologists ([Attachment 4](#)) and available data support this conclusion ([Attachment 3](#)). Although the Mineralized Tributary has a major impact on water quality and associated aquatic impacts, EPA is not authorized to address elevated metals concentrations from natural conditions. In this case, for example, hydrothermally altered rock formations may produce significantly elevated metals concentrations, but are naturally occurring.

Analytical results for surface water samples collected in July and September 2022 from the Ruby Mine adit (GR/LC SW-RMA1) and the Mineralized Tributary (GR/LC SW-3371-A) are compared to CDPHE WQS (CDPHE 2022) below.

- TRM analyses indicate the presence of the following analytes at concentrations exceeding CDPHE WQS:
 - o Aluminum (up to 1,090,000 µg/L) exceeded the acute and chronic Aquatic Life standards.
 - o Beryllium (up to 11.4 J µg/L), cadmium (up to 24.8 J µg/L), nickel (up to 684 J µg/L), and uranium (up to 41.8 µg/L) exceeded the Domestic Water Supply standards.
 - o Arsenic (up to 80.9 J µg/L), chromium (up to 148 µg/L), and copper (up to 61,400 µg/L) exceeded the Domestic Water Supply and Water and Fish standards.
 - o Iron (up to 1,240,000 µg/L) exceeded the chronic Aquatic Life standard.
- DM analyses indicate the presence of the following analytes at concentrations exceeding CDPHE WQS:
 - o Cadmium (up to 21.7 µg/L), chromium (up to 121 J µg/L), copper (up to 60,600 µg/L), selenium (up to 141 J µg/L) and zinc (up to 2,020 µg/L) exceeded the acute and chronic Aquatic Life standards.
 - o Lead (up to 46 µg/L) and nickel (up to 571 J µg/L) exceeded the chronic Aquatic Life standards.
 - o Iron (up to 1,030,000 µg/L) exceeded the Domestic Water Supply standards.
 - o Manganese (up to 10,400 µg/L) and exceeded the acute and chronic Aquatic Life and Domestic Water Supply standards.

Analytical results for surface water samples collected in July and September 2022 from the PPE (GR/LC SW-3372-A) into Lincoln Creek are summarized below. Because both Lincoln Creek below Grizzly Reservoir and the Roaring Fork River from its source downstream to Hunter Creek in Aspen, Colorado are designated as fully supporting for recreational use, agricultural use, and water supply use, the analytical results below are compared to CDPHE WQS for cold-water Aquatic Life (CDPHE 2022):

- Analytical results indicate the presence of the following analytes at concentrations exceeding the CDPHE WQS for cold-water Aquatic Life:

- o Aluminum (up to 104,000 µg/L), based on TRM analyses, exceeded the acute and chronic standards.
- o Cadmium (up to 21.6 µg/L), based on DM analyses, exceeded the acute and chronic standards.
- o Copper (up to 2,930 µg/L), based on DM analyses exceeded the acute and chronic standards.
- o Iron (up to 282,000 µg/L), based on TRM analyses, exceeded the chronic standard.
- o Lead (up to 34.2 J µg/L), based on DM analyses exceeded the chronic standard.
- o Manganese (up to 9,550 µg/L) based on DM analyses, exceeded the acute and chronic standards.
- o Zinc (up to 1,210 µg/L), based on DM analyses exceeded the acute and chronic standards.
- Analytical results indicate the presence of the following analytes at concentrations exceeding CDPHE WQS for Domestic Water Supply:
 - o Cadmium (up to 19.9 µg/L) based on TRM analyses.
 - o Copper (up to 2,710 µg/L) based on TRM analyses.
 - o Iron (up to 223,000 µg/L) based on DM analyses.
 - o Manganese (up to 9,550 µg/L) based on DM analyses.
 - o Nickel (up to 125 µg/L) based on TRM analyses.

Information supporting threats to human health and the environment as described in the NCP (Title 40 CFR) is summarized below:

- i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

Analytical results for surface water samples associated with Ruby Mine adit drainage have significantly elevated contaminants exceeding CDPHE WQS indicating actual/potential exposures of hazardous substances to human and animal populations. However, it is documented that the naturally occurring Mineralized Tributary contributes the majority of the metals loading to Lincoln Creek ([Attachment 3](#) and [Attachment 5](#)).

Lincoln Creek and Grizzly Reservoir are heavily used for recreational activities including hiking, camping and fishing indicating the potential for human and animal exposures to contamination.

- ii. Actual or potential contamination of drinking water supplies or sensitive ecosystems.

Analytical results for surface water samples have documented the presence of contaminants associated with the site in all downstream resources including Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River at concentrations exceeding acute and chronic CDPHE WQS for cold-water Aquatic Life. In Lincoln Creek above Ruby Mine, there is a sustaining native cutthroat trout population and wetlands are present

throughout the riparian drainage. Contamination below Ruby Mine results in impacts to sensitive ecosystems. Fish are absent or sparse in Lincoln Creek throughout its downstream extent to the confluence with the Roaring Fork River because of the elevated metals concentrations; and fish stocked in Grizzly Reservoir struggle to survive. On August 31, 2021, a fish kill in Grizzly Reservoir was reported to CPW. CPW documented 12 dead rainbow trout and four distressed trout swimming erratically on the water surface near the inlet to Grizzly Reservoir.

Additionally, the material growing on submerged surfaces (periphyton) and macroinvertebrates are impacted in Lincoln Creek from the Ruby Mine down to the confluence with the Roaring Fork River.

Analytical results for surface water samples have also documented the presence of contaminants associated with the site in Lincoln Creek and at the inlet to Grizzly Reservoir at concentrations exceeding CDPHE WQS for Domestic Water Supply. Although no concentrations exceeding the Domestic Water Supply standards have been identified in Grizzly Reservoir or downstream, the potential for contamination exists. In addition, approximately 8,877 feet of wetland frontage is located within the 15-mile TDL, primarily along Lincoln Creek (Tetra Tech 2023b; USFWS 2023b).

Grizzly Reservoir, Lincoln Creek below the reservoir, and the Roaring Fork River are designated as fully supporting for water supply use, recreational use, and agricultural use according to the CDPHE Use Attainment Table included in the 2022 Integrated Water Quality Monitoring and Assessment Report (CDPHE 2022).

- iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

Soil samples collected downgradient of the Ruby Mine area have documented the presence of arsenic at concentrations exceeding both the EPA residential and industrial RSLs; iron concentrations also exceeded the EPA residential RSL and RML. Because of property access restrictions, EPA was unable to collect samples directly from the source, including the mine waste pile. Instead, sampling focused on accessible areas of contamination (see [Figures 4 and 7](#)), which may not represent the worst-case concentrations from the source. Analytical results for surface water samples have documented the presence of contaminants associated with the site in all downstream resources including Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River at concentrations exceeding acute and chronic CDPHE WQS for cold-water Aquatic Life (see [Figures 8a through 8d](#)).

Grizzly Reservoir is a major reservoir in the Independence Pass Transmountain Diversion System. Water from the headwaters of the Roaring Fork River, Lost Man Creek, Lincoln Creek, Brooklyn Creek, Tabor

Creek, New York Creek and Grizzly Creek is diverted into Grizzly Reservoir before a portion of the water travels through the Independence Pass Transmountain Diversion System across the basin and into Twin Lakes Reservoir (located approximately 15 miles east in the Arkansas River watershed) (CPW 2022). Twin Lakes Reservoir is within a collection and distribution system that is ultimately used within the drinking water network for multiple entities, including Colorado Springs and Aurora, Colorado (DOI BOR 2013). A slight potential exists for contamination to impact drinking water sources; however, the substantial mixing, distance the water travels, and filtration limits the likelihood of water from Lincoln Creek resulting in water quality impairments associated with downstream drinking water uses.

- v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

Increased or surge discharges from both the Ruby Mine adit and the Mineralized Tributary may occur during spring run-off or during heavy rain/weather events. This discharge may increase impacts to downstream uses at a greater distance and increase metals concentrations and, therefore, increase potential exposure risks to human and ecological populations. Additionally, the steep terrain and high-altitude avalanches are common hazards that can change the landscape and cause contaminated material to shift. Recent research related to climate change in high-altitude mineralized watersheds indicates that localized weather patterns could likely result in increased metals loading to receiving water bodies (Todd et al. 2012; Manning et al. 2013). Available water quality data indicate unexplained significant increases in observed metals concentrations being discharged from Ruby Mine and Mineralized Tributary ([Attachment 3](#)).

The Ruby Mine includes a draining adit and waste pile with elevated concentrations that may impact recreational and other downstream uses. However, the mine's overall contribution to metals loading into Lincoln Creek when compared to naturally occurring sources is very small (see [Attachment 3](#) and [Attachment 5](#)). Therefore, cleanup or removal activities associated with Ruby Mine would have minimal benefits to improve the overall quality of Lincoln Creek. In addition, based on the remote location and limited road access to the site, significant resources would be required to mobilize even small equipment needed for cleanup activities.

7.0 SUMMARY AND CONCLUSIONS

The site is located in Pitkin County, Colorado at an elevation of 11,480 feet above mean sea level on the western slope of the Rocky Mountains. Ruby Mine historically produced silver, lead, zinc, copper, and manganese (Western Mining History 2023).

On August 31, 2021, a fish kill in Grizzly Reservoir was reported to CPW by a local angler and documented by CPW staff in the area. CPW collected water quality samples the following week that indicated dissolved copper concentrations above acute CDPHE WQS for Aquatic Life at all sites downstream of Ruby Mine on Lincoln Creek and within Grizzly Reservoir. Water samples collected from Lincoln Creek approximately ½-mile upstream of Ruby Mine indicate that all metals were below the corresponding aquatic life standards, and in some cases below the method detection limit. Data collected were subsequently shared with multiple organizations, including EPA (CPW 2022).

The focus of this PA/RSE was to evaluate Ruby Mine and its potential impacts to Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River associated with historical mining activities. The information provided herein is expected to be used for CERCLA decision-making related to additional investigations or cleanup activities that may be needed. The primary pathways of concern at the site are the surface water pathway and the soil exposure component of the soil exposure and subsurface intrusion pathway.

The groundwater migration pathway may be a pathway of potential concern at the site. Groundwater samples have not been collected at the site to evaluate whether a release to groundwater attributable to the site has occurred. However, contaminants associated with the site could migrate to and impact groundwater.

Surface water samples were collected from multiple locations in Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River. Analytical results document observed releases of multiple analytes, including copper, to Lincoln Creek, Grizzly Reservoir, and the Roaring Fork River. In addition to meeting the criteria for observed release, concentrations of copper and aluminum also exceeded applicable acute and chronic CDPHE WQS for Aquatic Life at multiple locations and are higher than historical concentrations. Lincoln Creek, Grizzly Reservoir and the Roaring Fork River are designated fisheries (CPW 2023b). Significant exceedances of the acute CDPHE WQS for Aquatic Life for copper exist in Lincoln Creek and Grizzly Reservoir which likely contributed to the observed mortality and other effects on fish in the reservoir. However, acute water quality standards are based on toxicity information for the most sensitive aquatic species and life stages; adult trout are not the most sensitive aquatic organisms. Therefore, water quality exceedances may not be the only determining factor for observed fish kills.

In regards to soil, EPA was unable to collect samples directly from the source (Ruby Mine area), including the mine waste pile because of property access restrictions. Instead, sampling focused on accessible areas of contamination on U.S. Forest Service Property to assess the potential impacts to human health and the environment. Therefore, the analytical results may not reflect and may underestimate concentrations present in the actual source area. All collected surface soil samples had concentrations of at least one metal that met the criterion for observed contamination (three times background concentration or at concentrations detected above the sample's detection limits for analytes that were not detected in the background sample) including arsenic and copper. In addition, arsenic was present at concentrations exceeding both the EPA residential and industrial RSLs in each of the four samples documenting observed contamination, and iron was present at concentrations exceeding the EPA residential RSL and the EPA residential RML in each of the four samples documenting observed contamination.

The source at the site is largely bare soil; therefore, a potential exists for hazardous substances associated with the site to migrate via the air migration pathway. Air samples have not been collected at the site.

A more comprehensive understanding of the different factors that may have contributed to the observed fish kill in Grizzly Reservoir and the observed conditions that are toxic to aquatic life in and around Lincoln Creek could be included in this report, if additional information was obtained regarding fluctuating water levels in the reservoir. Changes in water level, in turn, affect available habitat, pH, oxygen levels, metals partitioning, and the overall dilution of metals concentrations from Lincoln Creek into the reservoir. These factors can be stressful to fish. Therefore, understanding how lake management activities may mitigate the elevated metals concentrations from upstream sources to the aquatic community could further inform the evaluation of factors which could stress fish and other aquatic life and cause mortality.

Significant observations related to water quality impacts:

- Data obtained from recent sampling and analysis indicates that metals concentrations in Lincoln Creek and Grizzly Reservoir can be temporally and spatially variable, which is typical for high mountain mineralized sites. For example, copper concentrations ranged from about 40 to over 300 µg/L from April 7 to July 13, 2022, at the inlet to Grizzly Reservoir. Additionally, the Mineralized Tributary downstream of Ruby Mine appears to be a significant source of metals to Lincoln Creek. MiniSipper auto-samplers were deployed in late 2022 to regularly collect water samples at select locations that bracket the draining mine adit, the Mineralized Tributary, the inlet to Grizzly Reservoir, and upstream/background in Lincoln Creek. Information obtained from MiniSipper sampling may provide further details regarding temporal and spatial trends of metals concentrations and help clarify the relative context in which current samples were collected.
- Lincoln Creek and Grizzly Reservoir are experiencing a dramatic increase in copper concentrations. Assessment of trends over time using all available watershed water chemistry data has identified how seasonality, changes in reservoir water management, surges or major changes in water quality

from the Ruby Mine or Mineralized Tributary, and other factors such as hydrogeology influence metals concentrations and loading. For example, copper concentrations were less than 100 µg/L at the Ruby Mine in 2001 but have increased to over 3,000 µg/L in 2022 ([Attachment 3](#)). Similar trends occurred for the Mineral Tributary, where copper concentrations increased from about 9,000 to 60,000 µg/L over the same 21-year period. It appears that discharge from the mine and tributary has been relatively stable but metals loading to Lincoln Creek has increased with increasing concentrations ([Attachment 3](#)). While the exact cause for observed trends is not known, it is suspected that climate change may be altering hydrologic cycles and thawing once-frozen rock deep in the mountain. These processes could expose more metals-bearing rock to oxygen thereby increasing potential to generate acidic drainage and dissolution of metals ([Attachment 3](#)).

- The Mineralized Tributary discharges from a ridge behind and downgradient of Ruby Mine. This tributary is responsible for significant metals loading to Lincoln Creek ([Attachments 3 and 5](#)). Current DRMS opinion concludes this metals loading is naturally occurring and that the majority of copper loading to Lincoln Creek is from the Mineralized Tributary and nearby natural springs within the colluvium ([Attachment 4](#)). Because the majority of the impacts are related to a natural source, EPA does not have the authority to conduct clean-up actions on the most significant impacts to the creek.

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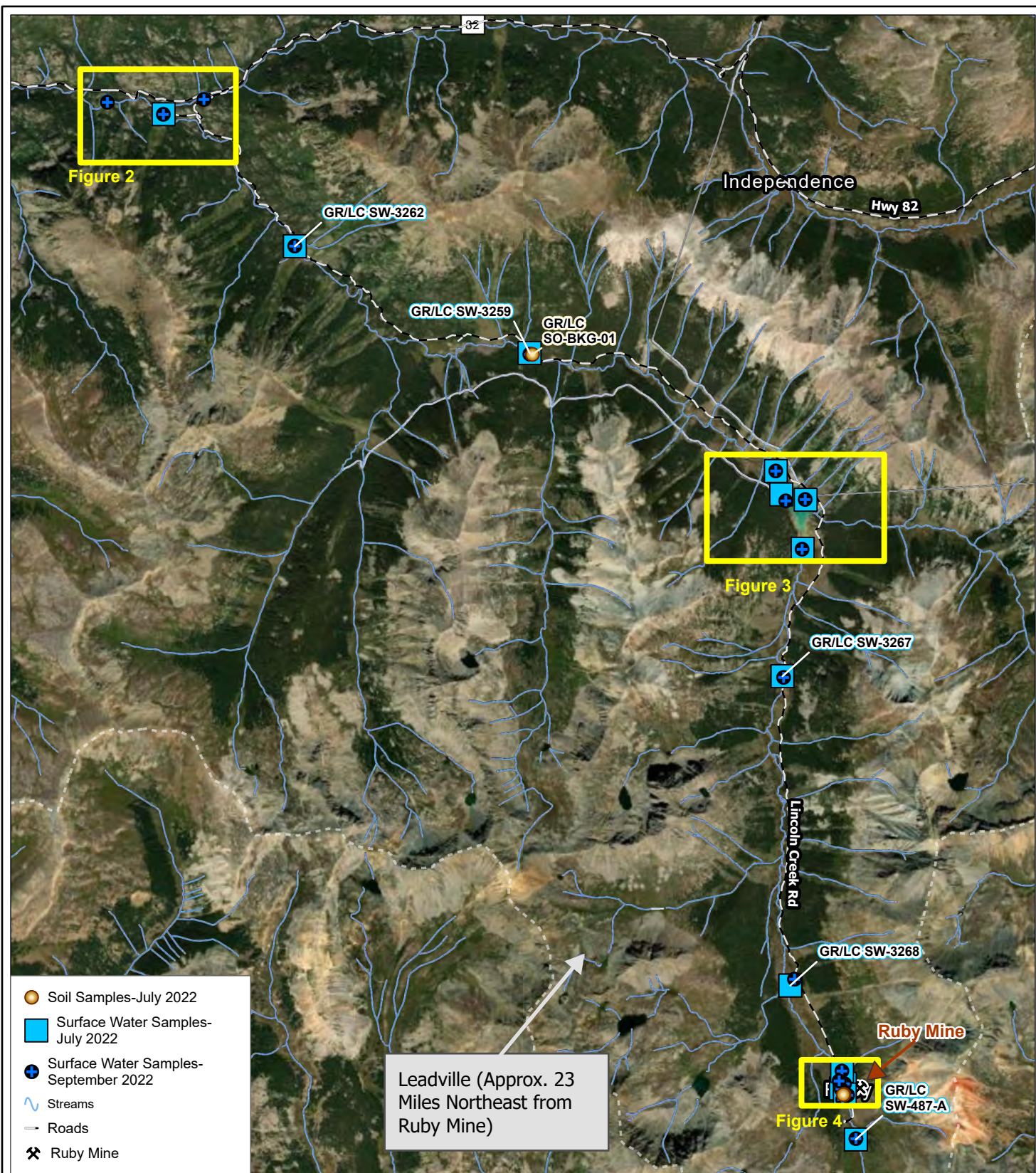
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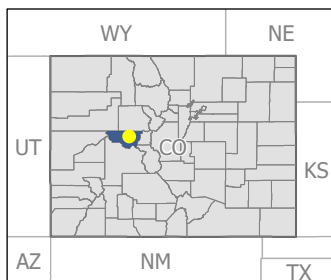
FIGURES

FIGURE 1	SAMPLING LOCATIONS: OVERVIEW
FIGURE 2	SAMPLING LOCATIONS: NORTH OF GRIZZLY RESERVOIR
FIGURE 3	SAMPLING LOCATIONS: GRIZZLY RESERVOIR AREA
FIGURE 4	SAMPLING LOCATIONS: RUBY MINE AREA
FIGURE 5	4-MILE RADIUS TARGET DISTANCE LIMIT
FIGURE 6	15-MILE DOWNSTREAM SURFACE WATER TARGET DISTANCE LIMIT
FIGURE 7	2022 SOIL SAMPLE LOCATIONS/KEY RESULTS
FIGURE 8a	2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (OVERVIEW)
FIGURE 8b	2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (NORTH OF GRIZZLY RESERVOIR)
FIGURE 8c	2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (GRIZZLY RESERVOIR AREA)
FIGURE 8d	2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (RUBY MINE AREA)

FIGURE 1 SAMPLING LOCATIONS: OVERVIEW



0 0.3 0.5 1
Miles



United States
Environmental
Protection Agency
Region 8 START V
TD: 2083-2203-09



TETRA TECH

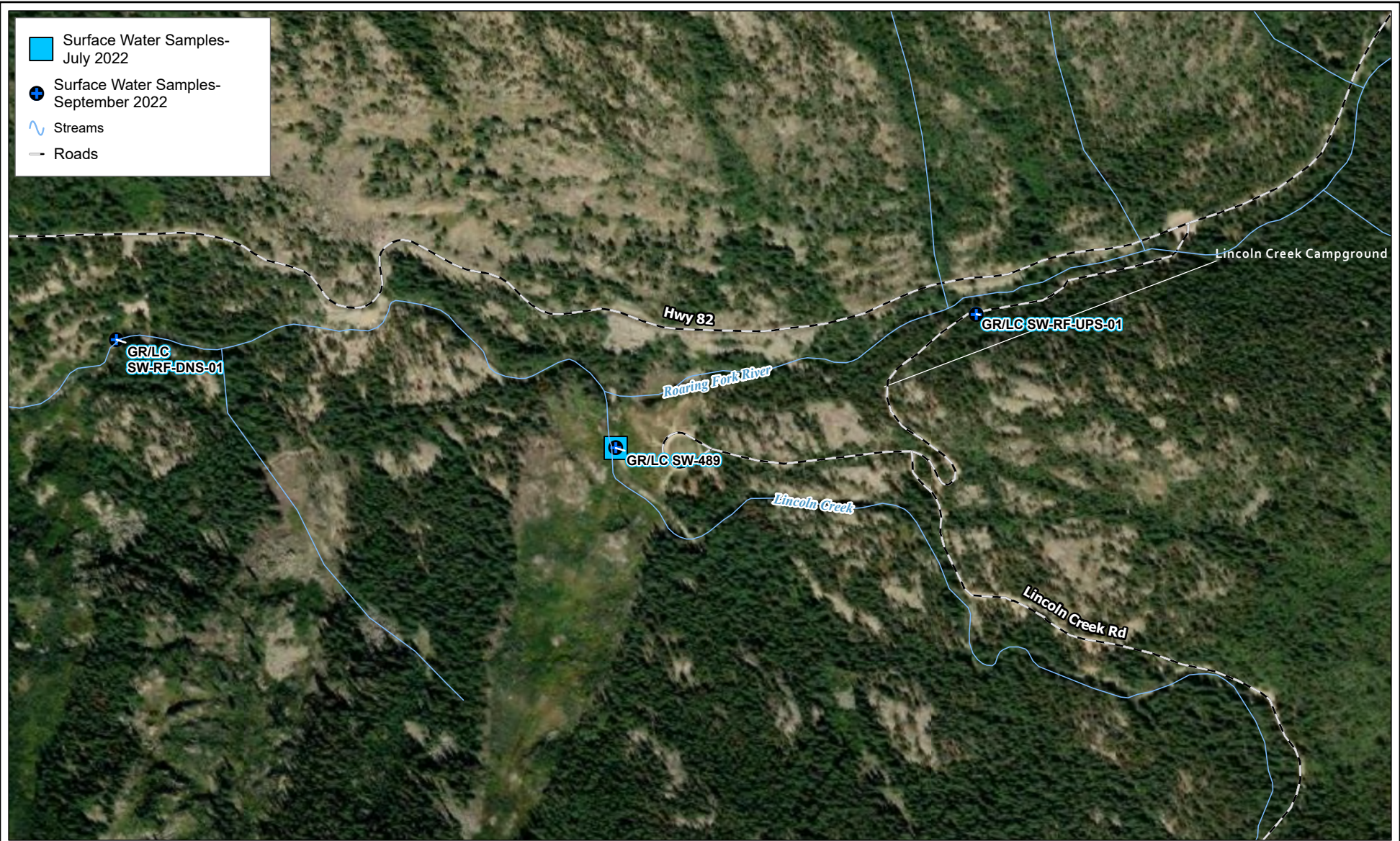
Analyst: M. Caldwell/S. Graves
Date: 11/6/2023

Ruby Mining District
Lincoln Creek Watershed,
Pitkin County, Colorado

**Figure 1:
Sampling Locations:
Overview**

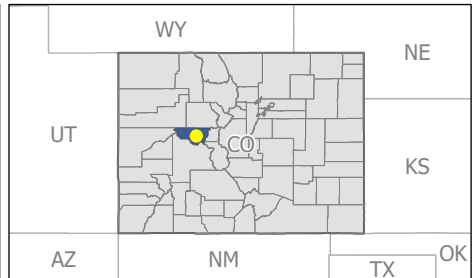
Source:
Background: ESRI World Imagery Hybrid
Sample Locations: EPA Region 8 START V (Tetra Tech)/ EPA
Streams: USGS National Hydrography Dataset REST Service
Roads: Pitkin County GIS
Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
Coordinate System

FIGURE 2 SAMPLING LOCATIONS: NORTH OF GRIZZLY RESERVOIR



0 250 500 1,000 Feet

Source:
 Background: ESRI World Imagery Hybrid
 Sample Locations: EPA Region 8 START V (Tetra Tech)/ EPA
 Streams: USGS National Hydrography Dataset REST Service
 Roads: Pitkin County GIS
 Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
 Coordinate System



United States
 Environmental
 Protection Agency

Region 8 START V
 TD: 2083-2203-09

Tt TETRA TECH

Analyst: M. Caldwell
 Date: 4/24/2023

Ruby Mining District
 Lincoln Creek Watershed,
 Pitkin County, Colorado

**Figure 2:
 Sampling Locations:
 North of Grizzly Reservoir**

FIGURE 3 SAMPLING LOCATIONS: GRIZZLY RESERVOIR AREA

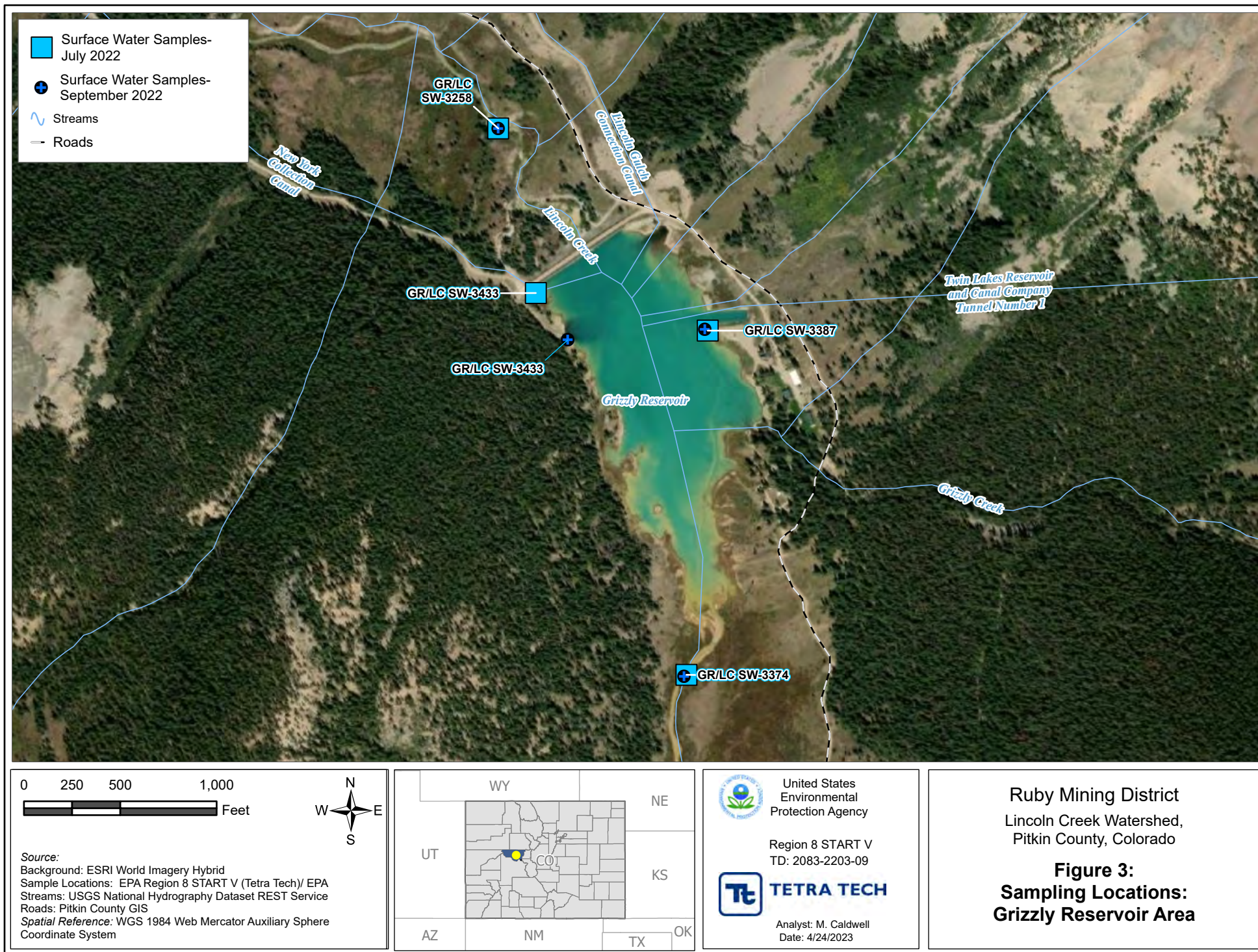
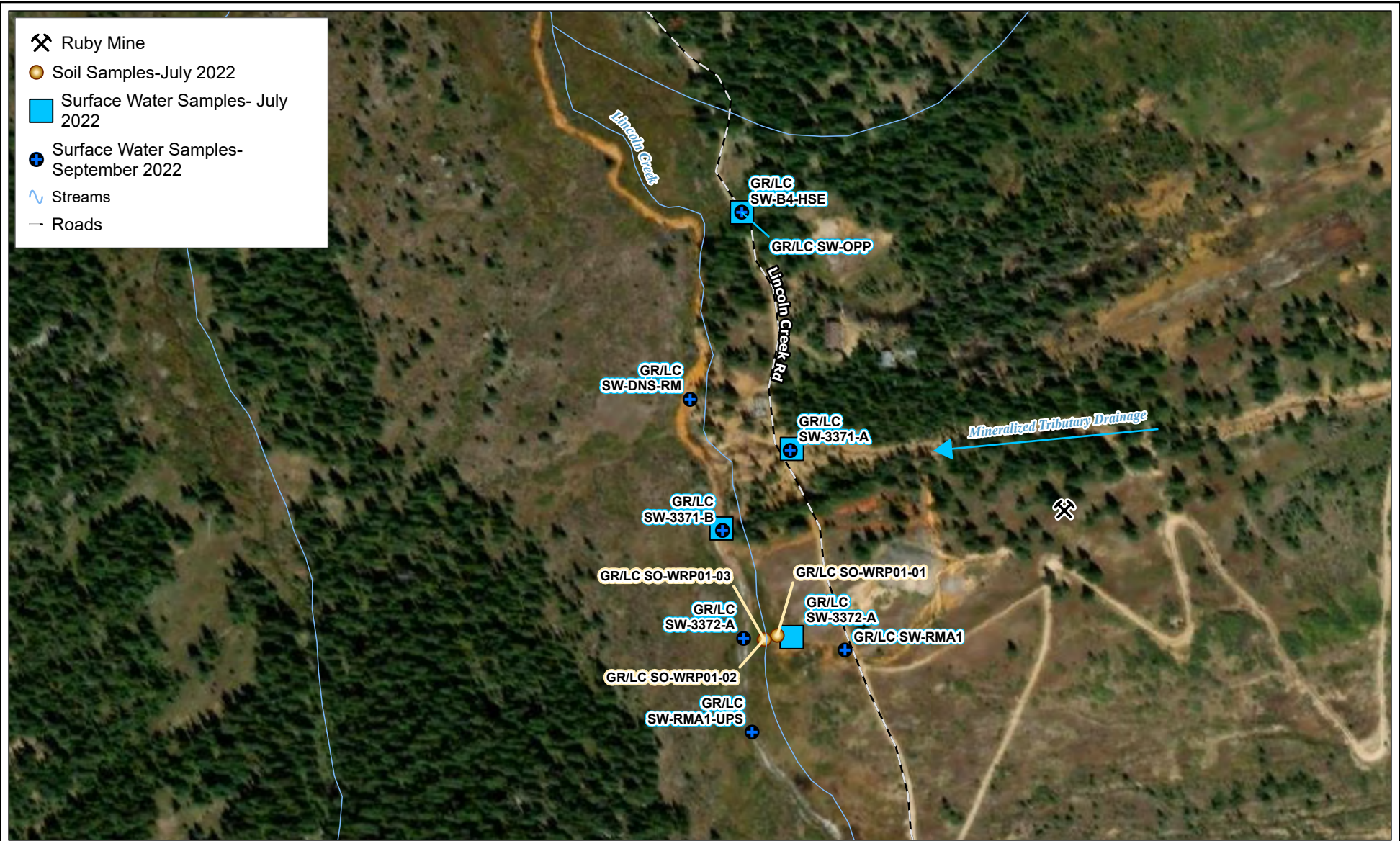
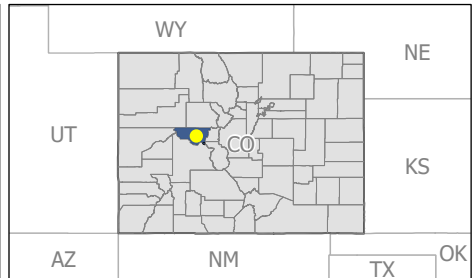


FIGURE 4 SAMPLING LOCATIONS: RUBY MINE AREA



0 125 250 500 Feet

Notes:
 *GR/LC SW-3372-A locations were collected with the same sampling objective, but location was slightly different between events
 Source:
 Background: ESRI World Imagery Hybrid
 Sample Locations: EPA Region 8 START V (Tetra Tech)/ EPA
 Streams: USGS National Hydrography Dataset REST Service
 Roads: Pitkin County GIS
 Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere Coordinate System



United States Environmental Protection Agency

Region 8 START V
 TD: 2083-2203-09

TETRA TECH

Analyst: M. Caldwell
 Date: 4/25/2023

Ruby Mining District
 Lincoln Creek Watershed,
 Pitkin County, Colorado

**Figure 4:
 Sampling Locations:
 Ruby Mine Area**

FIGURE 5 4-MILE RADIUS TARGET DISTANCE LIMIT

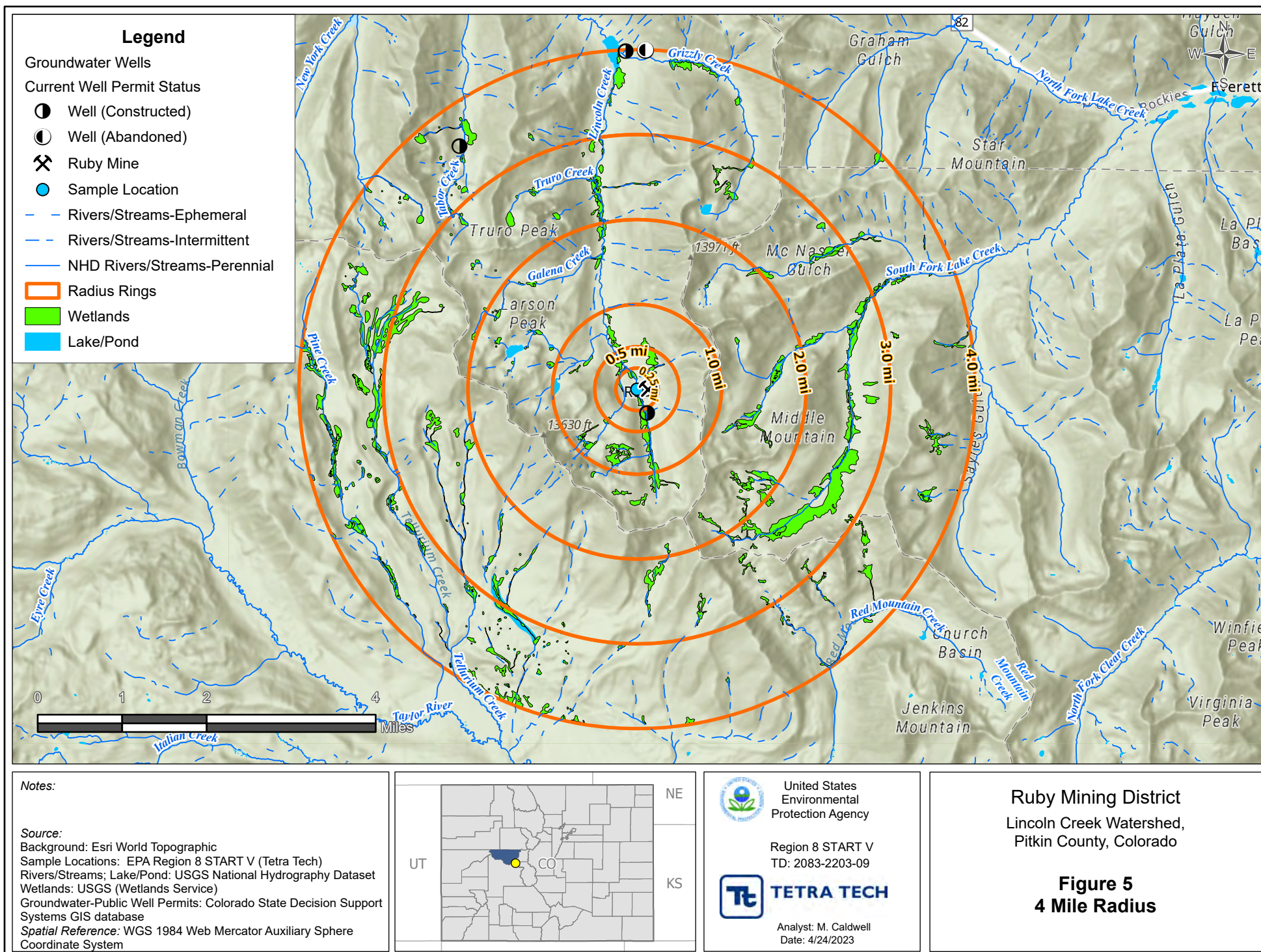
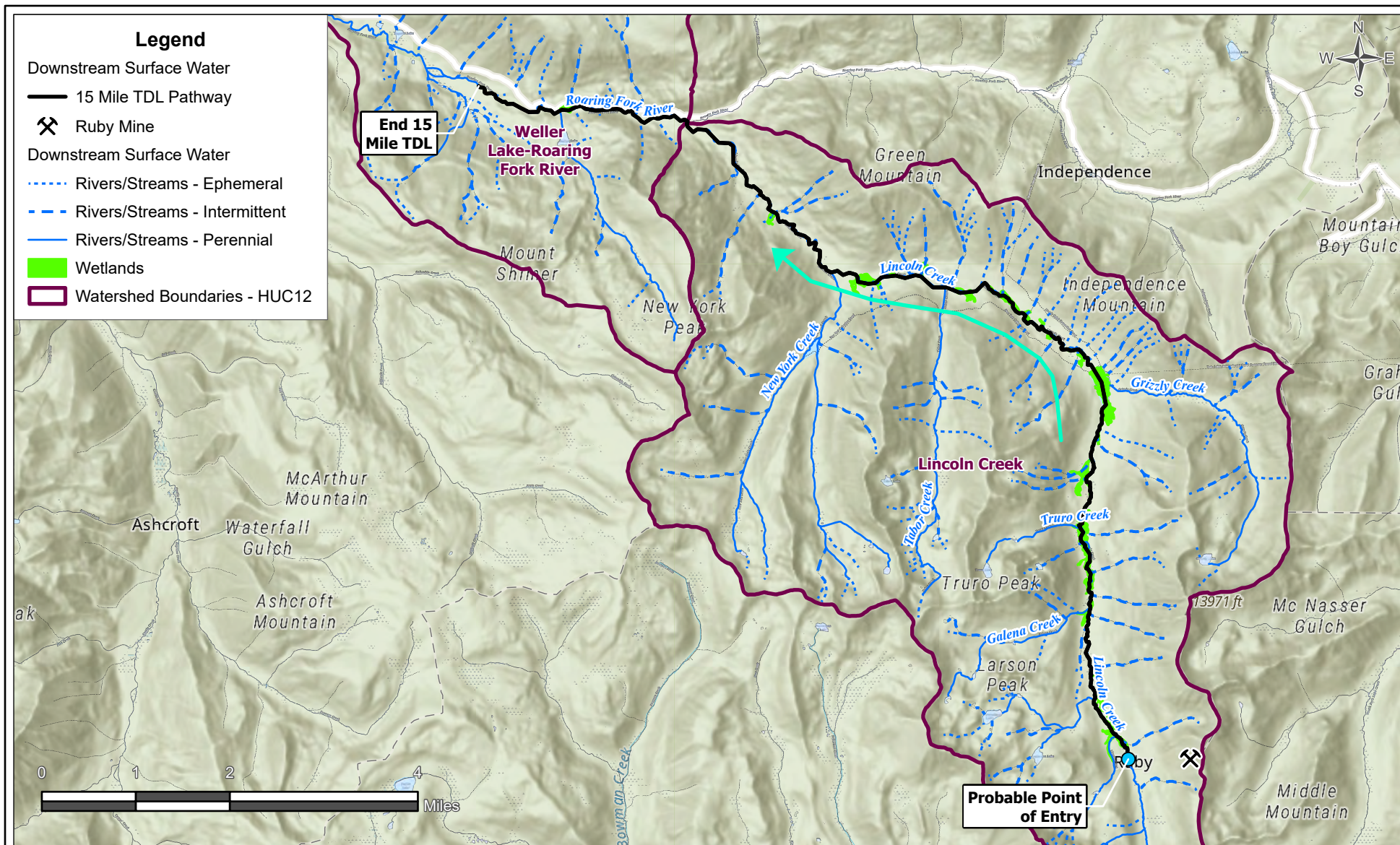


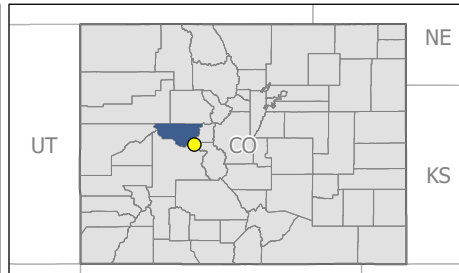
FIGURE 6 15-MILE DOWNSTREAM SURFACE WATER TARGET DISTANCE LIMIT



Notes:

Source:

Background: Esri World Topographic
 Sample Locations: EPA Region 8 START V (Tetra Tech)
 Rivers/Streams; Lake/Pond; HUC12 Watershed Boundaries:
 USGS National Hydrography Dataset
 Wetlands: USGS (Wetlands Service)
 Groundwater-Public Well Permits: Colorado State Decision Support
 Systems GIS database
 Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
 Coordinate System



United States
Environmental
Protection Agency

Region 8 START V
TD: 2083-2203-09



TETRA TECH

Analyst: M. Caldwell
Date: 4/24/2023

Ruby Mining District
Lincoln Creek Watershed,
Pitkin County, Colorado

Figure 6
15 Mile Downstream Surface Water
Target Distance Limit

FIGURE 7 2022 SOIL SAMPLE LOCATIONS/KEY RESULTS

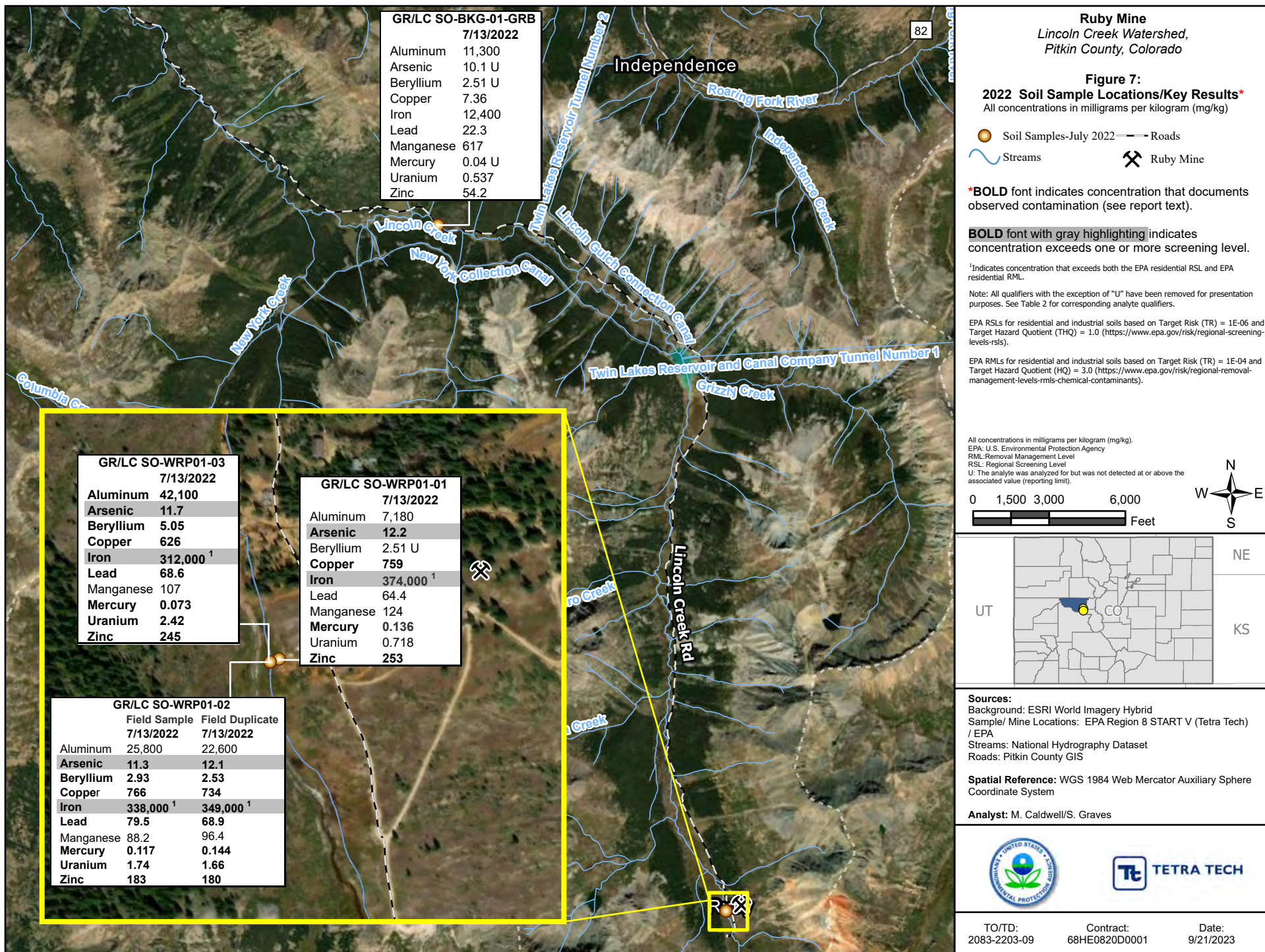
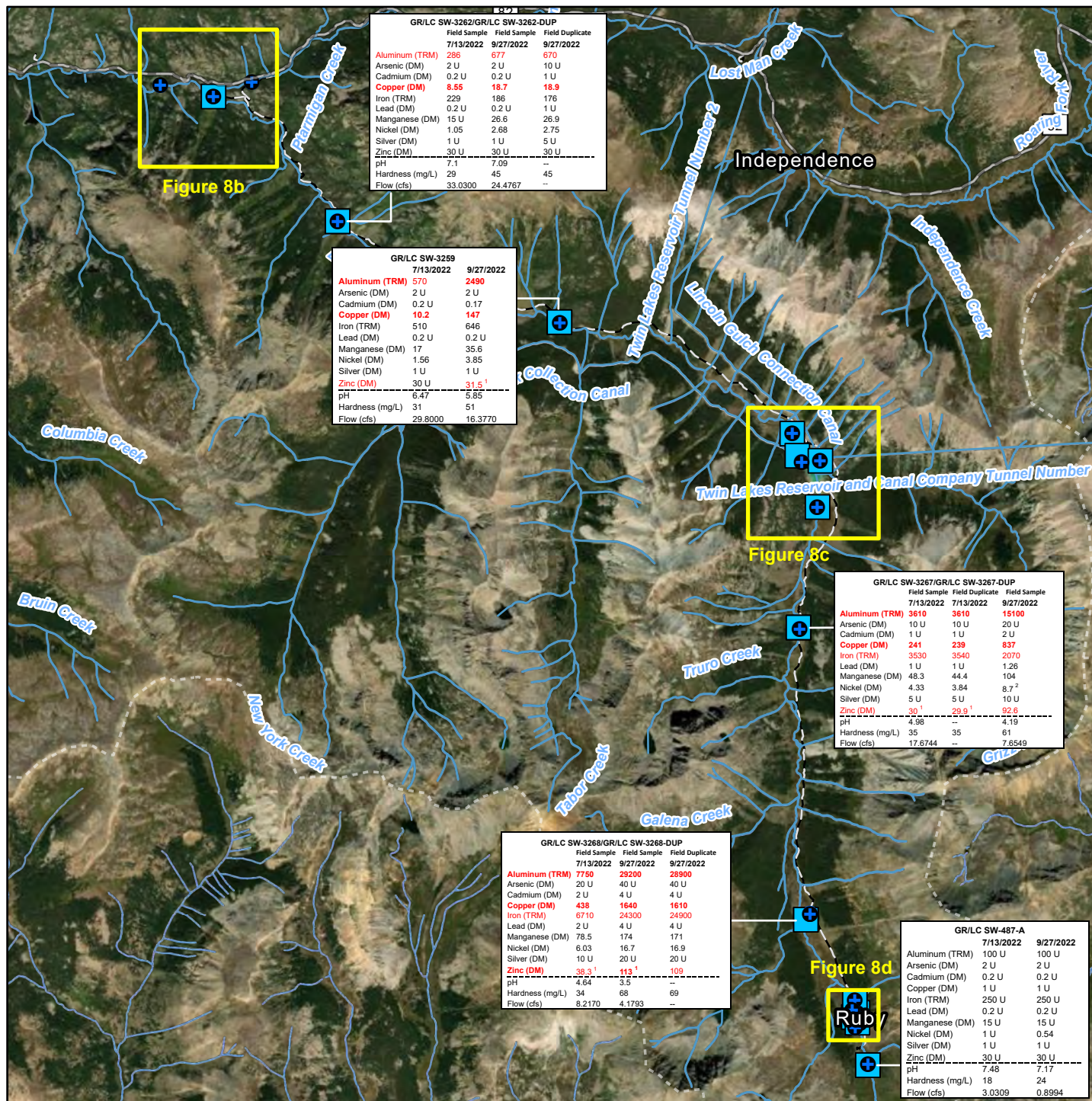


FIGURE 8a 2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (OVERVIEW)



Ruby Mine
Lincoln Creek Watershed
Pitkin County, Colorado

Figure 8a:
2022 Surface Water Sample Locations/Key Results* (Overview)

Metals concentrations presented in micrograms per liter (µg/L)

- Surface Water Samples- September 2022
Surface Water Samples- July 2022
Roads
Streams

*Red font indicates an exceedance of a sample-specific hardness-based CO Department of Public Health and Environment (CDPHE) Regulation 31 chronic Water Quality Standard (WQS).

RED BOLD font indicates an exceedance of both acute and chronic CDPHE Regulation 31 WQS.

*CDPHE Regulation 31: <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=9874&fileName=5%20CCR%201002-31>.

¹Indicates concentration that exceeds the CDPHE Regulation 31 chronic Water Quality Standard for sculpin.

²Indicates results that are rounded to two significant figures for figure presentation. See Table 5 for additional corresponding analyte details. Note: All qualifiers with the exception of "U" have been removed for figure presentation. See Table 5 for corresponding analyte qualifiers.

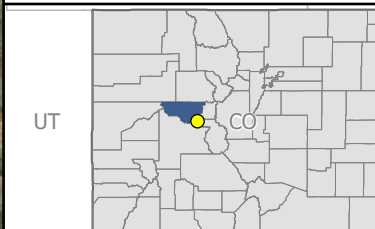
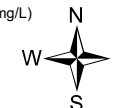
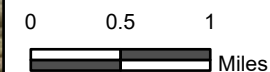
DM = Dissolved Metals:

TRM = Total Recoverable Metals

Flow: units = cubic feet per second (cfs)

pH: units = standard units

Hardness: units = milligrams of CaCO₃ per liter (mg/L)



Sources:

Background: ESRI World Imagery Hybrid
Sample/ Mine Locations: EPA Region 8 START V (Tetra Tech) / EPA
Streams: USGS National Hydrography Dataset
Roads: Pitkin County GIS

Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
Coordinate System

Analyst: M. Caldwell/S. Graves



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9/21/2023

FIGURE 8b 2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (NORTH OF GRIZZLY RESERVOIR)

Ruby Mine
Lincoln Creek Watershed
Pitkin County, Colorado

Figure 8b:
2022 Surface Water Sample Locations/Key
Results*
(North of Grizzly Reservoir)

Metals concentrations presented in micrograms per liter (µg/L)

- Surface Water Samples- September 2022
Surface Water Samples- July 2022
Roads
Streams

*Red font indicates an exceedance of a sample-specific hardness-based CO Department of Public Health and Environment (CDPHE) Regulation 31 chronic Water Quality Standard (WQS).

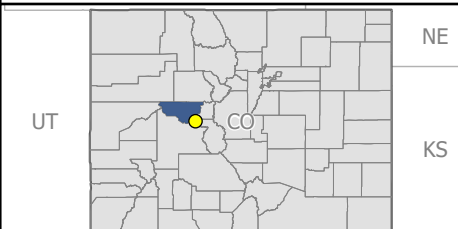
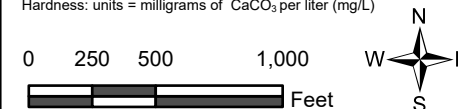
RED BOLD font indicates an exceedance of both acute and chronic CDPHE Regulation 31 WQS.

*CDPHE Regulation 31: <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=9874&fileName=5%20CCR%201002-31>.

¹Indicates concentration that exceeds the CDPHE Regulation 31 chronic Water Quality Standard for sculpin.

Note: All qualifiers with the exception of "U" have been removed for figure presentation. See Table 5 for corresponding analyte qualifiers.

DM = Dissolved Metals
TRM = Total Recoverable Metals
Flow: units = cubic feet per second (cfs)
pH: units = standard units
Hardness: units = milligrams of CaCO₃ per liter (mg/L)



Sources:
Background: ESRI World Imagery Hybrid
Sample/ Mine Locations: EPA Region 8 START V (Tetra Tech) / EPA
Streams: USGS National Hydrography Dataset
Roads: Pitkin County GIS

Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
Coordinate System

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9/22/2023

Hwy 82

Roaring Fork River

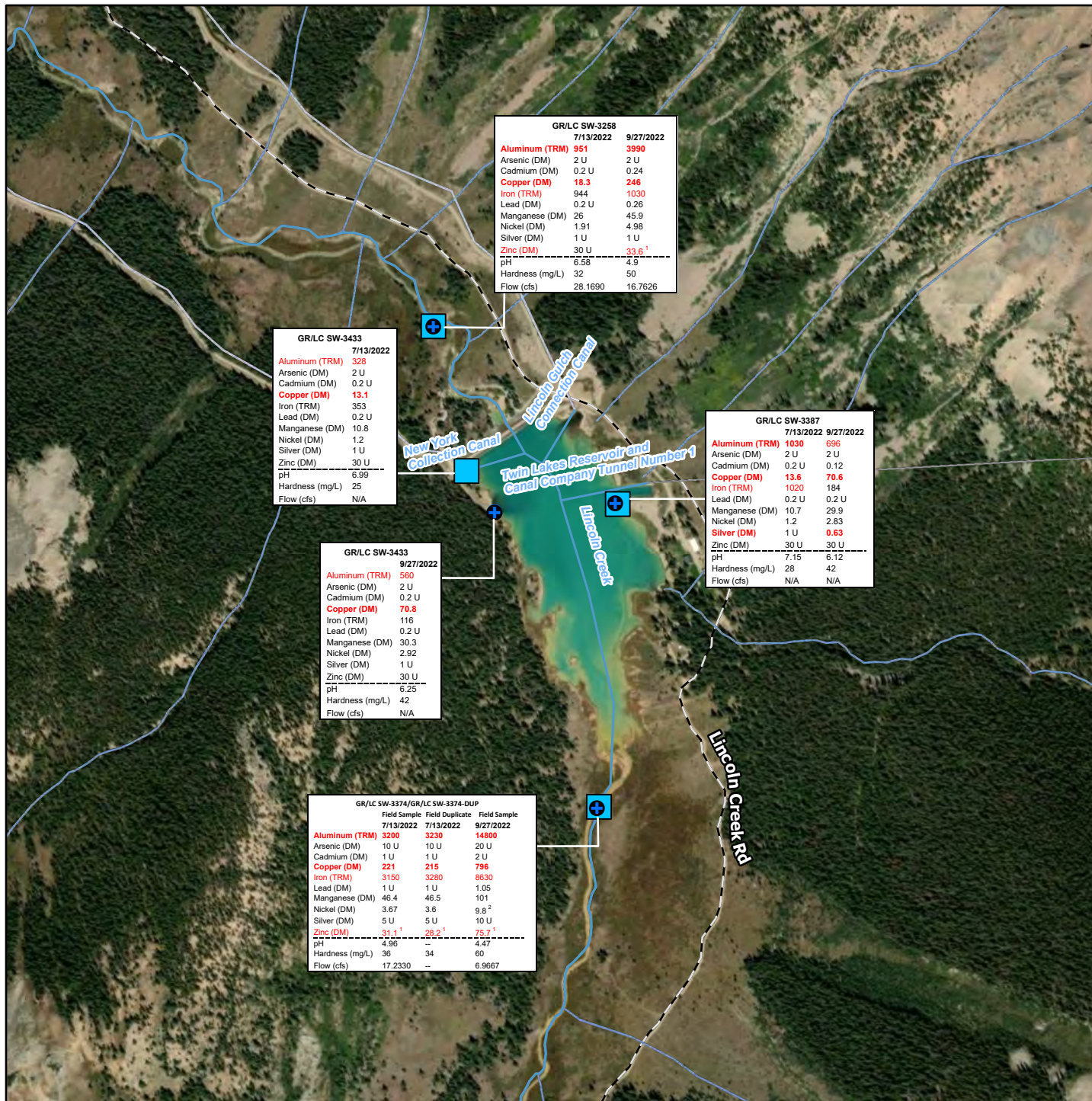
Lincoln Creek Rd
Lincoln Creek

GR/LC SW-RF-DNS-01	
	9/27/2022
Aluminum (TRM)	734
Arsenic (DM)	20 U
Cadmium (DM)	2 U
Copper (DM)	25.6
Iron (TRM)	185
Lead (DM)	2 U
Manganese (DM)	24.4
Nickel (DM)	10 U
Silver (DM)	10 U
Zinc (DM)	30 U
pH	7.6
Hardness (mg/L)	43
Flow (cfs)	38.7374

GR/LC SW-489	
	7/13/2022
Aluminum (TRM)	184
Arsenic (DM)	2 U
Cadmium (DM)	0.2 U
Copper (DM)	8.01
Iron (TRM)	148
Lead (DM)	0.2 U
Manganese (DM)	15 U
Nickel (DM)	0.98
Silver (DM)	1 U
Zinc (DM)	30 U
pH	7.14
Hardness (mg/L)	28
Flow (cfs)	33.1390

GR/LC SW-RF-UPS-01	
	9/27/2022
Aluminum (TRM)	100 U
Arsenic (DM)	10 U
Cadmium (DM)	1 U
Copper (DM)	2.77
Iron (TRM)	250 U
Lead (DM)	0.51
Manganese (DM)	15 U
Nickel (DM)	5 U
Silver (DM)	5 U
Zinc (DM)	30 U
pH	7.27
Hardness (mg/L)	22
Flow (cfs)	3.8372

FIGURE 8c 2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (GRIZZLY RESERVOIR AREA)



Ruby Mine
Lincoln Creek Watershed
Pitkin County, Colorado

Figure 8c:
2022 Surface Water Sample Locations/Key Results*
(Grizzly Reservoir Area)

Metals concentrations presented in micrograms per liter (µg/L)

- Surface Water Samples- September 2022
- Surface Water Samples- July 2022
- Roads
- Streams

*Red font indicates an exceedance of a sample-specific hardness-based CO Department of Public Health and Environment (CDPHE) Regulation 31 chronic Water Quality Standard (WQS).

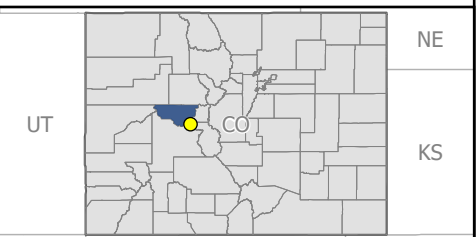
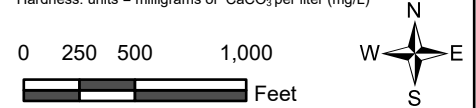
RED BOLD font indicates an exceedance of both acute and chronic CDPHE Regulation 31 WQS.

*CDPHE Regulation 31: <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=9874&fileName=5%20CCR%201002-31>.

¹Indicates concentration that exceeds the CDPHE Regulation 31 chronic Water Quality Standard for sculpin.

²Indicates results that are rounded to two significant figures for figure presentation. See Table 5 for analyte details.
Note: All qualifiers with the exception of "U" have been removed for figure presentation. See Table 5 for corresponding analyte qualifiers.

DM = Dissolved Metals
TRM = Total Recoverable Metals
Flow: units = cubic feet per second (cfs)
pH: units = standard units
Hardness: units = milligrams of CaCO₃ per liter (mg/L)



Sources:
Background: ESRI World Imagery Hybrid
Sample/ Mine Locations: EPA Region 8 START V (Tetra Tech) / EPA
Streams: USGS National Hydrography Dataset
Roads: Pitkin County GIS

Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere Coordinate System

Analyst: M. Caldwell/S. Graves



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Contract: 68HE0820D0001
Date: 9/21/2023

FIGURE 8d 2022 SURFACE WATER SAMPLE LOCATIONS/KEY RESULTS (RUBY MINE AREA)

Ruby Mine
Lincoln Creek Watershed
Pitkin County, Colorado

Figure 8d:
2022 Surface Water Sample Locations/Key Results*
(Ruby Mine Area)

Metals concentrations presented in micrograms per liter (µg/L)

- Surface Water Samples- September 2022
- Surface Water Samples- July 2022
- Streams
- Roads
- Ruby Mine

*Red font indicates an exceedance of a sample-specific hardness-based CO Department of Public Health and Environment (CDPHE) Regulation 31 chronic Water Quality Standard (WQS).

RED BOLD font indicates an exceedance of both acute and chronic CDPHE Regulation 31 WQS.

*CDPHE Regulation 31: <https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=9874&fileName=5%20CCR%201002-31>.

¹Indicates concentration that exceeds the CDPHE Regulation 31 chronic Water Quality Standard for sculpin.

Note: All qualifiers with the exception of "U" have been removed for figure presentation. See Table 5 for corresponding analyte qualifiers.

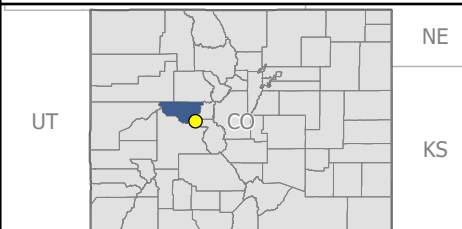
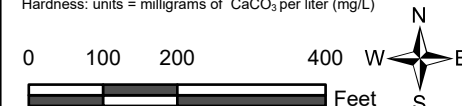
DM = Dissolved Metals

TRM = Total Recoverable Metals

Flow: units = cubic feet per second (cfs)

pH: units = standard units

Hardness: units = milligrams of CaCO₃ per liter (mg/L)



Sources:

Background: ESRI World Imagery Hybrid
Sample/ Mine Locations: EPA Region 8 START V (Tetra Tech) / EPA
Streams: USGS National Hydrography Dataset
Roads: Pitkin County GIS

Spatial Reference: WGS 1984 Web Mercator Auxiliary Sphere
Coordinate System

Analyst: M. Caldwell/S. Graves



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GR/LC SW-OPP, GR/LC SW-B4-HSE	7/13/2022	9/27/2022
Aluminum (TRM)	320	1040
Arsenic (DM)	2 U	20 U
Cadmium (DM)	0.176	2 U
Copper (DM)	5.2	6.58
Iron (TRM)	250 U	250 U
Lead (DM)	0.2 U	2 U
Manganese (DM)	28.9	31.5
Nickel (DM)	4.45	9.71
Silver (DM)	1 U	10 U
Zinc (DM)	32.3	34.4
pH	7.67	7.51
Hardness (mg/L)	93	300
Flow (cfs)	0.3320	0.1691

GR/LC SW-DNS-RM	7/13/2022	9/27/2022
Aluminum (TRM)	69800	
Arsenic (DM)	100 U	
Cadmium (DM)	10 U	
Copper (DM)	3840	
Iron (TRM)	74500	
Lead (DM)	10 U	
Manganese (DM)	316	
Nickel (DM)	44.6	
Silver (DM)	50 U	
Zinc (DM)	185	
pH	3.12	
Hardness (mg/L)	65	
Flow (cfs)	1.7697	

GR/LC SW-3371-A	7/13/2022	9/27/2022
Aluminum (TRM)	823000	1090000
Arsenic (DM)	58	99.7
Cadmium (DM)	15	14.4
Copper (DM)	50000	60600
Iron (TRM)	940000	1240000
Lead (DM)	10 U	20 U
Manganese (DM)	1110	1130
Nickel (DM)	571	569
Silver (DM)	50 U	100 U
Zinc (DM)	2020	1840
pH	2.62	2.62
Hardness (mg/L)	278	379
Flow (cfs)	0.0468	0.0522

GR/LC SW-3371-B	7/13/2022	9/27/2022
Aluminum (TRM)	1080	3150
Arsenic (DM)	2 U	20 U
Cadmium (DM)	0.188	2 U
Copper (DM)	28.7	78.1
Iron (TRM)	638	1670
Lead (DM)	0.2 U	2 U
Manganese (DM)	58.8	207
Nickel (DM)	2.14	5.17
Silver (DM)	1 U	10 U
Zinc (DM)	21.2	65
pH	6.37	6.38
Hardness (mg/L)	27	48
Flow (cfs)	2.9120	1.5522

GR/LC SW-3372-A	7/13/2022
Aluminum (TRM)	104000
Arsenic (DM)	40 U
Cadmium (DM)	21.6
Copper (DM)	2930
Iron (TRM)	282000
Lead (DM)	34.2
Manganese (DM)	9550
Nickel (DM)	107
Silver (DM)	20 U
Zinc (DM)	1210
pH	4.22
Hardness (mg/L)	743
Flow (cfs)	0.0072

GR/LC SW-3372-A	9/27/2022
Aluminum (TRM)	1570
Arsenic (DM)	20 U
Cadmium (DM)	2 U
Copper (DM)	40
Iron (TRM)	250 U
Lead (DM)	2 U
Manganese (DM)	40.8
Nickel (DM)	10 U
Silver (DM)	10 U
Zinc (DM)	49.8
pH	6.98
Hardness (mg/L)	36
Flow (cfs)	1.9548

GR/LC SW-RMA1-UPS	9/27/2022
Aluminum (TRM)	1650
Arsenic (DM)	10 U
Cadmium (DM)	1 U
Copper (DM)	47.5
Iron (TRM)	250 U
Lead (DM)	1 U
Manganese (DM)	40.6
Nickel (DM)	3.03
Silver (DM)	5 U
Zinc (DM)	30 U
pH	6.79
Hardness (mg/L)	36
Flow (cfs)	1.0874

GR/LC SW-RMA1	9/27/2022
Aluminum (TRM)	71200
Arsenic (DM)	100 U
Cadmium (DM)	21.7
Copper (DM)	3130
Iron (TRM)	272000
Lead (DM)	46
Manganese (DM)	10400
Nickel (DM)	103
Silver (DM)	50 U
Zinc (DM)	1390
pH	4.39
Hardness (mg/L)	853
Flow (cfs)	0.0173

TABLES

TABLE 1	SAMPLE LOCATION DESCRIPTIONS
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TABLE 7	FIELD WATER QUALITY MEASUREMENTS

TABLE 1 SAMPLE LOCATION DESCRIPTIONS

Table 1
Ruby Mining District (Pitkin County, Colorado)
Sample Location Descriptions

Location ID		Soil Sample Location Descriptions	Latitude	Longitude
GR/LC SO-BKG-01-GRB		Background soil location; close proximity to surface water location 3259	39.09321	-106.649
GR/LC SO-WRP01-01		Within Ruby Mine runoff area; between surface water locations RMA1 and 3372A	39.0193	-106.609
GR/LC SO-WRP01-02		Within Ruby Mine runoff area; between surface water locations RMA1 and 3372A	39.01928	-106.609
GR/LC SO-WRP01-03		Within Ruby Mine runoff area; between surface water locations RMA1 and 3372A	39.01928	-106.609
Location ID		Surface Water Sample Location Descriptions	Latitude	Longitude
GR/LC SW-RF-DNS-01		Roaring Fork River downstream of Lincoln Creek	39.11838	-106.704
GR/LC SW-RF-UPS-01		Roaring Fork River upstream of Lincoln Creek	39.11867	-106.691
GR/LC SW-489		Lincoln Creek adjacent to campsite and above confluence with Roaring Fork River	39.11661	-106.696
GR/LC SW-3262		Lincoln Creek below confluence with New York Creek	39.10399	-106.68
GR/LC SW-3259		Lincoln Creek above New York Creek and below Tabor Creek	39.09323	-106.649
GR/LC SW-3258		Lincoln Creek below Grizzly Reservoir	39.08155	-106.618
GR/LC SW-3433		Grizzly Reservoir southwest of dam (<i>Grizzly Reservoir E Shore Abv Diversion</i>)	39.07855	-106.617
GR/LC SW-3387		Grizzly Reservoir (eastern shore above diversion)	39.0787	-106.614
GR/LC SW-3374 GR/LC SW-3374-A	Downstream -----> To -----> Upstream	Location moved during July event upstream approximately 100 yards due to split in channel at inlet (below Truro Creek confluence [LC4]); upstream 500 yards; sampled by pine tree Grizzly Reservoir collected by caretaker at inlet (April-July 2022)	39.09321	-106.649
GR/LC SW-3267		Lincoln Creek below confluence with Truro Creek	39.06093	-106.617
GR/LC SW-3268		Lincoln Creek below Ruby Mine	39.03079	-106.615
GR/LC SW-OPP GR/LC SW-B4-HSE		Clean drainage; downstream of mine waste; potential natural drainage at road downgradient of 3371A; drainage is on the road north of 3371A (vegetation is prevalent on banks; site is before off grid house with heavy chain fence)	39.02164	-106.609
GR/LC SW-DNS-RM		Lincoln Creek below 3371A confluence and above OPP/B4-HSE confluence; site is below Ruby Mine draining complex (below white staining area, Ruby Mine adit drainage and unknown drainage)	39.02061	-106.61
GR/LC SW-3371-A		Unknown drainage at road downgradient of Ruby Mine adit runoff and above OPP/B4-HSE; tributary on road; referred to as Mineralized Tributary	39.02032	-106.609
GR/LC SW-3371-B		Lincoln Creek above 3371A confluence and below 3372A confluence (<i>fully mixed zone</i>)	39.01988	-106.609
GR/LC SW-3372-A		Lincoln Creek at Ruby Mine adit runoff confluence (<i>not well mixed zone</i>)	39.01928	-106.609
GR/LC SW-RMA1		Ruby Mine adit runoff at road	39.01922	-106.609
GR/LC SW-RMA1-UPS		Lincoln Creek above Ruby Mine adit confluence and below background (487A) (<i>where white staining on rocks is present</i>)	39.01876	-106.609
GR/LC SW-487-A		Background location on Lincoln Creek above mines	39.01488	-106.608

TABLE 2 SOIL SAMPLES JULY 2022 – TOTAL RECOVERABLE METALS

Table 2
Ruby Mining District (Pitkin County, Colorado)
Analytical Results
Soil Samples July 2022 - Total Recoverable Metals

Location ID	Sample Type	Sample Date	Sample Time	Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Manganese (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silica (SiO ₂) (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Uranium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
EPA RSL (Residential) ^a				77,000	31	0.68	15,000	160	7.1	NE	120,000	23	3,100	55,000	400	NE	1,800	11	390	1,500	NE	390	4,300,000	390	NE	0.78	16	390	23,000
EPA RSL (Industrial) ^a				1,100,000	470	3	220,000	2,300	100	NE	1,800,000	350	47,000	820,000	800	NE	26,000	46	5,800	22,000	NE	5,800	18,000,000	5,800	NE	12	230	5,800	350,000
EPA RML (Residential) ^b				230,000	94	68	46,000	470	21	NE	350,000	70	9,400	160,000	400	NE	5,500	33	1,200	4,600	NE	1,200	13,000,000	1,200	NE	2.3	47	1,200	70,000
EPA RML (Industrial) ^b				3,400,000	1,400	300	650,000	6,900	300	NE	5,300,000	1,000	140,000	2,500,000	800	NE	77,000	140	18,000	67,000	NE	18,000	54,000,000	18,000	NE	35	700	17,000	1,100,000
GR/LC SO-BKG-01-GRB 2022713B	Grab	7/13/2022	19:01	11,300	5.03 U	10.1 U	162	2.51 U	1.01 U	2460	7.17 J	3.65	7.36	12,400	22.3	2860	617	0.04 U	5.03 U	5.96	1,460	15.1 U	9,610	5.03 U	503 U	10.1 U	0.537 J	15 J	54.2
GR/LC SO-WRP01-01 2022713	Grab	7/13/2022	16:20	7,180	5.02 U	12.2	35.2 J	2.51 U	1 U	129 J	10 U	1.87	759	374,000	64.4	147 J	124	0.136	9.06	5.02 U	792	15 U	6,500	5.02 U	502 U	10 U	0.718 J	18.8	253
GR/LC SO-WRP01-02 2022713	Grab	7/13/2022	16:28	25,800	5.02 U	11.3	36.8 J	2.93	1 U	242	10 U	1.45	766	338,000	79.5	185 J	88.2	0.117	10.3	5.02 U	939	15.1 U	7,480	5.02 U	502 U	10 U	1.74	32.1	183
GR/LC SO-WRP01-02-DUP 2022713	Grab	7/13/2022	16:35	22,600	4.97 U	12.1	40.7 J	2.53	0.993 U	211	9.93 U	1.48	734	349,000	68.9	202 J	96.4	0.144	10.7	4.97 U	967	14.9 U	7,410	4.97 U	497 U	9.93 U	1.66	31.3	180
GR/LC SO-WRP01-03 2022713	Grab	7/13/2022	16:40	42,100	4.99 UJ	11.7 J	25.1 J	5.05	0.998 U	290	9.98 U	1.8	626	312,000	68.6	250 U	107	0.073	9.53	4.99 U	611	15 U	9,330	4.99 UJ	499 U	9.98 U	2.42	32.7	245

Location ID	Sample Type	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silica (SiO ₂)	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
				(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)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
GR/LC SO-WRP01-02 2022713	Grab	7/13/2022	16:28	25,800	5.02 U	11.3	36.8 J	2.93	1 U	242	10 U	1.45	766	338,000	79.5	185 J	88.2	0.117	10.3	5.02 U	939	15.1 U	7,480	5.02 U	502 U	10 U	1.74	32.1	183
GR/LC SO-WRP01-02-DUP 2022713	Grab	7/13/2022	16:35	22,600	4.97 U	12.1	40.7 J	2.53	0.993 U	211	9.93 U	1.48	734	349,000	68.9	202 J	96.4	0.144	10.7	4.97 U	967	14.9 U	7,410	4.97 U	497 U	9.93 U	1.66	31.3	180
RPD				13.22%	NA	6.84%	10.06%	14.65%	NA	13.69%	NA	2.05%	4.27%	3.20%	14.29%	8.79%	8.88%	20.69%	3.81%	NA	2.94%	NA	0.94%	NA	NA	NA	4.71%	2.52%	1.65%

- Notes:
- ^a EPA RSLs for residential and industrial soils based on Target Risk (TR) = 1E-06 and Target Hazard Quotient (THQ) = 1.0
 - ^b EPA RMLs for residential and industrial soils based on risk level = 1E-04 and Hazard Quotient (HQ) = 3.0
 - bold** Bolded values indicate concentrations that document observed contamination based on concentrations that exceed three times background or based on the HRS Rule that states "If the hazardous substance of concern is not detected in the background sample, the release sample concentration must be greater than or equal to its detection limit".
 - Indicates concentration exceeds one or more screening level**
 - EPA U.S. Environmental Protection Agency
 - HRS Hazard Ranking System
 - J The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
 - mg/kg Milligrams per kilogram
 - NA Not applicable
 - NE None established
 - RML Removal Management Level
 - RPD Relative percent difference
 - RSL Regional Screening Level
 - U The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
 - UJ The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

TABLE 3 SOIL LEACHATE SAMPLES JULY 2022 – TCLP AND SPLP

Table 3
Ruby Mining District (Pitkin County, Colorado)
Analytical Results
Soil Leachate Samples July 2022 - Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP)

Location ID	Sample Type	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	
				(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
EPA Hazardous Waste Characteristic Limit ^a				--	--	5	100	--	1	--	5	--	--	--	5	--	--	0.2	--	--	1	5	--	--	--	--	
TCLP																											
GR/LC SO-WRP01-01 20220713	Grab	7/13/2022	16:20	--	--	0.01 UJ	0.11 J	--	0.00076 J	--	0.01 U	--	--	--	0.0045 J	--	--	0.0002 U	--	--	0.035 U	0.01 U	--	--	--	--	

Location ID	Sample Type	Sample Date	Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	
				(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
SPLP																											
GR/LC SO-WRP01-01 20220713	Grab	7/13/2022	16:20	140	0.06 U	0.01 U	0.069 J	0.026	0.0029 J	13	0.01 U	0.017 J	1.2	110	0.26	0.81 J	1.7	0.0002 U	0.0092 J	2.4 J	0.035 UJ	0.01 U	4.2 J	0.025 UJ	0.05 UJ	0.69	

Notes:
^a Maximum concentrations of contaminants for the toxicity characteristic as established under Resource Conservation and Recovery Act (RCRA)
EPA U.S. Environmental Protection Agency
J The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
mg/L Milligrams per liter
U The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).

**TABLE 4 SURFACE WATER SAMPLES FROM GRIZZLY RESERVOIR INLET – APRIL
TO JULY 2022 – TOTAL RECOVERABLE METALS AND DISSOLVED METALS**

Table 4
Ruby Mining District (Pitkin County, Colorado)
Analytical Results
Surface Water Samples from Grizzly Reservoir Inlet - April to July 2022 - Total Recoverable Metals and Dissolved Metals

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Magnesium (µg/L)	Manganese (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silica (SiO ₂) (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Hardness ^d (mg/L)	
Domestic Water Supply ^a Water and Fish ^b					NE	6	0.02	490	4	5	NE	50	NE	1,000	300 ^c	50	NE	50 ^c	210	100	NE	50	NE	100	NE	0.5	16.8	NE	NE	5,000	NA
					NE	5.6	0.02	NE	NE	NE	NE	100	NE	1,300	NE	NE	NE	NE	NE	610	NE	170	NE	NE	NE	NE	0.2	NE	NE	0.2	NE
GR/LC 3374-A 20220407	TRM	Surface Water	4/7/2022	11:00	5,120	10 U	20 U	71.1 J	5 U	2 U	23,400	20 U	7.94	305	1,760	1.5 J	3,400	244	10 U	7.74 J	360 J	30 U	7,780	10 U	2,070	20 U	2 U	30 U	84.6	NA	
	DM				3,010	1 U	2 U	65.6	5 U	0.873	24,100 J	2 U	7.4	285	250 U	0.847	3,410	233	1 U	7.01	324 J	3 U	7,180	1 U	2,120	2 U	0.419	3 U	82.7 ^e	74	
GR/LC 3374-A 20220505	TRM	Surface Water	5/5/2022	11:30	2,670	10 U	20 U	54.1 J	5 U	2 U	16,300	20 U	3.86	149	837	2 U	2,060	110	10 U	10 U	344 J	30 U	6,810	10 U	1,630	20 U	2 U	30 U	44.1	NA	
	DM				100 U	5 U	10 U	52.1	5 U	1 U	16,900 J	10 U	3.93	61.1	250 U	1 U	2,050	108	5 U	3.11 J	257 J	15 U	6,130	5 U	1,660	10 U	1 U	15 U	33.7 ^e	51	
GR/LC 3374-A 20220512	TRM	Surface Water	5/12/2022	10:30	2,200	5 U	10 U	36 J	5 U	1 U	10,000	10 U	2.12	100	2,020	0.751 J	1,290	61.4	5 U	2.63 J	459 J	15 U	6,120	5 U	1,060	10 U	1 U	15 U	27 J	NA	
	DM				100 U	1 U	2 U	33	5 U	0.226	12,000	2 U	1.99	28.3	250 U	0.2 U	1,310	54.1	1 U	2.19	425 J	3 U	5,180	1 U	1,070	2 U	0.2 U	3 U	26.9 J ^e	35	
GR/LC 3374-A 20220519	TRM	Surface Water	5/19/2022	10:30	1,070	5 U	10 U	25.9 J	5 U	1 U	7,520	10 U	1.08	55.5	873	1 U	945	33.9	5 U	5 U	325 J	15 U	4,920	5 U	829 J	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	22.9	5 U	0.2 U	7,640	2 U	1	17.5	250 U	0.2 U	925	28.7	1 U	1.1	1,000 U	3 U	4,300	1 U	819 J	2 U	0.2 U	3 U	30 U	23	
GR/LC 3374-A 20220526	TRM	Surface Water	5/26/2022	09:30	1,200	5 U	10 U	30 J	5 U	1 U	9,210	10 U	1.44	68.8	399	1 U	1,150	41.8	5 U	5 U	260 J	15 U	5,610	5 U	1,040	10 U	1 U	15 U	19.7 J	NA	
	DM				100 U	1 U	2 U	27.7	5 U	0.174 J	9,170	2 U	1.4	21.1	250 U	0.2 U	1,180	39.7	1 U	1.72	1,000 U	3 U	5,020	1 U	1,020	2 U	0.2 U	3 U	30 U	28	
GR/LC 3374-A 20220602	TRM	Surface Water	6/2/2022	10:00	1,120	5 U	10 U	27.1 J	5 U	1 U	8,790	10 U	1.32	67.2	417	1 U	1,110	33.8	5 U	5 U	284 J	15 U	5,280	5 U	949 J	10 U	1 U	15 U	17.6 J	NA	
	DM				100 U	1 U	2 U	25.5	5 U	0.112 J	8,400	2 U	1.3	20.2	250 U	0.2 U	1,090	31.7	1 U	1.55	1,000 U	3 U	4,690	1 U	958 J	2 U	0.2 U	3 U	30 U	25	
GR/LC 3374-A 20220609	TRM	Surface Water	6/9/2022	10:00	659	5 U	10 U	50 U	5 U	1 U	6,830	10 U	0.707 J	38.6	438	1 U	928	24.1	5 U	5 U	1,000 U	15 U	4,120	5 U	732 J	10 U	1 U	15 U	30 U	NA	
	DM				55.7 J	1 U	2 U	21.1	5 U	0.2 U	6,600	2 U	0.696	14.1	250 U	0.2 U	845	17	1 U	0.866 J	1,000 U	3 U	3,710	1 U	715 J	2 U	0.2 U	3 U	30 U	20	
GR/LC 3374-A 20220616	TRM	Surface Water	6/16/2022	10:30	754	10 U	20 U	100 U	5 U	2 U	7,930	10 U	2 U	50.6	465	2 U	1,030	24	10 U	10 U	1,000 U	30 U	4,410	10 U	811 J	20 U	2 U	30 U	30 U	NA	
	DM				100 U	1 U	2 U	23.8	5 U	0.2 U	7,340	2 U	0.903	11.7	250 U	0.2 U	1,060	20.1	1 U	1.16	1,000 U	3 U	3,880	1 U	822 J	2 U	0.2 U	3 U	29.1 J ^e	23	
GR/LC 3374-A 20220617	TRM	Surface Water	6/17/2022	12:30	4,960	10 U	20 U	100 U	5 U	2 U	8,170	10 U	1.03 J	59.8	1,240	2.38	1,070	30.5	10 U	10 U	1,000 U	30 U	4,890	10 U	845 J	20 U	2 U	30 U	30 U	NA	
	DM				100 U	1 U	2 U	24.4	5 U	0.2 U	7,170	2 U	0.997	4.65	250 U	0.2 U	1,060	25.2	1 U	1.19	1,000 U	3 U	3,320	1 U	827 J	2 U	0.2 U	3 U	30 U	22	
GR/LC 3374-A 20220623	TRM	Surface Water	6/23/2022	10:00	1,270	10 U	20 U	100 U	5 U	2 U	9,050	20 U	1.45 J	80.2	949	2 U	1,220	29.5	10 U	10 U	1,000 U	30 U	4,630	10 U	905 J	20 U	2 U	30 U	16 J	NA	
	DM				100 U	1 U	2 U	26.1	5 U	0.102 J	8,070	2 U	1.47	12.8	250 U	0.2 U	1,210	24	1 U	1.65	1,000 U	3 U	3,920	1 U	900 J	2 U	0.2 U	3 U	17.2 J ^e	25	
GR/LC 3374-A 20220630	TRM	Surface Water	6/30/2022	11:00	1,850	10 U	20 U	100 U	5 U	2 U	9,500	20 U	2.08	115	1,500	2 U	1,320	29.2	10 U	10 U	1,000 U	30 U	4,510	10 U	943 J	20 U	2 U	30 U	15.7 J	NA	
	DM				100 U	1 U	2 U	27.6	5 U	0.123 J	11,300	2 U	2.01	17.3	190 J	0.2 U	1,320	26.6	1 U	2.02	1,000 U	3 U	3,780	1 U	935 J	2 U	0.2 U	3 U	15.7 J ^e	34	
GR/LC 3374-A 20220707	TRM	Surface Water	7/7/2022	09:30	2,380	10 U	20 U	100 U	5 U	2 U	10,400	20 U	2.69	153	2,090	2 U	1,470	34.2	10 U	10 U	1,000 U	30 U	4,820	10 U	1,010	20 U	2 U	30 U	18.5 J	NA	
	DM				100 U	1 U	2 U	29.1	5 U	0.138 J	9,830	2 U	2.64	52.6	434	0.2 U	1,470	31.6	1 U	2.58	1,000 U	3 U	4,060	1 U	988 J	2 U	0.2 U	3 U	16.1 J ^e	31	

Notes

^a Screening level for Domestic Water Supply obtained from The Basic Standards and Methodologies for Surface Water, CDPHE Regulation No. 31; screening level applies to TRM except where noted.

^b Screening level for Water and Fish obtained from The Basic Standards and Methodologies for Surface Water, CDPHE Regulation No. 31; screening level applies to TRM.

^c Screening level for Domestic Water Supply obtained from The Basic Standards and Methodologies for Surface Water, CDPHE Regulation No. 31; screening level applies to DM for this analyte.

^d Screening levels for acute and chronic Aquatic Life WQS are calculated using sample-specific hardness values, expressed as milligrams of CaCO₃ per liter (mg/L), in accordance with the Basic Standards and Methodologies for Surface Water, CDPHE Regulation No. 31.

^e Indicates concentration that exceeds the CDPHE chronic standard for Aquatic Life (sculpin)

 Indicates concentration that exceeds the CDPHE acute and chronic standards for Aquatic Life

 Indicates concentration that exceeds the CDPHE chronic standard for Aquatic Life

 Indicates concentration that exceeds the CDPHE standards for Domestic Water Supply and/or Water and Fish

CDPHE Colorado Department of Public Health and Environment

DM Dissolved metals

EPA U.S. Environmental Protection Agency

J The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

mg/L Milligrams per liter

NA Not applicable

NE None established

TRM Total recoverable metals

µg/L Micrograms per liter

U The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).

**TABLE 5 SURFACE WATER SAMPLES JULY AND SEPTEMBER 2022 – TOTAL
RECOVERABLE METALS AND DISSOLVED METALS**

Table 5
Ruby Mining District (Pitkin County, Colorado)
Analytical Results
Surface Water Samples July 2022 and September 2022 - Total Recoverable Metals and Dissolved Metals

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum ^a (µg/L)	Antimony (µg/L)	Arsenic ^a (µg/L)	Barium ^a (µg/L)	Beryllium ^a (µg/L)	Cadmium ^a (µg/L)	Calcium (µg/L)	Chromium ^a (µg/L)	Cobalt ^a (µg/L)	Copper ^a (µg/L)	Iron ^a (µg/L)	Lead ^a (µg/L)	Magnesium (µg/L)	Manganese ^a (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel ^a (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silica (SiO2) (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Uranium ^a (µg/L)	Vanadium (µg/L)	Zinc ^a (µg/L)	Hardness ^e (mg/L)	
Domestic Water Supply ^b					NE	6	0.02	490	4	5	NE	50	NE	1,000	300 ^d	50	NE	50 ^d	2	210	100	NE	50	NE	100	NE	0.5	16.8	NE	5,000	NA	
Water and Fish ^c					NE	5.6	0.02	NE	NE	NE	NE	100	NE	1,300	NE	NE	NE	NE	NE	NE	610	NE	170	NE	NE	NE	NE	0.24	NE	NE	7,400	NA
GR/LC SW-RF-DNS-01	TRM	Surface Water	9/27/2022	08:37	734	5 U	10 U	37.3 J	5 U	1 U	13,600	10 U	1.65	47.8	185 J	1.5 U	2,640	26.2	0.05 U	5 U	5 U	419 J	15 U	5,600	5 U	2,000	10 U	1 U	15 U	30 U	NA	
	DM				100 U	10 U	20 U	100 U	5 U	2 U	12,900	20 U	1.89 J	25.6	250 U	2 U	2,510	24.4	NA	10 U	10 U	384 J	30 U	5,380	10 U	1,980	20 U	2 U	30 U	30 U	43	
GR/LC SW-RF-UPS-01 (Background)	TRM	Surface Water	9/27/2022	18:25	100 U	5 U	10 U	50 U	5 U	1 U	6,870	10 U	1 U	5 U	250 U	1.5 U	1,540	15 U	0.05 U	5 U	5 U	423 J	15 U	4,340	5 U	1,680	10 U	1 U	15 U	30 U	NA	
	DM				100 U	5 U	10 U	50 U	5 U	1 U	6,380	10 U	1 U	2.77 J	250 U	0.51 J	1,410	15 U	NA	5 U	5 U	388 J	15 U	4,390	5 U	1,640	10 U	1 U	15 U	30 U	22	
GR/LC SW-489	TRM	Surface Water	7/13/2022	11:19	184	5 U	10 U	50 U	5 U	1 U	8,860	10 U	1 U	10.8	148 J	1 U	1,580	15 U	0.05 U	5 U	5 U	324 J	15 U	4,820	5 U	1,390	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	22.5	5 U	0.2 U	8,800	2 U	0.128 J	8.01	250 U	0.2 U	1,540	15 U	0.05 U	1 U	0.98 J	363 J	3 U	4,910	1 U	1,390	2 U	0.2 U	3 U	30 U	28	
GR/LC SW-489	TRM	Surface Water	9/27/2022	09:05	758	5 U	10 U	40.4 J	5 U	1 U	14,200	10 U	1.79	48.8	178 J	1.5 U	2,700	30.5	0.05 U	5 U	2.88 J	376 J	15 U	5,720	5 U	1,980	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	41.9	5 U	0.2 U	14,200	2 U	1.85	22.6	250 U	0.2 U	2,680	29.3	NA	1 U	2.64	349 J	3 U	5,530	1 U	2,030	2 U	0.2 U	3 U	30 U	46	
GR/LC SW-3262	TRM	Surface Water	7/13/2022	11:49	286	5 U	10 U	25.3 J	5 U	1 U	9,410	10 U	1 U	14.6	229 J	1 U	1,640	8.69 J	0.05 U	5 U	5 U	300 J	15 U	4,990	5 U	1,400	10 U	1 U	15 U	30 U	NA	
	DM				59.6 J	1 U	2 U	24	5 U	0.2 U	9,100	2 U	0.242	8.55	250 U	0.2 U	1,570	15 U	0.05 U	1 U	1.05	338 J	3 U	5,040	1 U	1,520	2 U	0.2 U	3 U	30 U	29	
GR/LC SW-3262	TRM	Surface Water	9/27/2022	09:22	677	5 U	10 U	40.5 J	5 U	1 U	14,900	10 U	1.93	43.2	186 J	1.5 U	2,850	30.7	0.05 U	5 U	2.95 J	487 J	15 U	5,760	5 U	2,140	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	40	5 U	0.2 U	13,800	2 U	1.9	18.7	250 U	0.2 U	2,460	26.6	NA	1 U	2.68	365 J	3 U	5,650	1 U	1,910	2 U	0.2 U	3 U	30 U	45	
GR/LC SW-3262-DUP	TRM	Surface Water	9/27/2022	09:27	670	5 U	10 U	40.1 J	5 U	1 U	14,900	10 U	1.92	42.9	176 J	1.5 U	2,810	30.3	0.05 U	5 U	2.73 J	438 J	15 U	5,770	5 U	2,080	10 U	1 U	15 U	30 U	NA	
	DM				100 U	5 U	10 U	39.8 J	5 U	1 U	14,100	10 U	1.96	18.9	250 U	1 U	2,490	26.9	NA	5 U	2.75 J	400 J	15 U	5,700	5 U	1,940	10 U	1 U	15 U	30 U	45	
GR/LC SW-3259	TRM	Surface Water	7/13/2022	18:12	570	5 U	10 U	27.2 J	5 U	1 U	9,740	10 U	1.02	37.3	510	1 U	1,720	16.8	0.05 U	5 U	5 U	267 J	15 U	4,830	5 U	1,300	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	25.8	5 U	0.2 U	9,680	2 U	0.964	10.2	250 U	0.2 U	1,670	17	0.05 U	1 U	1.56	381 J	3 U	4,990	1 U	1,320	2 U	0.2 U	3 U	30 U	31	
GR/LC SW-3259	TRM	Surface Water	9/27/2022	10:15	2,490	5 U	10 U	41.7 J	5 U	1 U	15,700	10 U	3.82	188	646	1.5 U	3,050	37.3	0.05 U	5 U	4.05 J	417 J	15 U	6,210	5 U	2,010	10 U	1 U	15 U	30 U	NA	
	DM				55.4 J	1 U	2 U	41	5 U	0.17 J	15,600	2 U	3.83	147	250 U	0.2 U	2,830	35.6	NA	1 U	3.85	414 J	3 U	5,870	1 U	1,910	2 U	0.2 U	3 U	30 U	31.5 J ⁺	51
GR/LC SW-3258	TRM	Surface Water	7/13/2022	12:16	951	5 U	10 U	29.2 J	5 U	1 U	10,300	10 U	1.59	69.5	944	1 U	1,840	25.3	0.05 U	5 U	5 U	1,000 U	15 U	4,790	5 U	1,260	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	28.7	5 U	0.2 U	10,100	2 U	1.54	18.3	250 U	0.2 U	1,750	26	0.05 U	1 U	1.91	305 J	3 U	4,800	1 U	1,270	2 U	0.2 U	3 U	30 U	32	
GR/LC SW-3258	TRM	Surface Water	9/27/2022	11:08	3,990	5 U	10 U	41.3 J	5 U	1 U	16,500	10 U	5.22	263	1,030	1.5 U	3,180	46.6	0.05 U	5 U	5.56	462 J	15 U	5,910	5 U	2,010	10 U	1 U	15 U	30 U	NA	
	DM				2,510	1 U	2 U	42	5 U	0.24	15,400	2 U	5.23	246	250 U	0.26	2,800	45.9	NA	1 U	4.98	409 J	3 U	5,850	1 U	1,810	2 U	0.17 J	3 U	30 U	33.6 J ⁺	50
GR/LC SW-3433	TRM	Surface Water	7/13/2022	12:17	328	5 U	10 U	50 U	5 U	1 U	8,230	10 U	0.736 J	24.8	353	1 U	1,500	11.8 J	0.05 U	5 U	5 U	315 J	15 U	4,490	5 U	1,290	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	18.6	5 U	0.2 U	7,790	2 U	0.611	13.1	250 U	0.2 U	1,370	10.8 J	0.05 U	1 U	1.2	308 J	3 U	4,710	1 U	1,250	2 U	0.2 U	3 U	30 U	25	
GR/LC SW-3433	TRM	Surface Water	9/27/2022	11:10	560	5 U	10 U	32.7 J	5 U	1 U	13,200	10 U	2.79	93.8	116 J	1.5 U	2,550	30.8	0.05 U	5 U	3.17 J	378 J	15 U	5,280	5 U	1,950	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	32.3	5 U	0.2 U	12,700	2 U	2.74	70.8	250 U	0.2 U	2,450	30.3	NA	1 U	2.92	374 J	3 U	5,240	1 U	1,950	2 U	0.2 U	3 U	30 U	42	
GR/LC SW-3387	TRM	Surface Water	7/13/2022	13:32	1,030	5 U	10 U	33.3 J	5 U	1 U	8,840	10 U	0.986 J	40.7	1,020	1.41	1,710	33.1	0.05 U	5 U	5 U	398 J	15 U	6,180	5 U	1,320	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	22.3	5 U	0.2 U	8,570	2 U	0.649	13.6	250 U	0.2 U	1,540	10.7 J	0.05 U	1 U	1.2	339 J	3 U	4,340	1 U	1,270	2 U	0.2 U	3 U	30 U	28	
GR/LC SW-3387	TRM	Surface Water	9/27/2022	11:34	696	5 U	10 U	32.8 J	5 U	1 U	13,400	10 U	2.75	94	184 J	1.5 U	2,590	31.5	0.05 U	5 U	3.08 J	492 J	15 U	5,290	5 U	1,990	10 U	1 U	15 U	30 U	NA	
	DM				100 U	1 U	2 U	32.6	5 U	0.12 J	12,600	2 U	2.74	70.6 J	250 U	0.2 U	2,450	29.9	NA	1 U	2.83	354 J	3 U	5,160	0.63 J	1,960	2 U	0.2 U	3 U	30 U	42	
GR/LC SW-3374	TRM	Surface Water	7/13/2022	14:20	3,200	5 U	10 U	33.1 J	5 U	1 U	11,400	10 U	3.71	215	3,150	1 U	1,670	44.2	0.05 U	5 U	3.55 J	1,000 U	15 U	4,990	5 U	1,130	10 U	1 U	15 U	30 U	NA	
	DM																															

Table 5
Ruby Mining District (Pitkin County, Colorado)
Analytical Results

Surface Water Samples July 2022 and September 2022 - Total Recoverable Metals and Dissolved Metals

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum ^a (µg/L)	Antimony (µg/L)	Arsenic ^a (µg/L)	Barium ^a (µg/L)	Beryllium ^a (µg/L)	Cadmium ^a (µg/L)	Calcium (µg/L)	Chromium ^a (µg/L)	Cobalt ^a (µg/L)	Copper ^a (µg/L)	Iron ^a (µg/L)	Lead ^a (µg/L)	Magnesium (µg/L)	Manganese ^a (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel ^a (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silica (SiO2) (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Uranium ^a (µg/L)	Vanadium (µg/L)	Zinc ^a (µg/L)	Hardness ^a (mg/L)
Field and Rinsate Blank Samples																															
GR/LC-SO-RINSATE 20220713	TRM	Water	7/13/2022	19:05	100 U	5 U	10 U	50 U	5 U	1 U	350 U	10 U	1 U	5 U	250 U	1 U	500 U	15 U	0.05 U	5 U	5 U	1,000 U	15 U	1,000 U	5 U	1,000 U	10 U	1 U	15 U	30 U	NA
	DM				100 U	1 U	2 U	10 U	5 U	0.2 U	350 U	2 U	0.2 U	1 U	250 U	0.2 U	500 U	15 U	0.05 U	1 U	1 U	1,000 U	3 U	1,000 U	0.692 J	1,000 U	2 U	0.2 U	3 U	30 U	2 U
GR/LC SW-FB 20220713	TRM	Water	7/13/2022	19:08	100 U	5 U	10 U	50 U	5 U	1 U	350 U	10 U	1 U	5 U	250 U	1 U	500 U	15 U	0.05 U	5 U	5 U	1,000 U	15 U	1,000 U	5 U	1,000 U	10 U	1 U	15 U	30 U	NA
	DM				100 U	1 U	2 U	10 U	5 U	0.2 U	350 U	2 U	0.2 U	1 U	250 U	0.2 U	500 U	15 U	0.05 U	1 U	1 U	1,000 U	3 U	1,000 U	1 U	1,000 U	2 U	0.2 U	3 U	30 U	2 U
GR/LC SW-FB01 20220927	TRM	Water	9/27/2022	18:38	100 U	5 U	10 U	50 U	5 U	1 U	350 U	10 U	1 U	5 U	250 U	1.5 U	500 U	15 U	0.05 U	5 U	5 U	1,000 U	15 U	1,000 U	5 U	1,000 U	10 U	1 U	15 U	30 U	NA
	DM				100 U	1 U	2 U	10 U	5 U	0.2 U	350 U	2 U	0.2 U	1 U	250 U	0.2 U	500 U	15 U	NA	1 U	1 U	1,000 U	3 U	1,000 U	1 U	1,000 U	2 U	0.2 U	3 U	30 U	2 U
GR/LC SW-FB02 20220927	TRM	Water	9/27/2022	18:39	100 U	5 U	10 U	50 U	5 U	1 U	350 U	10 U	1 U	5 U	250 U	1.5 U	500 U	15 U	0.05 U	5 U	5 U	1,000 U	15 U	1,000 U	5 U	1,000 U	10 U	1 U	15 U	30 U	NA
	DM				100 U	1 U	2 U	10 U	5 U	0.2 U	350 U	2 U	0.2 U	1 U	250 U	0.2 U	500 U	15 U	NA	1 U	1 U	1,000 U	3 U	1,000 U	1 U	1,000 U	2 U	0.2 U	3 U	30 U	2 U
GR/LC SW-FB03 20220927	TRM	Water	9/27/2022	19:02	100 U	5 U	10 U	50 U	5 U	1 U	350 U	10 U	1 U	5 U	250 U	1.5 U	500 U	15 U	0.05 U	5 U	5 U	1,000 U	15 U	1,000 U	5 U	1,000 U	10 U	1 U	15 U	30.9	NA
	DM				100 U	1 U	2 U	10 U	5 U	0.2 U	350 U	2 U	0.2 U	1 U	250 U	0.2 U	500 U	15 U	NA	1 U	1 U	1,000 U	3 U	1,000 U	1 U	1,000 U	2 U	0.2 U	3 U	16.6 J	2 U

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Magnesium (µg/L)	Manganese (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silica (SiO2) (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Hardness (mg/L)
GR/LC SW-3262	TRM	Surface Water	9/27/2022	09:22	677	5 U	10 U	40.5 J	5 U	1 U	14,900	10 U	1.93	43.2	186 J	1.5 U	2,850	30.7	0.05 U	5 U	2.95 J	487 J	15 U	5,760	5 U	2,140	10 U	1 U	15 U	30 U	NA
GR/LC SW-3262-DUP		Surface Water	9/27/2022	09:27	670	5 U	10 U	40.1 J	5 U	1 U	14,900	10 U	1.92	42.9	176 J	1.5 U	2,810	30.3	0.05 U	5 U	2.73 J	438 J	15 U	5,770	5 U	2,080	10 U	1 U	15 U	30 U	NA
				RPD	1.04%	NA	NA	0.99%	NA	NA	0.00%	NA	0.52%	0.70%	5.52%	NA	1.41%	1.31%	NA	NA	7.75%	10.59%	NA	0.17%	NA	2.84%	NA	NA	NA	NA	NA

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Magnesium (µg/L)	Manganese (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silica (SiO2) (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Hardness (mg/L)
GR/LC SW-3262	DM	Surface Water	9/27/2022	09:22	100 U	1 U	2 U	40	5 U	0.2 U	13,800	2 U	1.9	18.7	250 U	0.2 U	2,460	26.6	NA	1 U	2.68	365 J	3 U	5,650	1 U	1,910	2 U	0.2 U	3 U	30 U	45
GR/LC SW-3262-DUP		Surface Water	9/27/2022	09:27	100 U	5 U	10 U	39.8 J	5 U	1 U	14,100	10 U	1.96	18.9	250 U	1 U	2,490	26.9	NA	5 U	2.75 J	400 J	15 U	5,700	5 U	1,940	10 U	1 U	15 U	30 U	45
					RPD	NA	NA	NA	0.50%	NA	NA	2.15%	NA	3.11%	1.06%	NA	NA	1.21%	1.12%	NA	NA	2.58%	9.15%	NA	0.88%	NA	1.56%	NA	NA	NA	NA

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Magnesium (µg/L)	Manganese (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silica (SiO2) (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Hardness (mg/L)
GR/LC SW-3374	TRM	Surface Water	7/13/2022	14:20	3,200	5 U	10 U	33.1 J	5 U	1 U	11,400	10 U	3.71	215	3,150	1 U	1,670	44.2	0.05 U	5 U	3.55 J	1,000 U	15 U	4,990	5 U	1,130	10 U	1 U	15 U	30.1	NA
GR/LC SW-3374-DUP		Surface Water	7/13/2022	14:25	3,230	5 U	10 U	34.4 J	5 U	1 U	11,800	10 U	3.9	219	3,280	1 U	1,720	44.6	0.05 U	5 U	3.72 J	257 J	15 U	4,990	5 U	1,190	10 U	1 U	15 U	31.5	NA
					RPD	0.93%	NA	NA	3.85%	NA	NA	3.45%	NA	4.99%	1.84%	4.04%	NA	2.95%	0.90%	NA	NA	4.68%	NA	NA	0.00%	NA	5.17%	NA	NA	NA	4.55%

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silica (SiO2)	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc	Hardness
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
GR/LC SW-3374	DM	Surface Water	7/13/2022	14:20	333	5 U	10 U	33.8 J	5 U	1 U	11,800	10 U	3.87	221	889	1 U	1,660	46.4	0.05 U	5 U	3.67 J	324 J	15 U	5,220	5 U	1,190	10 U	1 U	15 U	31.1	36
GR/LC SW-3374-DUP		Surface Water	7/13/2022	14:25	336	5 U	10 U	35 J	5 U	1 U	11,200	10 U	3.85	215	827	1 U	1,570	46.5	0.05 U	5 U	3.6 J	292 J	15 U	5,260	5 U	1,110	10 U	1 U	15 U	28.2 J	34
					RPD	0.90%	NA	NA	3.49%	NA	NA	5.22%	NA	0.52%	2.75%	7.23%	NA	5.57%	0.22%	NA	NA	1.93%	10.39%	NA	0.76%	NA	6.96%	NA	NA	NA	9.78%

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum (µg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Calcium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Iron (µg/L)	Lead (µg/L)	Magnesium (µg/L)	Manganese (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Potassium (µg/L)	Selenium (µg/L)	Silica (SiO2) (µg/L)	Silver (µg/L)	Sodium (µg/L)	Thallium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Hardness (mg/L)
GR/LC SW-3267	TRM	Surface Water	7/13/2022	13:10	3,610	5 U	10 U	33.6 J	5 U	1 U	11,700	10 U	4.21	235	3,530	1 U	1,800	49.6	0.05 U	5 U	3.91 J	264 J	15 U	5,120	5 U	1,130	10 U	1 U	15 U	33.5	NA
GR/LC SW-3267-DUP		Surface Water	7/13/2022	13:51	3,610	5 U	10 U	33.8 J	5 U	1 U	11,800	10 U	4.18	233	3,540	1 U	1,790	45.6	0.05 U	5 U	4.15 J	1,000 U	15 U	4,770	5 U	1,120	10 U	1 U	15 U	34.4	NA
					RPD	0.00%	NA	NA	0.59%	NA	NA	0.85%	NA	0.72%	0.85%	0.28%	NA	0.56%	8.40%	NA	NA	5.96%	NA	NA	7.08%	NA	0.89%	NA	NA	NA	2.65%

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silica (SiO2)	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc	Hardness
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
GR/LC SW-3267	DM	Surface Water	7/13/2022	13:10	936	5 U	10 U	33.1 J	5 U	1 U	11,300	10 U	4.18	241	946	1 U	1,670	48.3	0.05 U	5 U	4.33 J	276 J	15 U	5,040	5 U	1,120	10 U	1 U	15 U	30	35
GR/LC SW-3267-DUP		Surface Water	7/13/2022	13:51	875	5 U	10 U	34.2 J	5 U	1 U	11,200	10 U	4.17	239	903	1 U	1,650	44.4	0.05 U	5 U	3.84 J	277 J	15 U	4,680	5 U	1,090	10 U	1 U	15 U	29.9 J	35
					RPD	6.74%	NA	NA	3.27%	NA	NA	0.89%	NA	0.24%	0.83%	4.65%	NA	1.20%	8.41%	NA	NA	12.00%	0.36%	NA	7.41%	NA	2.71%	NA	NA	NA	0.33%

Location ID	Analysis	Matrix	Sample Date	Sample Time	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silica (SiO2)	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc	Hardness
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
GR/LC SW-3268	TRM	Surface Water	9/27/2022	13:10	29,200	20 U	40 U	43.7	5 U	4 U	21,300	40 U	26.7	1,720	24,300	2.61 J+	5,150	180	0.05 U	20 U	21.9 J	644 J	60 U	7,900	20 U	1,800	40 U	4 U	60 U	110 J+	NA
GR/LC SW-3268-DUP		Surface Water	9/27/2022	13:10	28,900	20 U	40 U	43.2	5 U	4 U	21,600	3.48 J	26.4	1,690	24,900	2.41 J+	5,240	177	0.05 U	20 U	21.7 J	596 J	60 U	7,840	20 U	1,870	40 U	4 U	60 U	109 J+	NA
					RPD	1.03%	NA	NA	1.15%	NA	NA	1.40%	NA	1.13%	1.76%	2.44%	7.97%	1.73%	1.68%	NA	NA	0.92%	7.74%	NA	0.76%	NA	3.81%	NA	NA	NA	0.91%

**TABLE 6 SURFACE WATER SAMPLES JULY 2022 AND SEPTEMBER 2022 –
ANIONS/ALKALINITY**

Table 6
Ruby Mining District (Pitkin County, Colorado)
Analytical Results
Surface Water Samples July 2022 and September 2022 - Anion/Alkalinity

Location ID		Matrix	Sample Date	Sample Time	Bromide	Chloride	Fluoride	Nitrate/Nitrite as N	Sulfate as SO ₄	Total Alkalinity	Total Suspended Solids
					(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg CaCO ₃ /L)	(mg/L)
Domestic Water Supply ^a Water and Fish ^b					NE	250	2	1	250	NA	NA
					NE	NE	NE	NE	NE	NA	NA
GR/LC SW-RF-DNS-01	Downstream -----> To -----> Upstream	Surface Water	9/27/2022	08:37	0.5 U	2 U	0.1 J	1 U	44.6	8.32 J	10 U
GR/LC SW-RF-UPS-01 (Background)		Surface Water	9/27/2022	18:25	0.5 U	2 U	0.2	1 U	6.9	22.5	10 U
GR/LC SW-489		Surface Water	7/13/2022	11:19	0.5 U	2 U	0.1 J	1 U	17.1	18.4	10 U
GR/LC SW-489		Surface Water	9/27/2022	09:05	0.5 U	2 U	0.1 J	1 U	51.6	7.58 J	10 U
GR/LC SW-3262		Surface Water	7/13/2022	11:49	0.5 U	2 U	0.1 J	1 U	20.2	15.7	10 U
GR/LC SW-3262		Surface Water	9/27/2022	09:22	0.5 U	2 U	0.2 U	1 U	49.5	5.91 J	10 U
GR/LC SW-3262-DUP		Surface Water	9/27/2022	09:27	0.5 U	2 U	0.2 U	1 U	49.2	7.39 J	10 U
GR/LC SW-3259		Surface Water	7/13/2022	18:12	0.5 U	2 U	0.1 J	0.5 U	23.9	13.6	10 U
GR/LC SW-3259		Surface Water	9/27/2022	10:15	0.5 U	2 U	0.2 U	1 U	58.4	10 U	10 U
GR/LC SW-3258		Surface Water	7/13/2022	12:16	0.5 U	2 U	0.1 J	1 U	27.4	11.1	10 U
GR/LC SW-3258		Surface Water	9/27/2022	11:08	0.5 U	2 U	0.3	1 U	71.5	10 U	10 U
GR/LC SW-3433		Surface Water	7/13/2022	12:17	0.5 U	2 U	0.1 J	1 U	15.4	16.2	10 U
GR/LC SW-3433		Surface Water	9/27/2022	11:10	0.5 U	2 U	0.2 U	1 U	43.5	8.24 J	10 U
GR/LC SW-3387		Surface Water	7/13/2022	13:32	0.5 U	2 U	0.1 J	1 U	17.4	18.4	17
GR/LC SW-3387		Surface Water	9/27/2022	11:34	0.5 U	2 U	0.2 U	1 U	43.7	8.03 J	10 U
GR/LC SW-3374		Surface Water	7/13/2022	14:20	0.5 U	2 U	0.1 J	1 U	43	10 U	18
GR/LC SW-3374-DUP		Surface Water	7/13/2022	14:25	0.5 U	2 U	0.2 J	1 U	43.1	10 U	18
GR/LC SW-3374		Surface Water	9/27/2022	11:45	0.5 U	2 U	0.3	1 U	160	10 U	21
GR/LC SW-3267		Surface Water	7/13/2022	13:10	0.5 U	2 U	0.1 J	1 U	46.2	10 U	20
GR/LC SW-3267-DUP		Surface Water	7/13/2022	13:51	0.5 U	2 U	0.2	1 U	46.4	10 U	19
GR/LC SW-3267	Surface Water	9/27/2022	12:17	0.5 U	2 U	0.3	1 U	167	10 U	22	
GR/LC SW-3268	Downstream -----> To -----> Upstream	Surface Water	7/13/2022	15:13	0.5 U	2 U	0.3	1 U	79.3	10 U	19
GR/LC SW-3268		Surface Water	9/27/2022	13:10	1 U	4 U	0.5 J	2 U	287	10 U	47
GR/LC SW-3268-DUP		Surface Water	9/27/2022	13:10	1 U	4 U	0.9 J	2 U	286	10 U	48
GR/LC SW-OPP		Surface Water	7/13/2022	17:00	0.5 U	2 U	0.2	1 U	82.1	26.8	10 U
GR/LC SW-B4-HSE		Surface Water	9/27/2022	13:52	1 U	4 U	0.4 U	2 U	322	28.7	10 U
GR/LC SW-DNS-RM		Surface Water	9/27/2022	16:02	2.5 U	10 U	1.2	5 U	592	10 U	106
GR/LC SW-3371-A		Surface Water	7/13/2022	16:50	10 U	40 U	15.7	20 U	6,930	10 U	10 U
GR/LC SW-3371-A		Surface Water	9/27/2022	13:50	10 U	40 U	14.5	20 U	9,420	10 U	19
GR/LC SW-3371-B		Surface Water	7/13/2022	15:50	0.5 U	2 U	0.1 J	1 U	18.9	17.6	10 U
GR/LC SW-3371-B		Surface Water	9/27/2022	15:19	0.5 U	2 U	0.1 J	1 U	51.8	8.22 J	17
GR/LC SW-3372-A		Surface Water	7/13/2022	15:47	5 U	20 U	5	10 U	1,680	10 U	206
GR/LC SW-3372-A		Surface Water	9/27/2022	14:28	0.5 U	2 U	0.1 J	1 U	25.6	18.7	10 U
GR/LC SW-RMA1		Surface Water	9/27/2022	14:55	2.5 U	10 U	4.1	5 U	1,810	10 U	60
GR/LC SW-RMA1-UPS		Surface Water	9/27/2022	15:45	0.5 U	2 U	0.2 U	1 U	25.1	19.5	10 U
GR/LC SW-487-A (Background)		Surface Water	7/13/2022	15:39	0.5 U	2 U	0.2 U	1 U	2.7 J	0.5	10 U
GR/LC SW-487-A (Background)		Surface Water	9/27/2022	14:20	0.5 U	2 U	0.2 U	1 U	4.9 J	27.9	10 U

Table 6
Ruby Mining District (Pitkin County, Colorado)
Analytical Results
Surface Water Samples July 2022 and September 2022 - Anion/Alkalinity

Location ID	Matrix	Sample Date	Sample Time	Bromide	Chloride	Fluoride	Nitrate/Nitrite as N	Sulfate as SO ₄	Total Alkalinity	Total Suspended Solids
				(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg CaCO ₃ /L)	(mg/L)
Field and Rinsate Blank Samples										
GR/LC-SO-RINSATE 20220713	Water	7/13/2022	19:05	0.5 U	2 U	0.2 U	1 U	5 U	10 U	10 U
GR/LC SW-FB 20220713	Water	7/13/2022	19:08	0.5 U	2 U	0.2 U	1 U	5 U	10 U	10 U
GR/LC SW-FB01 20220927	Water	9/27/2022	18:38	0.5 U	2 U	0.2 U	1 U	5 U	12.6	10 U
GR/LC SW-FB02 20220927	Water	9/27/2022	18:39	0.5 U	2 U	0.2 U	1 U	5 U	11.6	10 U
GR/LC SW-FB03 20220927	Water	9/27/2022	19:02	0.5 U	2 U	0.2 U	1 U	5 U	2	10 U

Location ID	Matrix	Sample Date	Sample Time	Bromide	Chloride	Fluoride	Nitrate/Nitrite as N	Sulfate as SO ₄	Total Alkalinity	Total Suspended Solids
				(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg CaCO ₃ /L)	(mg/L)
GR/LC SW-3262	SurfaceWater	9/27/2022	09:22	0.5 U	2 U	0.2 U	1 U	49.5	5.91 J	10 U
GR/LC SW-3262-DUP	SurfaceWater	9/27/2022	09:27	0.5 U	2 U	0.2 U	1 U	49.2	7.39 J	10 U
			RPD	NA	NA	NA	NA	0.61%	22.26%	NA

Location ID	Matrix	Sample Date	Sample Time	Bromide	Chloride	Fluoride	Nitrate/Nitrite as N	Sulfate as SO ₄	Total Alkalinity	Total Suspended Solids
				(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg CaCO ₃ /L)	(mg/L)
GR/LC SW-3374	SurfaceWater	7/13/2022	14:20	0.5 U	2 U	0.1 J	1 U	43	10 U	18
GR/LC SW-3374-DUP	SurfaceWater	7/13/2022	14:25	0.5 U	2 U	0.2 J	1 U	43.1	10 U	18
			RPD	NA	NA	66.67%	NA	0.23%	NA	0.00%

Location ID	Matrix	Sample Date	Sample Time	Bromide	Chloride	Fluoride	Nitrate/Nitrite as N	Sulfate as SO ₄	Total Alkalinity	Total Suspended Solids
				(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg CaCO ₃ /L)	(mg/L)
GR/LC SW-3267	SurfaceWater	7/13/2022	13:10	0.5 U	2 U	0.1 J	1 U	46.2	10 U	20
GR/LC SW-3267-DUP	SurfaceWater	7/13/2022	13:51	0.5 U	2 U	0.2	1 U	46.4	10 U	19
			RPD	NA	NA	66.67%	NA	0.43%	NA	5.13%
Location ID	Matrix	Sample Date	Sample Time	Bromide	Chloride	Fluoride	Nitrate/Nitrite as N	Sulfate as SO ₄	Total Alkalinity	Total Suspended Solids
				(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg CaCO ₃ /L)	(mg/L)
GR/LC SW-3268	SurfaceWater	9/27/2022	13:10	1 U	4 U	0.5 J	2 U	287	10 U	47
GR/LC SW-3268-DUP	SurfaceWater	9/27/2022	13:10	1 U	4 U	0.9 J	2 U	286	10 U	48
			RPD	NA	NA	57.14%	NA	0.35%	NA	2.11%

Notes

Indicates concentration that exceeds the CDPHE standards for Domestic Water Supply and/or Water and Fish

^a

Screening level for Domestic Water Supply obtained from The Basic Standards and Methodologies for Surface Water, CDPHE Regulation No. 31.

^b

Screening level for Water and Fish obtained from The Basic Standards and Methodologies for Surface Water, CDPHE Regulation No. 31.

CDPHE

Colorado Department of Public Health and Environment

J

The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

mg/L

Milligrams per liter

mg CaCO₃/L

Milligrams of calcium carbonate per liter

NA

Not applicable

NE

None established

RPD

Relative percent difference

U

The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).

**TABLE 7 SURFACE WATER SAMPLES JULY 2022 AND SEPTEMBER 2022 - FIELD
WATER QUALITY MEASUREMENTS**

Table 7
Ruby Mining District (Pitkin County, Colorado)
Surface Water Samples July 2022 and September 2022 - Field Water Quality Measurements

Event	Location ID		Sample Date	Sample Time	pH	Temp.	Dissolved Oxygen	Conductivity	Flow ¹	Flow Measurement
						(°C)	(mg/L)	(µS/cm)	(cfs)	Equipment
September	GR/LC RF-DNS-01	Downstream	9/27/2022	08:37	7.6	6	11.3	138	38.7374	FlowTracker2
September	GR/LC RF-SW-UPS-01		9/27/2022	18:25	7.27	7.25	8.57	59.1	3.8372	FlowTracker2
July	GR/LC SW-489	Downstream	7/13/2022	11:19	7.14	10.3	12	46.1	33.139	FlowTracker2
September	GR/LC SW-489		9/27/2022	09:05	6.38	6	9.01	134	26.5098	FlowTracker2
July	GR/LC SW-3262	Downstream	7/13/2022	11:49	7.1	11.6	10.75	79.5	33.03	FlowTracker2
September	GR/LC SW-3262		9/27/2022	09:22	7.09	6.1	11.1	146.1	24.4767	FlowTracker2
July	GR/LC SW-3259	Downstream	7/13/2022	18:12	6.47	10.7	10.61	85.8	29.8	FlowTracker2
September	GR/LC SW-3259		9/27/2022	10:15	5.85	8.4	8.27	143.1	16.377	FlowTracker2
July	GR/LC SW-3258	Downstream	7/13/2022	12:16	6.58	10.1	9.95	89.5	28.169	FlowTracker2
September	GR/LC SW-3258		9/27/2022	11:08	4.9	8.1	10.18	185.4	16.7626	FlowTracker2
July	GR/LC SW-3433	Downstream	7/13/2022	12:17	6.99	11.585	10.8	65.3	N/C ^a	NA
September	GR/LC SW-3433		9/27/2022	11:10	6.25	9.54	8.05	121	N/C ^a	NA
July	GR/LC SW-3387	Downstream	7/13/2022	13:32	7.15	12.9	11.31	65	N/C ^a	NA
September	GR/LC SW-3387		9/27/2022	11:34	6.12	9.3	10.12	135.8	N/C ^a	NA
July	GR/LC SW-3374	Downstream	7/13/2022	14:20	4.96	15.1	8.81	109.8	17.233	FlowTracker2
September	GR/LC SW-3374		9/27/2022	11:45	4.47	6.37	8.54	291.3	6.9667	FlowTracker2
July	GR/LC SW-3267	Downstream	7/13/2022	13:10	4.98	15.68	9.56	113.2	17.6744	FlowTracker2
September	GR/LC SW-3267		9/27/2022	12:17	4.19	6.6	10.52	340.7	7.6549	FlowTracker2
July	GR/LC SW-3268	Downstream	7/13/2022	15:13	4.64	13.4	10.5	147.8	8.217	FlowTracker2
September	GR/LC SW-3268		9/27/2022	13:10	3.5	9.77	7.62	522	4.1793	FlowTracker2
July	GR/LC SW-OPP	Downstream	7/13/2022	17:00	7.67	9.29	10.74	222.7	0.3320	4 inch Baski
September	GR/LC SW-B4-HSE		9/27/2022	13:52	7.51	8.1	10.3	736	0.1691	4 inch Baski
September	GR/LC SW-DNS-RM	Downstream	9/27/2022	16:02	3.12	11	9.27	1,089	1.7697	FlowTracker2
July	GR/LC SW-3371-A		7/13/2022	16:50	2.62	12.32	9.77	5,115	0.0468	1 inch Baski
September	GR/LC SW-3371-A	Downstream	9/27/2022	13:50	2.62	12.97	6.91	6,460	0.0622	4 inch Baski
July	GR/LC SW-3371-B		7/13/2022	15:50	6.37	11.5	9.27	76.9	2.912	FlowTracker2
September	GR/LC SW-3371-B	Downstream	9/27/2022	15:19	6.38	10.9	9.2	154.2	1.5522	FlowTracker2
July	GR/LC SW-3372-A		7/13/2022	15:47	4.22	13.3	9.52	19.88	0.0072	1 inch Baski
September	GR/LC SW-3372-A	Downstream	9/27/2022	14:28	6.98	11.8	9.29	108.3	1.9548	FlowTracker2
September	GR/LC SW-RMA1		9/27/2022	14:55	4.39	12.3	8.89	2,591	0.0173	4 inch Baski
September	GR/LC SW-RMA1-UPS	Downstream	9/27/2022	15:45	6.79	10.6	9.41	106.6	1.0874	FlowTracker2
July	GR/LC SW-487-A		7/13/2022	15:39	7.48	10.496	10.43	42.9	3.0309	FlowTracker2
September	GR/LC SW-487-A	Downstream	9/27/2022	14:20	7.17	10.9	7.43	62.7	0.8994	FlowTracker2

Notes:

¹ Baski flume flow values account for estimated percent of discharge that was not captured when measuring flow

^a Sampling location is a pond or reservoir that was not flowing

°C Degrees Celsius

cfs Cubic feet per second

mg/L Milligrams per liter

NA Not applicable

N/C Not collected

µS/cm Microsiemens per centimeter

APPENDICES

APPENDIX A	SITE FIELD VISITS 2022 – PHOTOGRAPHIC LOG
APPENDIX B	DATA VALIDATION REPORTS

APPENDIX A
SITE FIELD VISITS 2022 – PHOTOGRAPHIC LOG

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 11:16:00 AM		
Photographer:	Megan Caldwell		
Latitude:	39.11703275		
Longitude:	-106.6965607		
Photo Direction:	South-southwest		
Category:	July 2022 Sampling Event		
Photo Description: GR/LC SW-489 sample location			
Photo Name: c51beee9dac640498ef75e3ea6d24f21.jpg			

Date/Time Taken:	7/13/2022 11:17:00 AM		
Photographer:	Megan Caldwell		
Latitude:	39.11703986		
Longitude:	-106.69656601		
Photo Direction:	North		
Category:	July 2022 Sampling Event		
Photo Description: GR/LC SW-489 sample location			
Photo Name: Photos-20220713-171705.jpg			

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken: 7/13/2022 11:17:00 AM			
Photographer: Megan Caldwell			
Latitude: 39.11704418			
Longitude: -106.69654525			
Photo Direction:			
Category: July 2022 Sampling Event			
Photo Description: GR/LC SW-489 YSI water quality measurements			
Photo Name: a05fb7e590cd49f7ba1bed885bb2dc98.jpg			
Date/Time Taken: 7/13/2022 11:23:00 AM			
Photographer: Megan Caldwell			
Latitude: 39.11707125			
Longitude: -106.69659143			
Photo Direction: South-southwest			
Category: July 2022 Sampling Event			
Photo Description: GR/LC SW-489 sample location			
Photo Name: 50644213105b419a8dfed3bf5e6dc2f1.jpg			

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 11:31:00 AM	
Photographer:	Megan Caldwell	
Latitude:	39.1171476	
Longitude:	-106.69660504	
Photo Direction:	West	
Category:	July 2022 Sampling Event	
Photo Description: GR/LC SW-489 flow measurements		
Photo Name: ab7e65c257c740398d678b3c1055f965.jpg		

Date/Time Taken:	7/13/2022 11:40:00 AM	
Photographer:	Megan Caldwell	
Latitude:	39.11714132	
Longitude:	-106.69660849	
Photo Direction:	West	
Category:	July 2022 Sampling Event	
Photo Description: GR/LC SW-489 flow measurements		
Photo Name: 67630bc60cfe44bd9e8b6a3e753e63f3.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 11:48:00 AM		
Photographer:	Megan Caldwell		
Latitude:	39.11714586		
Longitude:	-106.69660754		
Photo Direction:			
Category:	July 2022 Sampling Event		
Photo Description: GR/LC SW-489 sample location flow measurements			
Photo Name: bfab9a4904fd4220af72ea203604fc 37.jpg			

Date/Time Taken:	7/13/2022 11:53:00 AM		
Photographer:	David Reed		
Latitude:	39.1039845		
Longitude:	-106.67970733		
Photo Direction:	South-southwest		
Category:	July 2022 Sampling Event		
Photo Description: GR/LC SW-3262 sample location			
Photo Name: Photos-20220713-175324.jpg			

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 12:32:00 PM
Photographer:	Madison Ericson
Latitude:	39.07921833
Longitude:	-106.61714267
Photo Direction:	North-northeast
Category:	July 2022 Sampling Event
Photo Description: GR/LC SW-3433 sample location	
Photo Name: Photos-20220713-183253.jpg	



Date/Time Taken:	7/13/2022 12:34:00 PM
Photographer:	Madison Ericson
Latitude:	39.07909823
Longitude:	-106.6171599
Photo Direction:	
Category:	July 2022 Sampling Event
Photo Description: GR/LC SW-3433 sample location	
Photo Name: Photos-20220713-183421.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 12:50:00 PM
Photographer:	Sarah Komma
Latitude:	39.08159133
Longitude:	-106.61795483
Photo Direction:	East-northeast
Category:	July 2022 Sampling Event
Photo Description: Measuring flow	
Photo Name: Photos-20220713-185023.jpg	



Date/Time Taken:	7/13/2022 1:14:00 PM
Photographer:	Madison Ericson
Latitude:	39.06091325
Longitude:	-106.61682658
Photo Direction:	
Category:	July 2022 Sampling Event
Photo Description: Sample collection at GR/LC SW-3267	
Photo Name: f5409f7d38614248828681631b2c6292.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 1:15:00 PM
Photographer:	Madison Ericson
Latitude:	39.06091652
Longitude:	-106.61682412
Photo Direction:	
Category:	July 2022 Sampling Event
Photo Description:	Sample collection at GR/LC SW-3267
Photo Name:	d61402d74ea84f439bedb7b788d86969.jpg



Date/Time Taken:	7/13/2022 1:26:00 PM
Photographer:	Madison Ericson
Latitude:	39.06105747
Longitude:	-106.6169842
Photo Direction:	
Category:	July 2022 Sampling Event
Photo Description:	Flow tracker at GR/LC SW-3267
Photo Name:	bc5e021258e74ca5ae5bf09a653a6ce8.jpg



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 1:50:00 PM	
Photographer:	Megan Caldwell	
Latitude:	39.07871447	
Longitude:	-106.61401418	
Photo Direction:		
Category:	July 2022 Sampling Event	
Photo Description: GR/LC SW-3387 sample location		
Photo Name: Photos-20220713-195026.jpg		

Date/Time Taken:	7/13/2022 1:56:00 PM
Photographer:	Sarah Komma
Latitude:	39.07379733
Longitude:	-106.61438867
Photo Direction:	Southeast
Category:	July 2022 Sampling Event
Photo Description: Split in channel at inlet to Grizzly Reservoir	
Photo Name: Photos-20220713-195609.jpg	

A landscape photograph showing a river channel with a prominent, wide, light-brown sandy and rocky bar in the middle ground. The river water is a milky, light greenish-grey color. In the background, a steep hillside is covered in a dense forest of tall evergreen trees. The foreground consists of a grassy bank with some low-lying green shrubs. The sky is overcast and grey.

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 2:03:00 PM
Photographer:	Sarah Komma
Latitude:	39.07379733
Longitude:	-106.61438867
Photo Direction:	Southwest
Category:	July 2022 Sampling Event
Photo Description: GR/LC SW-Opp sample location upstream from split in channel	
Photo Name: Photos-20220713- 200338.jpg	



Date/Time Taken:	7/13/2022 2:25:00 PM
Photographer:	Sarah Komma
Latitude:	39.07379733
Longitude:	-106.61438867
Photo Direction:	West-southwest
Category:	July 2022 Sampling Event
Photo Description: GR/LC SW-Opp sample location flow measurements	
Photo Name: Photos-20220713- 202537.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 3:11:00 PM		
Photographer:	Megan Caldwell		
Latitude:	39.03029078		
Longitude:	-106.61608126		
Photo Direction:			
Category:	July 2022 Sampling Event		
Photo Description: GR/LC SW-3268 sample location			
Photo Name: Photos-20220713-211149.jpg			

Date/Time Taken:	7/13/2022 3:12:00 PM		
Photographer:	Megan Caldwell		
Latitude:	39.03028442		
Longitude:	-106.61607898		
Photo Direction:	South		
Category:	July 2022 Sampling Event		
Photo Description: GR/LC-3268 sample location			
Photo Name: Photos-20220713-211200.jpg			

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 3:15:00 PM		
Photographer:	Megan Caldwell		
Latitude:	39.03017069		
Longitude:	-106.61607798		
Photo Direction:			
Category:	July 2022 Sampling Event		
Photo Description: GR/LC SW-3268 sample location			
Photo Name: Photos-20220713-211516.jpg			

Date/Time Taken:	7/13/2022 3:27:00 PM	
Photographer:	Megan Caldwell	
Latitude:	39.03028963	
Longitude:	-106.61610917	
Photo Direction:		
Category:	July 2022 Sampling Event	
Photo Description: GR/LC SW-3268 flowtracker measurements		
Photo Name: Photos-20220713-212713.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 3:28:00 PM	
Photographer:	Megan Caldwell	
Latitude:	39.03033672	
Longitude:	-106.61617728	
Photo Direction:		
Category:	July 2022 Sampling Event	
Photo Description: GR/LC SW-3268 sample location with dead worms observed		
Photo Name: Photos-20220713-212802.jpg		

Date/Time Taken:	7/13/2022 3:47:00 PM	
Photographer:	David Reed	
Latitude:	39.01927967	
Longitude:	-106.609154	
Photo Direction:	West-southwest	
Category:	July 2022 Sampling Event	
Photo Description: GR/LC SW-3372-A sample location		
Photo Name: Photos-20220713-214659.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 3:53:00 PM
Photographer:	Sarah Komma
Latitude:	39.01989083
Longitude:	-106.60945983
Photo Direction:	West-southwest
Category:	July 2022 Sampling Event
Photo Description: Sampling	
Photo Name: Photos-20220713-215303.jpg	



Date/Time Taken:	7/13/2022 4:06:00 PM
Photographer:	Madison Ericson
Latitude:	39.01479487
Longitude:	-106.60751868
Photo Direction:	
Category:	July 2022 Sampling Event
Photo Description: GR/LC SW-487-A flow measurements	
Photo Name: Photos-20220713-220634.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 4:07:00 PM
Photographer:	Madison Ericson
Latitude:	39.01480627
Longitude:	-106.60752253
Photo Direction:	
Category:	July 2022 Sampling Event
Photo Description: GR/LC SW-487-A sample location	
Photo Name: Photos-20220713-220705.jpg	



Date/Time Taken:	7/13/2022 4:07:00 PM
Photographer:	Madison Ericson
Latitude:	39.01480802
Longitude:	-106.60754458
Photo Direction:	North
Category:	July 2022 Sampling Event
Photo Description: GR/LC SW-487-A	
Photo Name: Photos-20220713-220758.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 4:25:00 PM
Photographer:	Sarah Komma
Latitude:	39.01929967
Longitude:	-106.60906283
Photo Direction:	South-southeast
Category:	July 2022 Sampling Event
Photo Description: GR/LC SO-WRP01-01 sample location	
Photo Name: Photos-20220713-222459.jpg	



Date/Time Taken:	7/13/2022 4:28:00 PM
Photographer:	Sarah Komma
Latitude:	39.0192755
Longitude:	-106.60915817
Photo Direction:	South-southwest
Category:	July 2022 Sampling Event
Photo Description: GR/LC SO-WRP01-02 sample location	
Photo Name: Photos-20220713-222818.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 4:39:00 PM
Photographer:	Sarah Komma
Latitude:	39.01927733
Longitude:	-106.60915417
Photo Direction:	East
Category:	July 2022 Sampling Event
Photo Description: GR/LC SO-WRP01-03 sample location	
Photo Name: Photos-20220713-223959.jpg	



Date/Time Taken:	7/13/2022 4:56:00 PM
Photographer:	Sarah Komma
Latitude:	39.02033
Longitude:	-106.60899583
Photo Direction:	Southwest
Category:	July 2022 Sampling Event
Photo Description: Mineralized tributary crossing Lincoln Creek Road	
Photo Name: Photos-20220713-225649.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	7/13/2022 6:32:00 PM		
Photographer:	David Reed		
Latitude:	39.09333333		
Longitude:	-106.64951467		
Photo Direction:	West		
Category:	July 2022 Sampling Event		
Photo Description: GR/LC SW-3259 sample location			
Photo Name: Photos-20220714-003259.jpg			

Date/Time Taken:	9/27/2022 8:39:00 AM	
Photographer:	Chandler Broome	
Latitude:		
Longitude:		
Photo Direction:	South-southeast	
Category:	September 2022 Sampling Event	
Photo Description: GR/LC SW-RF-DNS-01 sample location on the Roaring Fork River downstream from Lincoln Creek confluence		
Photo Name: Photos-20220927-143901.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 9:05:00 AM
Photographer:	Sarah Komma
Latitude:	39.1166145
Longitude:	-106.69598717
Photo Direction:	East-southeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-489 sample location on Lincoln Creek adjacent to campsite and above confluence with the Roaring Fork River. Location was moved upstream of campsite due to area being closed	
Photo Name: Photos-20220927-150502.jpg	



Date/Time Taken:	9/27/2022 9:13:00 AM
Photographer:	Sarah Komma
Latitude:	39.1166145
Longitude:	-106.69598717
Photo Direction:	West-northwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-489 sample location facing downstream	
Photo Name: Photos-20220927-151325.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 9:22:00 AM
Photographer:	Madison Ericson
Latitude:	39.11852613
Longitude:	-106.70357647
Photo Direction:	
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-RF-DNS 01 sample location in the Roaring Fork River	
Photo Name: 2898aa8115e74fb99dbc0b84dc94b3b0.jpg	



Date/Time Taken:	9/27/2022 9:23:00 AM
Photographer:	Madison Ericson
Latitude:	39.11857123
Longitude:	-106.70357884
Photo Direction:	
Category:	September 2022 Sampling Event
Photo Description: RFC and DRMS collecting flow measurements at GR/LC SW-RF-DNS-01 sample location	
Photo Name: 75e5c94b8ec5426281b93e7dfe5a9fdd.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 9:23:00 AM	
Photographer:	Chandler Broome	
Latitude:		
Longitude:		
Photo Direction:	South-southeast	
Category:	September 2022 Sampling Event	
Photo Description: Colorado Parks and Wildlife collecting surface water samples at GR/LC SW-3262 sample location		
Photo Name: Photos-20220927- 152341.jpg		

Date/Time Taken:	9/27/2022 9:28:00 AM			
Photographer:	Chandler Broome			
Latitude:				
Longitude:				
Photo Direction:	Southeast			
Category:	September 2022 Sampling Event			
Photo Description: GR/LC SW-3262 sample location on Lincoln Creek below confluence with New York Creek				
Photo Name: Photos-20220927- 152802.jpg				

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 10:09:00 AM
Photographer:	Sarah Komma
Latitude:	39.09323383
Longitude:	-106.64945717
Photo Direction:	East-southeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3259 sample location on Lincoln Creek below Tabor Creek and New York Creek	
Photo Name: Photos-20220927- 160953.jpg	



Date/Time Taken:	9/27/2022 10:10:00 AM
Photographer:	Sarah Komma
Latitude:	39.09323383
Longitude:	-106.64945717
Photo Direction:	Northeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3259 sample location facing upstream	
Photo Name: Photos-20220927- 161031.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 10:15:00 AM
Photographer:	Sarah Komma
Latitude:	39.09323383
Longitude:	-106.64945717
Photo Direction:	South
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3259 sample location facing downstream	
Photo Name: Photos-20220927- 161110.jpg	



Date/Time Taken:	9/27/2022 11:05:00 AM
Photographer:	Sarah Komma
Latitude:	39.0785515
Longitude:	-106.61655983
Photo Direction:	Northwest
Category:	September 2022 Sampling Event
Photo Description: Struggling fish near GR/LC SW- 3433 sample location	
Photo Name: Photos-20220927- 170517.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 11:06:00 AM
Photographer:	Sarah Komma
Latitude:	39.0785515
Longitude:	-106.61655983
Photo Direction:	North
Category:	September 2022 Sampling Event
Photo Description: Grizzly Reservoir diversion dam	
Photo Name: Photos-20220927-170623.jpg	



Date/Time Taken:	9/27/2022 11:07:00 AM
Photographer:	Sarah Komma
Latitude:	39.0785515
Longitude:	-106.61655983
Photo Direction:	Northwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3433 sample location	
Photo Name: Photos-20220927-170707.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 11:08:00 AM	
Photographer:	Chandler Broome	
Latitude:	39.0815545	
Longitude:	-106.61783217	
Photo Direction:	Southwest	
Category:	September 2022 Sampling Event	
Photo Description: GR/LC SW-3258 sample location on Lincoln Creek below Grizzly Reservoir		
Photo Name: Photos-20220927- 170837.jpg		

Date/Time Taken:	9/27/2022 11:10:00 AM	
Photographer:	Sarah Komma	
Latitude:	39.0785515	
Longitude:	-106.61655983	
Photo Direction:	West-northwest	
Category:	September 2022 Sampling Event	
Photo Description: Dam at Grizzly Reservoir		
Photo Name: Photos-20220927- 170805.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 11:20:00 AM		
Photographer:	Sarah Komma		
Latitude:	39.0785515		
Longitude:	-106.61655983		
Photo Direction:	North-northwest		
Category:	September 2022 Sampling Event		
Photo Description: Dead vole on bank of Grizzly Reservoir			
Photo Name: Photos-20220927-172007.jpg			

Date/Time Taken:	9/27/2022 11:25:00 AM		
Photographer:	Sarah Komma		
Latitude:	39.0785515		
Longitude:	-106.61655983		
Photo Direction:	Northwest		
Category:	September 2022 Sampling Event		
Photo Description: Cloudy water and precipitate on rocks observed on Lincoln Creek downstream of Grizzly Reservoir Dam			
Photo Name: Photos-20220927-172541.jpg			

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 11:34:00 AM	
Photographer:	Chandler Broome	
Latitude:	39.07869967	
Longitude:	-106.6140505	
Photo Direction:	West-southwest	
Category:	September 2022 Sampling Event	
Photo Description: GR/LC SW-3387 sample location on the eastern shore of Grizzly Reservoir above diversion		
Photo Name: Photos-20220927-173510.jpg		

Date/Time Taken:	9/27/2022 11:50:00 AM	
Photographer:	Sarah Komma	
Latitude:	39.07377267	
Longitude:	-106.6144305	
Photo Direction:	South-southwest	
Category:	September 2022 Sampling Event	
Photo Description: GR/LC SW-3374 sample location on Lincoln Creek at Grizzly Reservoir inlet		
Photo Name: Photos-20220927-175026.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 11:50:00 AM
Photographer:	Sarah Komma
Latitude:	39.07377267
Longitude:	-106.6144305
Photo Direction:	West-northwest
Category:	September 2022 Sampling Event
Photo Description: EPA collecting flow measurements at GR/LC SW-3374 sample location; facing downstream	
Photo Name: Photos-20220927- 175050.jpg	



Date/Time Taken:	9/27/2022 11:51:00 AM
Photographer:	Sarah Komma
Latitude:	39.07377267
Longitude:	-106.6144305
Photo Direction:	Southeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3374 sample location; facing upstream	
Photo Name: Photos-20220927- 175133.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 12:17:00 PM
Photographer:	Chandler Broome
Latitude:	39.06092617
Longitude:	-106.616825
Photo Direction:	Southwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3267 sample location on Lincoln Creek below confluence with Truro Creek	
Photo Name: Photos-20220927- 181821.jpg	



Date/Time Taken:	9/27/2022 1:04:00 PM
Photographer:	Sarah Komma
Latitude:	39.03078817
Longitude:	-106.61539583
Photo Direction:	Northwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3268 sample location	
Photo Name: Photos-20220927- 190401.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 1:04:00 PM
Photographer:	Sarah Komma
Latitude:	39.03078817
Longitude:	-106.61539583
Photo Direction:	North-northeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3268 sample location; facing upstream	
Photo Name: Photos-20220927- 190436.jpg	



Date/Time Taken:	9/27/2022 1:05:00 PM
Photographer:	Sarah Komma
Latitude:	39.03078817
Longitude:	-106.61539583
Photo Direction:	West
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3268 sample location; facing downstream	
Photo Name: Photos-20220927- 190516.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 1:06:00 PM
Photographer:	Sarah Komma
Latitude:	39.03078817
Longitude:	-106.61539583
Photo Direction:	East-northeast
Category:	September 2022 Sampling Event
Photo Description: White precipitate	
Photo Name: Photos-20220927-190641.jpg	



Date/Time Taken:	9/27/2022 1:17:00 PM
Photographer:	Sarah Komma
Latitude:	39.03078817
Longitude:	-106.61539583
Photo Direction:	North
Category:	September 2022 Sampling Event
Photo Description: White rocks	
Photo Name: Photos-20220927-191754.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 1:48:00 PM
Photographer:	Sarah Komma
Latitude:	39.0203225
Longitude:	-106.60896933
Photo Direction:	West-southwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3371-A sample location; unknown drainage located on the road downgradient of Ruby Mine adit runoff and above GR/LC SW- B4-HSE sample location.	
Photo Name: Photos-20220927- 194843.jpg	



Date/Time Taken:	9/27/2022 1:49:00 PM
Photographer:	Sarah Komma
Latitude:	39.0203225
Longitude:	-106.60896933
Photo Direction:	North-northwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3371-A water quality measurements; facing upstream	
Photo Name: Photos-20220927- 194920.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 1:49:00 PM
Photographer:	Sarah Komma
Latitude:	39.0203225
Longitude:	-106.60896933
Photo Direction:	South-southwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3371-A sample location; facing downstream towards Lincoln Creek	
Photo Name: Photos-20220927- 194951.jpg	



Date/Time Taken:	9/27/2022 1:52:00 PM
Photographer:	Chandler Broome
Latitude:	39.0216385
Longitude:	-106.60931433
Photo Direction:	East-southeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-B4-HSE sample location; potential natural drainage on the road north of GR/LC SW- 3371-A.	
Photo Name: Photos-20220927- 195302.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 1:56:00 PM
Photographer:	Madison Ericson
Latitude:	39.02037797
Longitude:	-106.60902087
Photo Direction:	
Category:	September 2022 Sampling Event
Photo Description:	GR/LC SW-3371-A flow measurements
Photo Name:	1ec2c75241ac47aa93d4286f0af68 9dc.jpg



Date/Time Taken:	9/27/2022 1:56:00 PM
Photographer:	Madison Ericson
Latitude:	39.02037899
Longitude:	-106.60904914
Photo Direction:	
Category:	September 2022 Sampling Event
Photo Description:	Foam observed on mineralized tributary
Photo Name:	85b3f585acd4451ea4cab748f23e6 b1f.jpg



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 2:23:00 PM
Photographer:	Sarah Komma
Latitude:	39.01487983
Longitude:	-106.607534
Photo Direction:	South-southeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-487-A sample location on Lincoln Creek above Ruby Mine (background location)	
Photo Name: Photos-20220927- 202340.jpg	



Date/Time Taken:	9/27/2022 2:24:00 PM
Photographer:	Sarah Komma
Latitude:	39.01487983
Longitude:	-106.607534
Photo Direction:	West-southwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-487-A sample location on Lincoln Creek above Ruby Mine (background location); facing downstream	
Photo Name: Photos-20220927- 202427.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 2:25:00 PM
Photographer:	Sarah Komma
Latitude:	39.01487983
Longitude:	-106.607534
Photo Direction:	East
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-487-A sample location on Lincoln Creek above Ruby Mine (background location); facing upstream	
Photo Name: Photos-20220927-202503.jpg	

A photograph of a stream flowing through a valley. The stream is in the foreground, flowing from the right towards the center. The banks are covered with dense, yellowish-brown shrubs and grasses. In the background, there are mountains with patches of green and yellow vegetation. The sky is overcast.

Date/Time Taken:	9/27/2022 2:28:00 PM	
Photographer:	Chandler Broome	
Latitude:	39.01928467	
Longitude:	-106.60930133	
Photo Direction:	South-southwest	
Category:	September 2022 Sampling Event	
Photo Description: GR/LC SW-3372-A sample location on Lincoln Creek at the Ruby Mine adit runoff confluence; facing upstream		
Photo Name: Photos-20220927-202904.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 2:55:00 PM		
Photographer:	Chandler Broome		
Latitude:	39.01921867		
Longitude:	-106.60857983		
Photo Direction:	South		
Category:	September 2022 Sampling Event		
Photo Description: GR/LC SW-RMA1 sample location; Ruby Mine adit runoff			
Photo Name: Photos-20220927- 205535.jpg			

Date/Time Taken:	9/27/2022 3:05:00 PM
Photographer:	Madison Ericson
Latitude:	39.01925905
Longitude:	-106.6086179
Photo Direction:	East-northeast
Category:	September 2022 Sampling Event
Photo Description: Runoff from Ruby Mine adit	
Photo Name: f09c203f199145e4b5bea4548b68fca9.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 3:06:00 PM
Photographer:	Madison Ericson
Latitude:	39.01918724
Longitude:	-106.60852887
Photo Direction:	East-northeast
Category:	September 2022 Sampling Event
Photo Description: Run off pathway from Ruby Mine adit	
Photo Name: fa995f3de73d4083b34528e084d03 ab9.jpg	



Date/Time Taken:	9/27/2022 3:19:00 PM
Photographer:	Broome, Chandler
Latitude:	39.01987917
Longitude:	-106.60945233
Photo Direction:	Southwest
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-3371-B sample location on Lincoln Creek above GR/LC SW-3371-A confluence and below GR/LC SW-3372-A confluence	
Photo Name: Photos-20220927- 212046.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 3:45:00 PM		
Photographer:	Chandler Broome		
Latitude:	39.0187645		
Longitude:	-106.60924183		
Photo Direction:	West-southwest		
Category:	September 2022 Sampling Event		
Photo Description: GR/LC SW-RMA1-UPS sample location on Lincoln Creek above Ruby Mine adit confluence and below background sample GR/LC SW-487-A); white staining on rocks is present.			
Photo Name: Photos-20220927-214708.jpg			

Date/Time Taken:	9/27/2022 4:02:00 PM	
Photographer:	Chandler Broome	
Latitude:	39.0206055	
Longitude:	-106.609682	
Photo Direction:	West	
Category:	September 2022 Sampling Event	
Photo Description: GR/LC SW-DNS-RM sample location on Lincoln Creek below GR/LC SW-3371-A confluence and above GR/LC SW-B4-HSE confluence.		
Photo Name: Photos-20220927-220343.jpg		

Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 4:53:00 PM
Photographer:	Madison Ericson
Latitude:	39.02057209
Longitude:	-106.60975121
Photo Direction:	North
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-B4-HSE sample location flow measurements	
Photo Name: 239841acf21d4acf21d4acf21d4acf21d4af8e0c.jpg	



Date/Time Taken:	9/27/2022 4:54:00 PM
Photographer:	Madison Ericson
Latitude:	39.0206245
Longitude:	-106.60972628
Photo Direction:	South
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-B4-HSE sample location; facing upstream	
Photo Name: 445f0840c8464ba796e4fccaf615944c.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 4:54:00 PM
Photographer:	Madison Ericson
Latitude:	39.0206171
Longitude:	-106.6097035
Photo Direction:	
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-B4-HSE sample location; water clarity	
Photo Name: 3cb4acf2ea5345c8b063d011da158 241.jpg	



Date/Time Taken:	9/27/2022 6:45:00 PM
Photographer:	Robyn Blackburn
Latitude:	
Longitude:	
Photo Direction:	East-southeast
Category:	September 2022 Sampling Event
Photo Description: GR/LC SW-RF-UPS-01 sample location on the Roaring Fork River; facing upstream	
Photo Name: Photos-20220928- 004555.jpg	



Project Name:

Ruby Mining District Combined
Assessment Report

Site Location:

Pitkin County, Colorado

Project No.

2083-2203-09

Date/Time Taken:	9/27/2022 6:47:00 PM	
Photographer:	Robyn Blackburn	
Latitude:		
Longitude:		
Photo Direction:	West	
Category:	September 2022 Sampling Event	
Photo Description: EPA and START collecting flow measurements at GR/LC SW-RF-UPS-01 on the Roaring Fork River; facing downstream		
Photo Name: Photos-20220928-004706.jpg		

APPENDIX B
DATA VALIDATION REPORTS



January 20, 2023

Ms. Jean Wyatt & Ms. Joni Sandoval
On-Scene Coordinators
U.S. Environmental Protection Agency, Region 8
Superfund and Emergency Management Division
1595 Wynkoop Street
Denver, CO 80202

Subject: Data Validation Report
Ruby Mine Combined Assessment Report
EPA Contract No.: 68HE0820D0001
Task Order/Technical Direction No.: 68HE0820F0083 / 2083-2203-09
Document Tracking No. 0719a

Dear Ms Wyatt and Ms Sandoval:

Tetra Tech, Inc. (Tetra Tech) is submitting these data validation reports for five soil (including one duplicate sample) and 30 water samples (including two field duplicate samples, one field blank, and one rinsate blank) collected at the Ruby Mine Combined Assessment Report site. The samples were collected between April 4 and July 13, 2022. All water samples were analyzed by TechLaw/R8 ESAT for total and dissolved metals and hardness, and a subset were also analyzed by that laboratory for anions, total suspended solids, and alkalinity. The soil samples were analyzed for total metals, also by TechLaw/R8 ESAT. One soil sample also was analyzed for Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP) for metals by ChemTech Consulting CLP. The final laboratory data package was received on December 30, 2022.

Analytical data were evaluated in general accordance with the Tetra Tech Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4 (May 2021) and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

No rejection of results was required for these data packages. The results may be used as qualified based on the findings of this validation effort.

If you have any questions regarding this data validation report, please call me at (303)-312-8828

Sincerely,

A handwritten signature in black ink, appearing to read 'Maura McAleese', followed by a vertical line.

Maura McAleese
Environmental Chemist

Enclosure

cc: Didi Fung, Tetra Tech Program Manager
Megan Caldwell, Tetra Tech Project Manager
Clayton Longest, Tetra Tech Project Document Control Coordinator
TO/TD File

Tetra Tech, Inc.
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ATTACHMENT 1

**DATA VALIDATION REPORT
TECHLAW/R8 ESAT REPORT NO. C220711**

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Site Name	Ruby Mine Combined Assessment		TO/TD No.	68HE0820F0083/2083-2203-09
Document Tracking No.	0719a-a		Technical Reviewer (signature and date)	<i>Kelly D. Thomas</i> 1/12/2023
Data Reviewer (signature and date)	<i>Maureen Hughes</i>	12/19/2022	Laboratory	TechLaw Inc., Environmental Services Assistance Team (ESAT) – Denver, CO
Laboratory Report No.	C220711			
Analyses	Dissolved and total metals including mercury by EPA Methods 200.7, 200.8 and 245.1; hardness by Standard Method (SM) 2340B; anions by EPA Method 300.0; total alkalinity by EPA Method 310.1, and total suspended solids (TSS) by EPA Method 160.2			
Samples and Matrix	18 water samples including two field duplicates, one field blank, one rinsate, and one opportunistic sample			
Collection Date(s)	July 13, 2022			
Field Duplicate Pairs	GR/LC_SW-3374_20220713/GR/LC_SW-3374-DUP_20220713; and GR/LC_SW-3267_20220713/ GR/LC_SW-3267-DUP_20220713			
Field QC Blanks	GR/LC-SW-FB_20220713 and GR/LC-SO-RINSATE_202207133			

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4* (May 2021) and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Data completeness:

Within Criteria	Exceedance/Notes
N	The first page of the chain-of-custody (COC) form was not included in the laboratory report. The additional COC page was provided by the laboratory and reviewed as a part of this data validation. No qualifications were applied. The laboratory report and electronic data deliverable (EDD) did not include the complete sample IDs. Instead, samples were identified by a “Lab Number” and a “Station ID.” The sample IDs were added to the validated EDD and attachment.

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

Method blanks:

Within Criteria	Exceedance/Notes
N	Arsenic was detected in the method blank associated with the total metals analysis (Batch 2208117) at a concentration above the method detection limit (MDL) but below the reporting limit (RL). The arsenic concentration was greater than 10 times the blank concentration or was non-detect in samples GR/LC_SW-3371-A_20220713, GR/LC_SW-3262_20220713, GR/LC_SW-3268_20220713, and GR/LC_SW-3372-A_20220713; therefore, no qualifications were applied. The arsenic results were raised to the reporting limit qualified as non-detect (flagged U) for all remaining samples.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Field blanks:

Within Criteria	Exceedance/Notes
N	Dissolved metals: Silver was detected in the rinsate blank at a concentration above the MDL but below the RL. Silver was not detected in any of the samples; therefore, no qualifications were applied. Total metals: Arsenic was detected in the rinsate blank and field blank GR/LC-SW-FB_20220713 above the MDL but below the RL. Arsenic was also detected in the method blank, and the associated samples results were raised to the reporting limit and qualified as non-detect (flagged U). No additional qualifiers were applied.

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
Y	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
Y	

Field duplicates:

Within Criteria	Exceedance/Notes
Y	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	The samples were analyzed at the following dilution factors: Dissolved metals: 5-fold for all Method 200.8 metals: GR/LC_SW-3267_20220713, GR/LC_SW-3267-DUP_20220713, GR/LC_SW-3374_20220713, and GR/LC_SW-3374-DUP_20220713 10-fold for all Method 200.8 metals: GR/LC_SW-3268_20220713 5-fold for all Method 200.7 metals, 50-fold for all 200.8 metals, and five-fold for hardness: GR/LC_SW-3371-A_20220713 20-fold for all Method 200.8 metals: GR/LC_SW-3272-A_20220713 Total metals: 5-fold for all Method 200.8 metals: GR/LC-SO-RINSATE_20220713, GR/LC_SW-3258_20220713, GR/LC_SW-3259_20220713, GR/LC_SW-3262_20220713, GR/LC_SW-3267_20220713, GR/LC_SW-3267-DUP_20220713, GR/LC_SW-3271-B_20220713, GR/LC_SW-3374_20220713, GR/LC_SW-3374-DUP_20220713, GR/LC_SW-3387_20220713, GR/LC_SW-3433_20220713, GR/LC_SW-487-A_20220713, GR/LC_SW-489_20220713, GR/LC-SW-FB_20220713, and GR/LC-SW-Opp_20220713 10-fold for all Method 200.8 metals: GR/LC_SW-3288_20220713 10-fold for all 200.7 metals and 100-fold for all 200.8 metals: GR/LC_SW-3271-A_20220713 10-fold for all 200.7 metals and 20-fold for all 200.8 metals: GR/LC_SW-3272-A_20220713 Anions: 20-fold for all anions: GR/LC_SW-3271-A_20220713 10-fold for all anions: GR/LC_SW-3272-A_20220713

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results greater than the MDL but less than the RL were qualified as estimated by the laboratory (flagged J). Non-detect results were reported as <MDL in the report and EDD. The non-detect results are reported at the RL and flagged U in the attached validated data table. MDLs and RLs are provided in the attached analytical data table.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SO-RINSATE_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC-SO-RINSATE_20220713	Total Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC-SO-RINSATE_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC-SO-RINSATE_20220713	Total Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC-SO-RINSATE_20220713	Total Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC-SO-RINSATE_20220713	Total Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U
GR/LC-SO-RINSATE_20220713	Total Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC-SO-RINSATE_20220713	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC-SO-RINSATE_20220713	Total Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC-SO-RINSATE_20220713	Total Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC-SO-RINSATE_20220713	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC-SO-RINSATE_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SO-RINSATE_20220713	Total Arsenic	7440-38-2	3.77	JD	3.00	10.0	ug/L	10.0	U
GR/LC-SO-RINSATE_20220713	Total Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC-SO-RINSATE_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SO-RINSATE_20220713	Total Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Total Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SO-RINSATE_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC-SO-RINSATE_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SO-RINSATE_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC-SO-RINSATE_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SO-RINSATE_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SO-RINSATE_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC-SO-RINSATE_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC-SO-RINSATE_20220713	Hardness	NA	<2	U	2	2	mg/L	2	U
GR/LC-SO-RINSATE_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC-SO-RINSATE_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC-SO-RINSATE_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC-SO-RINSATE_20220713	Dissolved Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SO-RINSATE_20220713	Dissolved Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC-SO-RINSATE_20220713	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC-SO-RINSATE_20220713	Dissolved Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC-SO-RINSATE_20220713	Dissolved Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC-SO-RINSATE_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC-SO-RINSATE_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Barium	7440-39-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SO-RINSATE_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SO-RINSATE_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Cobalt	7440-48-4	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SO-RINSATE_20220713	Dissolved Copper	7440-50-8	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SO-RINSATE_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Nickel	7440-02-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Silver	7440-22-4	0.692	J	0.500	1.00	ug/L	0.692	J
GR/LC-SO-RINSATE_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC-SO-RINSATE_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SO-RINSATE_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC-SO-RINSATE_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC-SO-RINSATE_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC-SO-RINSATE_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC-SO-RINSATE_20220713	Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC-SO-RINSATE_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC-SO-RINSATE_20220713	Sulfate as SO4	148-08-798	<2.5	U	2.5	5.0	mg/L	5.0	U
GR/LC-SO-RINSATE_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3258_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3258_20220713	Total Aluminum	7429-90-5	951		50.0	100	ug/L	951	
GR/LC_SW-3258_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220713	Total Calcium	7440-70-2	10300		175	350	ug/L	10300	
GR/LC_SW-3258_20220713	Total Iron	7439-89-6	944		100	250	ug/L	944	
GR/LC_SW-3258_20220713	Total Magnesium	7439-95-4	1840		250	500	ug/L	1840	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3258_20220713	Total Manganese	7439-96-5	25.3		7.50	15.0	ug/L	25.3	
GR/LC_SW-3258_20220713	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW-3258_20220713	Total Silica (SiO2)	763-18-69	4790		250	1000	ug/L	4790	
GR/LC_SW-3258_20220713	Total Sodium	7440-23-5	1260		250	1000	ug/L	1260	
GR/LC_SW-3258_20220713	Total Zinc	7440-66-6	15.6	J	15.0	30.0	ug/L	15.6	J
GR/LC_SW-3258_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220713	Total Arsenic	7440-38-2	3.13	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3258_20220713	Total Barium	7440-39-3	29.2	JD	25.0	50.0	ug/L	29.2	J
GR/LC_SW-3258_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3258_20220713	Total Cobalt	7440-48-4	1.59	D	0.500	1.00	ug/L	1.59	
GR/LC_SW-3258_20220713	Total Copper	7440-50-8	69.5	D	2.50	5.00	ug/L	69.5	
GR/LC_SW-3258_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3258_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3258_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3258_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3258_20220713	Hardness	NA	32		2	2	mg/L	32	
GR/LC_SW-3258_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3258_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220713	Dissolved Calcium	7440-70-2	10100		175	350	ug/L	10100	
GR/LC_SW-3258_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3258_20220713	Dissolved Magnesium	7439-95-4	1750		250	500	ug/L	1750	
GR/LC_SW-3258_20220713	Dissolved Manganese	7439-96-5	26.0		7.50	15.0	ug/L	26.0	
GR/LC_SW-3258_20220713	Dissolved Potassium	7440-09-7	305	J	250	1000	ug/L	305	J
GR/LC_SW-3258_20220713	Dissolved Silica (SiO2)	763-18-69	4800		250	1000	ug/L	4800	
GR/LC_SW-3258_20220713	Dissolved Sodium	7440-23-5	1270		250	1000	ug/L	1270	
GR/LC_SW-3258_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3258_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3258_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3258_20220713	Dissolved Barium	7440-39-3	28.7		5.00	10.0	ug/L	28.7	
GR/LC_SW-3258_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3258_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3258_20220713	Dissolved Cobalt	7440-48-4	1.54		0.100	0.200	ug/L	1.54	
GR/LC_SW-3258_20220713	Dissolved Copper	7440-50-8	18.3		0.500	1.00	ug/L	18.3	
GR/LC_SW-3258_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3258_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220713	Dissolved Nickel	7440-02-0	1.91		0.500	1.00	ug/L	1.91	
GR/LC_SW-3258_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3258_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3258_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3258_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3258_20220713	Total Alkalinity	NA	11.1		5.00	10.0	mg CaCO3 / L	11.1	
GR/LC_SW-3258_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3258_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3258_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J
GR/LC_SW-3258_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3258_20220713	Sulfate as SO4	148-08-798	27.4		2.5	5.0	mg/L	27.4	
GR/LC_SW-3258_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3259_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3259_20220713	Total Aluminum	7429-90-5	570		50.0	100	ug/L	570	
GR/LC_SW-3259_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220713	Total Calcium	7440-70-2	9740		175	350	ug/L	9740	
GR/LC_SW-3259_20220713	Total Iron	7439-89-6	510		100	250	ug/L	510	
GR/LC_SW-3259_20220713	Total Magnesium	7439-95-4	1720		250	500	ug/L	1720	
GR/LC_SW-3259_20220713	Total Manganese	7439-96-5	16.8		7.50	15.0	ug/L	16.8	
GR/LC_SW-3259_20220713	Total Potassium	7440-09-7	267	J	250	1000	ug/L	267	J
GR/LC_SW-3259_20220713	Total Silica (SiO2)	763-18-69	4830		250	1000	ug/L	4830	
GR/LC_SW-3259_20220713	Total Sodium	7440-23-5	1300		250	1000	ug/L	1300	
GR/LC_SW-3259_20220713	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3259_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3259_20220713	Total Arsenic	7440-38-2	3.45	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3259_20220713	Total Barium	7440-39-3	27.2	JD	25.0	50.0	ug/L	27.2	J
GR/LC_SW-3259_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3259_20220713	Total Cobalt	7440-48-4	1.02	D	0.500	1.00	ug/L	1.02	
GR/LC_SW-3259_20220713	Total Copper	7440-50-8	37.3	D	2.50	5.00	ug/L	37.3	
GR/LC_SW-3259_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3259_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3259_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3259_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3259_20220713	Hardness	NA	31		2	2	mg/L	31	
GR/LC_SW-3259_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3259_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220713	Dissolved Calcium	7440-70-2	9680		175	350	ug/L	9680	
GR/LC_SW-3259_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3259_20220713	Dissolved Magnesium	7439-95-4	1670		250	500	ug/L	1670	
GR/LC_SW-3259_20220713	Dissolved Manganese	7439-96-5	17.0		7.50	15.0	ug/L	17.0	
GR/LC_SW-3259_20220713	Dissolved Potassium	7440-09-7	381	J	250	1000	ug/L	381	J
GR/LC_SW-3259_20220713	Dissolved Silica (SiO2)	763-18-69	4990		250	1000	ug/L	4990	
GR/LC_SW-3259_20220713	Dissolved Sodium	7440-23-5	1320		250	1000	ug/L	1320	
GR/LC_SW-3259_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3259_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3259_20220713	Dissolved Barium	7440-39-3	25.8		5.00	10.0	ug/L	25.8	
GR/LC_SW-3259_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3259_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3259_20220713	Dissolved Cobalt	7440-48-4	0.964		0.100	0.200	ug/L	0.964	
GR/LC_SW-3259_20220713	Dissolved Copper	7440-50-8	10.2		0.500	1.00	ug/L	10.2	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3259_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3259_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220713	Dissolved Nickel	7440-02-0	1.56		0.500	1.00	ug/L	1.56	
GR/LC_SW-3259_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3259_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3259_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3259_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3259_20220713	Total Alkalinity	NA	13.6		5.00	10.0	mg CaCO3 / L	13.6	
GR/LC_SW-3259_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3259_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3259_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J
GR/LC_SW-3259_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	0.5	U
GR/LC_SW-3259_20220713	Sulfate as SO4	148-08-798	23.9		2.5	5.0	mg/L	23.9	
GR/LC_SW-3259_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3262_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.038	U
GR/LC_SW-3262_20220713	Total Aluminum	7429-90-5	286		50.0	100	ug/L	286	
GR/LC_SW-3262_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220713	Total Calcium	7440-70-2	9410		175	350	ug/L	9410	
GR/LC_SW-3262_20220713	Total Iron	7439-89-6	229	J	100	250	ug/L	229	J
GR/LC_SW-3262_20220713	Total Magnesium	7439-95-4	1640		250	500	ug/L	1640	
GR/LC_SW-3262_20220713	Total Manganese	7439-96-5	8.69	J	7.50	15.0	ug/L	8.69	J
GR/LC_SW-3262_20220713	Total Potassium	7440-09-7	300	J	250	1000	ug/L	300	J
GR/LC_SW-3262_20220713	Total Silica (SiO2)	763-18-69	4990		250	1000	ug/L	4990	
GR/LC_SW-3262_20220713	Total Sodium	7440-23-5	1400		250	1000	ug/L	1400	
GR/LC_SW-3262_20220713	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3262_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220713	Total Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3262_20220713	Total Barium	7440-39-3	25.3	JD	25.0	50.0	ug/L	25.3	J
GR/LC_SW-3262_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262_20220713	Total Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220713	Total Copper	7440-50-8	14.6	D	2.50	5.00	ug/L	14.6	

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3262_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3262_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3262_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3262_20220713	Hardness	NA	29		2	2	mg/L	29	
GR/LC_SW-3262_20220713	Dissolved Aluminum	7429-90-5	59.6	J	50.0	100	ug/L	59.6	J
GR/LC_SW-3262_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220713	Dissolved Calcium	7440-70-2	9100		175	350	ug/L	9100	
GR/LC_SW-3262_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3262_20220713	Dissolved Magnesium	7439-95-4	1570		250	500	ug/L	1570	
GR/LC_SW-3262_20220713	Dissolved Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3262_20220713	Dissolved Potassium	7440-09-7	338	J	250	1000	ug/L	338	J
GR/LC_SW-3262_20220713	Dissolved Silica (SiO2)	763-18-69	5040		250	1000	ug/L	5040	
GR/LC_SW-3262_20220713	Dissolved Sodium	7440-23-5	1520		250	1000	ug/L	1520	
GR/LC_SW-3262_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3262_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3262_20220713	Dissolved Barium	7440-39-3	24.0		5.00	10.0	ug/L	24.0	
GR/LC_SW-3262_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3262_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3262_20220713	Dissolved Cobalt	7440-48-4	0.242		0.100	0.200	ug/L	0.242	
GR/LC_SW-3262_20220713	Dissolved Copper	7440-50-8	8.55		0.500	1.00	ug/L	8.55	
GR/LC_SW-3262_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3262_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220713	Dissolved Nickel	7440-02-0	1.05		0.500	1.00	ug/L	1.05	
GR/LC_SW-3262_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3262_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3262_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3262_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3262_20220713	Total Alkalinity	NA	15.7		5.00	10.0	mg CaCO3 / L	15.7	
GR/LC_SW-3262_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3262_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3262_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J
GR/LC_SW-3262_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3262_20220713	Sulfate as SO4	148-08-798	20.2		2.5	5.0	mg/L	20.2	
GR/LC_SW-3262_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3267_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3267_20220713	Total Aluminum	7429-90-5	3610		50.0	100	ug/L	3610	
GR/LC_SW-3267_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Calcium	7440-70-2	11700		175	350	ug/L	11700	
GR/LC_SW-3267_20220713	Total Iron	7439-89-6	3530		100	250	ug/L	3530	
GR/LC_SW-3267_20220713	Total Magnesium	7439-95-4	1800		250	500	ug/L	1800	
GR/LC_SW-3267_20220713	Total Manganese	7439-96-5	49.6		7.50	15.0	ug/L	49.6	
GR/LC_SW-3267_20220713	Total Potassium	7440-09-7	264	J	250	1000	ug/L	264	J
GR/LC_SW-3267_20220713	Total Silica (SiO2)	763-18-69	5120		250	1000	ug/L	5120	
GR/LC_SW-3267_20220713	Total Sodium	7440-23-5	1130		250	1000	ug/L	1130	
GR/LC_SW-3267_20220713	Total Zinc	7440-66-6	33.5		15.0	30.0	ug/L	33.5	
GR/LC_SW-3267_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Arsenic	7440-38-2	3.87	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Total Barium	7440-39-3	33.6	JD	25.0	50.0	ug/L	33.6	J
GR/LC_SW-3267_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Total Cobalt	7440-48-4	4.21	D	0.500	1.00	ug/L	4.21	
GR/LC_SW-3267_20220713	Total Copper	7440-50-8	235	D	2.50	5.00	ug/L	235	
GR/LC_SW-3267_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Nickel	7440-02-0	3.91	JD	2.50	5.00	ug/L	3.91	J
GR/LC_SW-3267_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3267_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3267_20220713	Hardness	NA	35		2	2	mg/L	35	
GR/LC_SW-3267_20220713	Dissolved Aluminum	7429-90-5	936		50.0	100	ug/L	936	
GR/LC_SW-3267_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Dissolved Calcium	7440-70-2	11300		175	350	ug/L	11300	
GR/LC_SW-3267_20220713	Dissolved Iron	7439-89-6	946		100	250	ug/L	946	
GR/LC_SW-3267_20220713	Dissolved Magnesium	7439-95-4	1670		250	500	ug/L	1670	
GR/LC_SW-3267_20220713	Dissolved Manganese	7439-96-5	48.3		7.50	15.0	ug/L	48.3	
GR/LC_SW-3267_20220713	Dissolved Potassium	7440-09-7	276	J	250	1000	ug/L	276	J
GR/LC_SW-3267_20220713	Dissolved Silica (SiO2)	763-18-69	5040		250	1000	ug/L	5040	
GR/LC_SW-3267_20220713	Dissolved Sodium	7440-23-5	1120		250	1000	ug/L	1120	
GR/LC_SW-3267_20220713	Dissolved Zinc	7440-66-6	30.0		15.0	30.0	ug/L	30.0	
GR/LC_SW-3267_20220713	Dissolved Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Dissolved Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Dissolved Barium	7440-39-3	33.1	JD	25.0	50.0	ug/L	33.1	J
GR/LC_SW-3267_20220713	Dissolved Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Dissolved Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Dissolved Cobalt	7440-48-4	4.18	D	0.500	1.00	ug/L	4.18	
GR/LC_SW-3267_20220713	Dissolved Copper	7440-50-8	241	D	2.50	5.00	ug/L	241	
GR/LC_SW-3267_20220713	Dissolved Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Dissolved Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Dissolved Nickel	7440-02-0	4.33	JD	2.50	5.00	ug/L	4.33	J
GR/LC_SW-3267_20220713	Dissolved Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220713	Dissolved Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Dissolved Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Dissolved Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Dissolved Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3267_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3267_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3267_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3267_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3267_20220713	Sulfate as SO4	148-08-798	46.2		2.5	5.0	mg/L	46.2	
GR/LC_SW-3267_20220713	Total Suspended Solids	NA	20		10	10	mg/L	20	
GR/LC_SW-3267_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3267_20220713	Total Aluminum	7429-90-5	3610		50.0	100	ug/L	3610	
GR/LC_SW-3267_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Calcium	7440-70-2	11800		175	350	ug/L	11800	
GR/LC_SW-3267_20220713	Total Iron	7439-89-6	3540		100	250	ug/L	3540	
GR/LC_SW-3267_20220713	Total Magnesium	7439-95-4	1790		250	500	ug/L	1790	
GR/LC_SW-3267_20220713	Total Manganese	7439-96-5	45.6		7.50	15.0	ug/L	45.6	
GR/LC_SW-3267_20220713	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW-3267_20220713	Total Silica (SiO2)	763-18-69	4770		250	1000	ug/L	4770	
GR/LC_SW-3267_20220713	Total Sodium	7440-23-5	1120		250	1000	ug/L	1120	
GR/LC_SW-3267_20220713	Total Zinc	7440-66-6	34.4		15.0	30.0	ug/L	34.4	
GR/LC_SW-3267_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Arsenic	7440-38-2	3.78	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Total Barium	7440-39-3	33.8	JD	25.0	50.0	ug/L	33.8	J
GR/LC_SW-3267_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Total Cobalt	7440-48-4	4.18	D	0.500	1.00	ug/L	4.18	
GR/LC_SW-3267_20220713	Total Copper	7440-50-8	233	D	2.50	5.00	ug/L	233	
GR/LC_SW-3267_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Nickel	7440-02-0	4.15	JD	2.50	5.00	ug/L	4.15	J
GR/LC_SW-3267_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3267_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3267_20220713	Hardness	NA	35		2	2	mg/L	35	
GR/LC_SW-3267_20220713	Dissolved Aluminum	7429-90-5	875		50.0	100	ug/L	875	
GR/LC_SW-3267_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3267_20220713	Dissolved Calcium	7440-70-2	11200		175	350	ug/L	11200	
GR/LC_SW-3267_20220713	Dissolved Iron	7439-89-6	903		100	250	ug/L	903	
GR/LC_SW-3267_20220713	Dissolved Magnesium	7439-95-4	1650		250	500	ug/L	1650	
GR/LC_SW-3267_20220713	Dissolved Manganese	7439-96-5	44.4		7.50	15.0	ug/L	44.4	
GR/LC_SW-3267_20220713	Dissolved Potassium	7440-09-7	277	J	250	1000	ug/L	277 J	
GR/LC_SW-3267_20220713	Dissolved Silica (SiO2)	763-18-69	4680		250	1000	ug/L	4680	
GR/LC_SW-3267_20220713	Dissolved Sodium	7440-23-5	1090		250	1000	ug/L	1090	
GR/LC_SW-3267_20220713	Dissolved Zinc	7440-66-6	29.9	J	15.0	30.0	ug/L	29.9 J	
GR/LC_SW-3267_20220713	Dissolved Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00 U	
GR/LC_SW-3267_20220713	Dissolved Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0 U	
GR/LC_SW-3267_20220713	Dissolved Barium	7440-39-3	34.2	JD	25.0	50.0	ug/L	34.2 J	
GR/LC_SW-3267_20220713	Dissolved Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00 U	
GR/LC_SW-3267_20220713	Dissolved Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0 U	
GR/LC_SW-3267_20220713	Dissolved Cobalt	7440-48-4	4.17	D	0.500	1.00	ug/L	4.17	
GR/LC_SW-3267_20220713	Dissolved Copper	7440-50-8	239	D	2.50	5.00	ug/L	239	
GR/LC_SW-3267_20220713	Dissolved Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00 U	
GR/LC_SW-3267_20220713	Dissolved Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00 U	
GR/LC_SW-3267_20220713	Dissolved Nickel	7440-02-0	3.84	JD	2.50	5.00	ug/L	3.84 J	
GR/LC_SW-3267_20220713	Dissolved Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0 U	
GR/LC_SW-3267_20220713	Dissolved Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00 U	
GR/LC_SW-3267_20220713	Dissolved Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0 U	
GR/LC_SW-3267_20220713	Dissolved Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00 U	
GR/LC_SW-3267_20220713	Dissolved Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0 U	
GR/LC_SW-3267_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0 U	
GR/LC_SW-3267_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5 U	
GR/LC_SW-3267_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0 U	
GR/LC_SW-3267_20220713	Fluoride	16984-48-8	0.2		0.1	0.2	mg/L	0.2	
GR/LC_SW-3267_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0 U	
GR/LC_SW-3267_20220713	Sulfate as SO4	148-08-798	46.4		2.5	5.0	mg/L	46.4	
GR/LC_SW-3267-DUP_20220713	Total Suspended Solids	NA	19		10	10	mg/L	19	
GR/LC_SW-3268_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500 U	
GR/LC_SW-3268_20220713	Total Aluminum	7429-90-5	7750		50.0	100	ug/L	7750	
GR/LC_SW-3268_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00 U	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3268_20220713	Total Calcium	7440-70-2	10700		175	350	ug/L	10700	
GR/LC_SW-3268_20220713	Total Iron	7439-89-6	6710		100	250	ug/L	6710	
GR/LC_SW-3268_20220713	Total Magnesium	7439-95-4	1950		250	500	ug/L	1950	
GR/LC_SW-3268_20220713	Total Manganese	7439-96-5	82.3		7.50	15.0	ug/L	82.3	
GR/LC_SW-3268_20220713	Total Potassium	7440-09-7	275	J	250	1000	ug/L	275 J	
GR/LC_SW-3268_20220713	Total Silica (SiO2)	763-18-69	5290		250	1000	ug/L	5290	
GR/LC_SW-3268_20220713	Total Sodium	7440-23-5	1010		250	1000	ug/L	1010	
GR/LC_SW-3268_20220713	Total Zinc	7440-66-6	42.4		15.0	30.0	ug/L	42.4	
GR/LC_SW-3268_20220713	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0 U	
GR/LC_SW-3268_20220713	Total Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0 U	
GR/LC_SW-3268_20220713	Total Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100 U	
GR/LC_SW-3268_20220713	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00 U	
GR/LC_SW-3268_20220713	Total Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0 U	
GR/LC_SW-3268_20220713	Total Cobalt	7440-48-4	7.72	D	1.00	2.00	ug/L	7.72	
GR/LC_SW-3268_20220713	Total Copper	7440-50-8	445	D	5.00	10.0	ug/L	445	
GR/LC_SW-3268_20220713	Total Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00 U	
GR/LC_SW-3268_20220713	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0 U	
GR/LC_SW-3268_20220713	Total Nickel	7440-02-0	6.30	JD	5.00	10.0	ug/L	6.30 J	
GR/LC_SW-3268_20220713	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0 U	
GR/LC_SW-3268_20220713	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0 U	
GR/LC_SW-3268_20220713	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0 U	
GR/LC_SW-3268_20220713	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00 U	
GR/LC_SW-3268_20220713	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0 U	
GR/LC_SW-3268_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500 U	
GR/LC_SW-3268_20220713	Hardness	NA	34		2	2	mg/L	34	
GR/LC_SW-3268_20220713	Dissolved Aluminum	7429-90-5	6570		50.0	100	ug/L	6570	
GR/LC_SW-3268_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00 U	
GR/LC_SW-3268_20220713	Dissolved Calcium	7440-70-2	10500		175	350	ug/L	10500	
GR/LC_SW-3268_20220713	Dissolved Iron	7439-89-6	1210		100	250	ug/L	1210	
GR/LC_SW-3268_20220713	Dissolved Magnesium	7439-95-4	1870		250	500	ug/L	1870	
GR/LC_SW-3268_20220713	Dissolved Manganese	7439-96-5	78.5		7.50	15.0	ug/L	78.5	
GR/LC_SW-3268_20220713	Dissolved Potassium	7440-09-7	391	J	250	1000	ug/L	391 J	
GR/LC_SW-3268_20220713	Dissolved Silica (SiO2)	763-18-69	5190		250	1000	ug/L	5190	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3268_20220713	Dissolved Sodium	7440-23-5	1020		250	1000	ug/L	1020	
GR/LC_SW-3268_20220713	Dissolved Zinc	7440-66-6	38.3		15.0	30.0	ug/L	38.3	
GR/LC_SW-3268_20220713	Dissolved Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3268_20220713	Dissolved Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220713	Dissolved Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3268_20220713	Dissolved Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3268_20220713	Dissolved Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220713	Dissolved Cobalt	7440-48-4	7.55	D	1.00	2.00	ug/L	7.55	
GR/LC_SW-3268_20220713	Dissolved Copper	7440-50-8	438	D	5.00	10.0	ug/L	438	
GR/LC_SW-3268_20220713	Dissolved Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3268_20220713	Dissolved Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_SW-3268_20220713	Dissolved Nickel	7440-02-0	6.03	JD	5.00	10.0	ug/L	6.03	J
GR/LC_SW-3268_20220713	Dissolved Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3268_20220713	Dissolved Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3268_20220713	Dissolved Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220713	Dissolved Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3268_20220713	Dissolved Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_SW-3268_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3268_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3268_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3268_20220713	Fluoride	16984-48-8	0.3		0.1	0.2	mg/L	0.3	
GR/LC_SW-3268_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3268_20220713	Sulfate as SO4	148-08-798	79.3		2.5	5.0	mg/L	79.3	
GR/LC_SW-3268_20220713	Total Suspended Solids	NA	19		10	10	mg/L	19	
GR/LC_SW-3371-A_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3371-A_20220713	Total Aluminum	7429-90-5	823000	D	500	1000	ug/L	823000	
GR/LC_SW-3371-A_20220713	Total Beryllium	7440-41-7	<20.0	U	20.0	50.0	ug/L	50.0	U
GR/LC_SW-3371-A_20220713	Total Calcium	7440-70-2	26200	D	1750	3500	ug/L	26200	
GR/LC_SW-3371-A_20220713	Total Iron	7439-89-6	940000	D	1000	2500	ug/L	940000	
GR/LC_SW-3371-A_20220713	Total Magnesium	7439-95-4	54300	D	2500	5000	ug/L	54300	
GR/LC_SW-3371-A_20220713	Total Manganese	7439-96-5	1050	D	75.0	150	ug/L	1050	
GR/LC_SW-3371-A_20220713	Total Potassium	7440-09-7	5070	JD	2500	10000	ug/L	5070	J
GR/LC_SW-3371-A_20220713	Total Silica (SiO2)	763-18-69	56700	D	2500	10000	ug/L	56700	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3371-A_20220713	Total Sodium	7440-23-5	3200	JD	2500	10000	ug/L	3200	J
GR/LC_SW-3371-A_20220713	Total Zinc	7440-66-6	2220	D	150	300	ug/L	2220	
GR/LC_SW-3371-A_20220713	Total Antimony	7440-36-0	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371-A_20220713	Total Arsenic	7440-38-2	71.4	JD	60.0	200	ug/L	71.4	J
GR/LC_SW-3371-A_20220713	Total Barium	7440-39-3	<500	U	500	1000	ug/L	1000	U
GR/LC_SW-3371-A_20220713	Total Cadmium	7440-43-9	13.7	JD	10.0	20.0	ug/L	13.7	J
GR/LC_SW-3371-A_20220713	Total Chromium	7440-47-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3371-A_20220713	Total Cobalt	7440-48-4	728	D	10.0	20.0	ug/L	728	
GR/LC_SW-3371-A_20220713	Total Copper	7440-50-8	44400	D	50.0	100	ug/L	44400	
GR/LC_SW-3371-A_20220713	Total Lead	7439-92-1	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3371-A_20220713	Total Molybdenum	7439-98-7	<100	U	100	100	ug/L	100	U
GR/LC_SW-3371-A_20220713	Total Nickel	7440-02-0	504	D	50.0	100	ug/L	504	
GR/LC_SW-3371-A_20220713	Total Selenium	7782-49-2	<150	U	150	300	ug/L	300	U
GR/LC_SW-3371-A_20220713	Total Silver	7440-22-4	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371-A_20220713	Total Thallium	7440-28-0	<100	U	100	200	ug/L	200	U
GR/LC_SW-3371-A_20220713	Total Uranium	7440-61-1	28.2	D	10.0	20.0	ug/L	28.2	
GR/LC_SW-3371-A_20220713	Total Vanadium	7440-62-2	<200	U	200	300	ug/L	300	U
GR/LC_SW-3371-A_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3371-A_20220713	Hardness	NA	278	D	8	8	mg/L	278	
GR/LC_SW-3371-A_20220713	Dissolved Aluminum	7429-90-5	781000	D	250	500	ug/L	781000	
GR/LC_SW-3371-A_20220713	Dissolved Beryllium	7440-41-7	16.7	JD	10.0	25.0	ug/L	16.7	J
GR/LC_SW-3371-A_20220713	Dissolved Calcium	7440-70-2	25700	D	875	1750	ug/L	25700	
GR/LC_SW-3371-A_20220713	Dissolved Iron	7439-89-6	819000	D	500	1250	ug/L	819000	
GR/LC_SW-3371-A_20220713	Dissolved Magnesium	7439-95-4	52000	D	1250	2500	ug/L	52000	
GR/LC_SW-3371-A_20220713	Dissolved Manganese	7439-96-5	1110	D	37.5	75.0	ug/L	1110	
GR/LC_SW-3371-A_20220713	Dissolved Potassium	7440-09-7	5860	D	1250	5000	ug/L	5860	
GR/LC_SW-3371-A_20220713	Dissolved Silica (SiO2)	763-18-69	62000	D	1250	5000	ug/L	62000	
GR/LC_SW-3371-A_20220713	Dissolved Sodium	7440-23-5	3060	JD	1250	5000	ug/L	3060	J
GR/LC_SW-3371-A_20220713	Dissolved Zinc	7440-66-6	2020	D	75.0	150	ug/L	2020	
GR/LC_SW-3371-A_20220713	Dissolved Antimony	7440-36-0	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-3371-A_20220713	Dissolved Arsenic	7440-38-2	58.0	JD	30.0	100	ug/L	58.0	J
GR/LC_SW-3371-A_20220713	Dissolved Barium	7440-39-3	<250	U	250	500	ug/L	500	U
GR/LC_SW-3371-A_20220713	Dissolved Cadmium	7440-43-9	15.0	D	5.00	10.0	ug/L	15.0	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3371-A_20220713	Dissolved Chromium	7440-47-3	59.0	JD	50.0	100	ug/L	59.0	J
GR/LC_SW-3371-A_20220713	Dissolved Cobalt	7440-48-4	654	D	5.00	10.0	ug/L	654	
GR/LC_SW-3371-A_20220713	Dissolved Copper	7440-50-8	38300	D	25.0	50.0	ug/L	38300	
GR/LC_SW-3371-A_20220713	Dissolved Lead	7439-92-1	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3371-A_20220713	Dissolved Molybdenum	7439-98-7	<50.0	U	50.0	50.0	ug/L	50.0	U
GR/LC_SW-3371-A_20220713	Dissolved Nickel	7440-02-0	446	D	25.0	50.0	ug/L	446	
GR/LC_SW-3371-A_20220713	Dissolved Selenium	7782-49-2	<75.0	U	75.0	150	ug/L	150	U
GR/LC_SW-3371-A_20220713	Dissolved Silver	7440-22-4	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-3371-A_20220713	Dissolved Thallium	7440-28-0	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371-A_20220713	Dissolved Uranium	7440-61-1	26.6	D	5.00	10.0	ug/L	26.6	
GR/LC_SW-3371-A_20220713	Dissolved Vanadium	7440-62-2	<100	U	100	150	ug/L	150	U
GR/LC_SW-3371-A_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3371-A_20220713	Bromide	24959-67-9	<5.0	U	5.0	10.0	mg/L	10.0	U
GR/LC_SW-3371-A_20220713	Chloride	16887-00-6	<20.0	U	20.0	40.0	mg/L	40.0	U
GR/LC_SW-3371-A_20220713	Fluoride	16984-48-8	15.7	D	2.0	4.0	mg/L	15.7	
GR/LC_SW-3371-A_20220713	Nitrate/Nitrite as N	NA	<10.0	UJ	10.0	20.0	mg/L	20.0	U
GR/LC_SW-3371-A_20220713	Sulfate as SO4	148-08-798	6930	D	50.0	100	mg/L	6930	
GR/LC_SW-3371-A_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3371-B_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3371-B_20220713	Total Aluminum	7429-90-5	1080		50.0	100	ug/L	1080	
GR/LC_SW-3371-B_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3371-B_20220713	Total Calcium	7440-70-2	9150		175	350	ug/L	9150	
GR/LC_SW-3371-B_20220713	Total Iron	7439-89-6	638		100	250	ug/L	638	
GR/LC_SW-3371-B_20220713	Total Magnesium	7439-95-4	1390		250	500	ug/L	1390	
GR/LC_SW-3371-B_20220713	Total Manganese	7439-96-5	62.1		7.50	15.0	ug/L	62.1	
GR/LC_SW-3371-B_20220713	Total Potassium	7440-09-7	346	J	250	1000	ug/L	346	J
GR/LC_SW-3371-B_20220713	Total Silica (SiO2)	763-18-69	4710		250	1000	ug/L	4710	
GR/LC_SW-3371-B_20220713	Total Sodium	7440-23-5	998	J	250	1000	ug/L	998	J
GR/LC_SW-3371-B_20220713	Total Zinc	7440-66-6	27.5	J	15.0	30.0	ug/L	27.5	J
GR/LC_SW-3371-B_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3371-B_20220713	Total Arsenic	7440-38-2	5.23	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3371-B_20220713	Total Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-3371-B_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3371-B_20220713	Total Chromium	7440-47-3	5.26	JD	5.00	10.0	ug/L	5.26	J
GR/LC_SW-3371-B_20220713	Total Cobalt	7440-48-4	1.17	D	0.500	1.00	ug/L	1.17	
GR/LC_SW-3371-B_20220713	Total Copper	7440-50-8	83.0	D	2.50	5.00	ug/L	83.0	
GR/LC_SW-3371-B_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3371-B_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3371-B_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3371-B_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3371-B_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3371-B_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3371-B_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3371-B_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3371-B_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3371-B_20220713	Hardness	NA	27		2	2	mg/L	27	
GR/LC_SW-3371-B_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371-B_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3371-B_20220713	Dissolved Calcium	7440-70-2	8640		175	350	ug/L	8640	
GR/LC_SW-3371-B_20220713	Dissolved Iron	7439-89-6	372		100	250	ug/L	372	
GR/LC_SW-3371-B_20220713	Dissolved Magnesium	7439-95-4	1250		250	500	ug/L	1250	
GR/LC_SW-3371-B_20220713	Dissolved Manganese	7439-96-5	58.8		7.50	15.0	ug/L	58.8	
GR/LC_SW-3371-B_20220713	Dissolved Potassium	7440-09-7	308	J	250	1000	ug/L	308	J
GR/LC_SW-3371-B_20220713	Dissolved Silica (SiO2)	763-18-69	4640		250	1000	ug/L	4640	
GR/LC_SW-3371-B_20220713	Dissolved Sodium	7440-23-5	901	J	250	1000	ug/L	901	J
GR/LC_SW-3371-B_20220713	Dissolved Zinc	7440-66-6	21.2	J	15.0	30.0	ug/L	21.2	J
GR/LC_SW-3371-B_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3371-B_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3371-B_20220713	Dissolved Barium	7440-39-3	10.1		5.00	10.0	ug/L	10.1	
GR/LC_SW-3371-B_20220713	Dissolved Cadmium	7440-43-9	0.188	J	0.100	0.200	ug/L	0.188	J
GR/LC_SW-3371-B_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3371-B_20220713	Dissolved Cobalt	7440-48-4	1.13		0.100	0.200	ug/L	1.13	
GR/LC_SW-3371-B_20220713	Dissolved Copper	7440-50-8	28.7		0.500	1.00	ug/L	28.7	
GR/LC_SW-3371-B_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3371-B_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3371-B_20220713	Dissolved Nickel	7440-02-0	2.14		0.500	1.00	ug/L	2.14	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3371-B_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3371-B_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3371-B_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3371-B_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3371-B_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3371-B_20220713	Total Alkalinity	NA	17.6		5.00	10.0	mg CaCO3 / L	17.6	
GR/LC_SW-3371-B_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3371-B_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3371-B_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J
GR/LC_SW-3371-B_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3371-B_20220713	Sulfate as SO4	148-08-798	18.9		2.5	5.0	mg/L	18.9	
GR/LC_SW-3371-B_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3372-A_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3372-A_20220713	Total Aluminum	7429-90-5	104000	D	500	1000	ug/L	104000	
GR/LC_SW-3372-A_20220713	Total Beryllium	7440-41-7	<20.0	U	20.0	50.0	ug/L	50.0	U
GR/LC_SW-3372-A_20220713	Total Calcium	7440-70-2	265000	D	1750	3500	ug/L	265000	
GR/LC_SW-3372-A_20220713	Total Iron	7439-89-6	282000	D	1000	2500	ug/L	282000	
GR/LC_SW-3372-A_20220713	Total Magnesium	7439-95-4	39800	D	2500	5000	ug/L	39800	
GR/LC_SW-3372-A_20220713	Total Manganese	7439-96-5	9590	D	75.0	150	ug/L	9590	
GR/LC_SW-3372-A_20220713	Total Potassium	7440-09-7	7800	JD	2500	10000	ug/L	7800	J
GR/LC_SW-3372-A_20220713	Total Silica (SiO2)	763-18-69	20700	D	2500	10000	ug/L	20700	
GR/LC_SW-3372-A_20220713	Total Sodium	7440-23-5	12400	D	2500	10000	ug/L	12400	
GR/LC_SW-3372-A_20220713	Total Zinc	7440-66-6	1290	D	150	300	ug/L	1290	
GR/LC_SW-3372-A_20220713	Total Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3372-A_20220713	Total Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-3372-A_20220713	Total Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3372-A_20220713	Total Cadmium	7440-43-9	19.9	D	2.00	4.00	ug/L	19.9	
GR/LC_SW-3372-A_20220713	Total Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3372-A_20220713	Total Cobalt	7440-48-4	130	D	2.00	4.00	ug/L	130	
GR/LC_SW-3372-A_20220713	Total Copper	7440-50-8	2350	D	10.0	20.0	ug/L	2350	
GR/LC_SW-3372-A_20220713	Total Lead	7439-92-1	46.7	D	2.00	4.00	ug/L	46.7	
GR/LC_SW-3372-A_20220713	Total Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-3372-A_20220713	Total Nickel	7440-02-0	93.0	D	10.0	20.0	ug/L	93.0	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3372-A_20220713	Total Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-3372-A_20220713	Total Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3372-A_20220713	Total Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3372-A_20220713	Total Uranium	7440-61-1	8.32	D	2.00	4.00	ug/L	8.32	
GR/LC_SW-3372-A_20220713	Total Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-3372-A_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3372-A_20220713	Hardness	NA	743		2	2	mg/L	743	
GR/LC_SW-3372-A_20220713	Dissolved Aluminum	7429-90-5	50000		50.0	100	ug/L	50000	
GR/LC_SW-3372-A_20220713	Dissolved Beryllium	7440-41-7	8.22		2.00	5.00	ug/L	8.22	
GR/LC_SW-3372-A_20220713	Dissolved Calcium	7440-70-2	240000		175	350	ug/L	240000	
GR/LC_SW-3372-A_20220713	Dissolved Iron	7439-89-6	223000		100	250	ug/L	223000	
GR/LC_SW-3372-A_20220713	Dissolved Magnesium	7439-95-4	34600		250	500	ug/L	34600	
GR/LC_SW-3372-A_20220713	Dissolved Manganese	7439-96-5	9550		7.50	15.0	ug/L	9550	
GR/LC_SW-3372-A_20220713	Dissolved Potassium	7440-09-7	7740		250	1000	ug/L	7740	
GR/LC_SW-3372-A_20220713	Dissolved Silica (SiO2)	763-18-69	17700		250	1000	ug/L	17700	
GR/LC_SW-3372-A_20220713	Dissolved Sodium	7440-23-5	11800		250	1000	ug/L	11800	
GR/LC_SW-3372-A_20220713	Dissolved Zinc	7440-66-6	1210		15.0	30.0	ug/L	1210	
GR/LC_SW-3372-A_20220713	Dissolved Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3372-A_20220713	Dissolved Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-3372-A_20220713	Dissolved Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3372-A_20220713	Dissolved Cadmium	7440-43-9	19.1	D	2.00	4.00	ug/L	19.1	
GR/LC_SW-3372-A_20220713	Dissolved Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3372-A_20220713	Dissolved Cobalt	7440-48-4	133	D	2.00	4.00	ug/L	133	
GR/LC_SW-3372-A_20220713	Dissolved Copper	7440-50-8	2350	D	10.0	20.0	ug/L	2350	
GR/LC_SW-3372-A_20220713	Dissolved Lead	7439-92-1	31.8	D	2.00	4.00	ug/L	31.8	
GR/LC_SW-3372-A_20220713	Dissolved Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-3372-A_20220713	Dissolved Nickel	7440-02-0	97.6	D	10.0	20.0	ug/L	97.6	
GR/LC_SW-3372-A_20220713	Dissolved Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-3372-A_20220713	Dissolved Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3372-A_20220713	Dissolved Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3372-A_20220713	Dissolved Uranium	7440-61-1	6.89	D	2.00	4.00	ug/L	6.89	
GR/LC_SW-3372-A_20220713	Dissolved Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-3372-A_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3372-A_20220713	Bromide	24959-67-9	<2.5	U	2.5	5.0	mg/L	5.0	U
GR/LC_SW-3372-A_20220713	Chloride	16887-00-6	<10.0	U	10.0	20.0	mg/L	20.0	U
GR/LC_SW-3372-A_20220713	Fluoride	16984-48-8	5.0	D	1.0	2.0	mg/L	5.0	
GR/LC_SW-3372-A_20220713	Nitrate/Nitrite as N	NA	<5.0	UJ	5.0	10.0	mg/L	10.0	U
GR/LC_SW-3372-A_20220713	Sulfate as SO4	148-08-798	1680	D	25.0	50.0	mg/L	1680	
GR/LC_SW-3372-A_20220713	Total Suspended Solids	NA	206		10	10	mg/L	206	
GR/LC_SW-3374_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3374_20220713	Total Aluminum	7429-90-5	3200		50.0	100	ug/L	3200	
GR/LC_SW-3374_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Total Calcium	7440-70-2	11400		175	350	ug/L	11400	
GR/LC_SW-3374_20220713	Total Iron	7439-89-6	3150		100	250	ug/L	3150	
GR/LC_SW-3374_20220713	Total Magnesium	7439-95-4	1670		250	500	ug/L	1670	
GR/LC_SW-3374_20220713	Total Manganese	7439-96-5	44.2		7.50	15.0	ug/L	44.2	
GR/LC_SW-3374_20220713	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW-3374_20220713	Total Silica (SiO2)	763-18-69	4990		250	1000	ug/L	4990	
GR/LC_SW-3374_20220713	Total Sodium	7440-23-5	1130		250	1000	ug/L	1130	
GR/LC_SW-3374_20220713	Total Zinc	7440-66-6	30.1		15.0	30.0	ug/L	30.1	
GR/LC_SW-3374_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Total Arsenic	7440-38-2	4.29	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220713	Total Barium	7440-39-3	33.1	JD	25.0	50.0	ug/L	33.1	J
GR/LC_SW-3374_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220713	Total Cobalt	7440-48-4	3.71	D	0.500	1.00	ug/L	3.71	
GR/LC_SW-3374_20220713	Total Copper	7440-50-8	215	D	2.50	5.00	ug/L	215	
GR/LC_SW-3374_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Total Nickel	7440-02-0	3.55	JD	2.50	5.00	ug/L	3.55	J
GR/LC_SW-3374_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3374_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3374_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3374_20220713	Hardness	NA	36		2	2	mg/L	36	
GR/LC_SW-3374_20220713	Dissolved Aluminum	7429-90-5	333		50.0	100	ug/L	333	
GR/LC_SW-3374_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Dissolved Calcium	7440-70-2	11800		175	350	ug/L	11800	
GR/LC_SW-3374_20220713	Dissolved Iron	7439-89-6	889		100	250	ug/L	889	
GR/LC_SW-3374_20220713	Dissolved Magnesium	7439-95-4	1660		250	500	ug/L	1660	
GR/LC_SW-3374_20220713	Dissolved Manganese	7439-96-5	46.4		7.50	15.0	ug/L	46.4	
GR/LC_SW-3374_20220713	Dissolved Potassium	7440-09-7	324	J	250	1000	ug/L	324	J
GR/LC_SW-3374_20220713	Dissolved Silica (SiO2)	763-18-69	5220		250	1000	ug/L	5220	
GR/LC_SW-3374_20220713	Dissolved Sodium	7440-23-5	1190		250	1000	ug/L	1190	
GR/LC_SW-3374_20220713	Dissolved Zinc	7440-66-6	31.1		15.0	30.0	ug/L	31.1	
GR/LC_SW-3374_20220713	Dissolved Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Dissolved Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220713	Dissolved Barium	7440-39-3	33.8	JD	25.0	50.0	ug/L	33.8	J
GR/LC_SW-3374_20220713	Dissolved Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374_20220713	Dissolved Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220713	Dissolved Cobalt	7440-48-4	3.87	D	0.500	1.00	ug/L	3.87	
GR/LC_SW-3374_20220713	Dissolved Copper	7440-50-8	221	D	2.50	5.00	ug/L	221	
GR/LC_SW-3374_20220713	Dissolved Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374_20220713	Dissolved Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Dissolved Nickel	7440-02-0	3.67	JD	2.50	5.00	ug/L	3.67	J
GR/LC_SW-3374_20220713	Dissolved Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3374_20220713	Dissolved Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220713	Dissolved Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220713	Dissolved Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374_20220713	Dissolved Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3374_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3374_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3374_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3374_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J
GR/LC_SW-3374_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3374_20220713	Sulfate as SO4	148-08-798	43.0		2.5	5.0	mg/L	43.0	
GR/LC_SW-3374_20220713	Total Suspended Solids	NA	18		10	10	mg/L	18	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3374-DUP_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3374-DUP_20220713	Total Aluminum	7429-90-5	3230		50.0	100	ug/L	3230	
GR/LC_SW-3374-DUP_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Total Calcium	7440-70-2	11800		175	350	ug/L	11800	
GR/LC_SW-3374-DUP_20220713	Total Iron	7439-89-6	3280		100	250	ug/L	3280	
GR/LC_SW-3374-DUP_20220713	Total Magnesium	7439-95-4	1720		250	500	ug/L	1720	
GR/LC_SW-3374-DUP_20220713	Total Manganese	7439-96-5	44.6		7.50	15.0	ug/L	44.6	
GR/LC_SW-3374-DUP_20220713	Total Potassium	7440-09-7	257	J	250	1000	ug/L	257	J
GR/LC_SW-3374-DUP_20220713	Total Silica (SiO2)	763-18-69	4990		250	1000	ug/L	4990	
GR/LC_SW-3374-DUP_20220713	Total Sodium	7440-23-5	1190		250	1000	ug/L	1190	
GR/LC_SW-3374-DUP_20220713	Total Zinc	7440-66-6	31.5		15.0	30.0	ug/L	31.5	
GR/LC_SW-3374-DUP_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Total Arsenic	7440-38-2	3.09	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3374-DUP_20220713	Total Barium	7440-39-3	34.4	JD	25.0	50.0	ug/L	34.4	J
GR/LC_SW-3374-DUP_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374-DUP_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374-DUP_20220713	Total Cobalt	7440-48-4	3.90	D	0.500	1.00	ug/L	3.90	
GR/LC_SW-3374-DUP_20220713	Total Copper	7440-50-8	219	D	2.50	5.00	ug/L	219	
GR/LC_SW-3374-DUP_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374-DUP_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Total Nickel	7440-02-0	3.72	JD	2.50	5.00	ug/L	3.72	J
GR/LC_SW-3374-DUP_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3374-DUP_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374-DUP_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374-DUP_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3374-DUP_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3374-DUP_20220713	Hardness	NA	34		2	2	mg/L	34	
GR/LC_SW-3374-DUP_20220713	Dissolved Aluminum	7429-90-5	336		50.0	100	ug/L	336	
GR/LC_SW-3374-DUP_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Dissolved Calcium	7440-70-2	11200		175	350	ug/L	11200	
GR/LC_SW-3374-DUP_20220713	Dissolved Iron	7439-89-6	827		100	250	ug/L	827	
GR/LC_SW-3374-DUP_20220713	Dissolved Magnesium	7439-95-4	1570		250	500	ug/L	1570	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3374-DUP_20220713	Dissolved Manganese	7439-96-5	46.5		7.50	15.0	ug/L	46.5	
GR/LC_SW-3374-DUP_20220713	Dissolved Potassium	7440-09-7	292	J	250	1000	ug/L	292	J
GR/LC_SW-3374-DUP_20220713	Dissolved Silica (SiO2)	763-18-69	5260		250	1000	ug/L	5260	
GR/LC_SW-3374-DUP_20220713	Dissolved Sodium	7440-23-5	1110		250	1000	ug/L	1110	
GR/LC_SW-3374-DUP_20220713	Dissolved Zinc	7440-66-6	28.2	J	15.0	30.0	ug/L	28.2	J
GR/LC_SW-3374-DUP_20220713	Dissolved Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Dissolved Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3374-DUP_20220713	Dissolved Barium	7440-39-3	35.0	JD	25.0	50.0	ug/L	35.0	J
GR/LC_SW-3374-DUP_20220713	Dissolved Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374-DUP_20220713	Dissolved Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374-DUP_20220713	Dissolved Cobalt	7440-48-4	3.85	D	0.500	1.00	ug/L	3.85	
GR/LC_SW-3374-DUP_20220713	Dissolved Copper	7440-50-8	215	D	2.50	5.00	ug/L	215	
GR/LC_SW-3374-DUP_20220713	Dissolved Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374-DUP_20220713	Dissolved Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Dissolved Nickel	7440-02-0	3.60	JD	2.50	5.00	ug/L	3.60	J
GR/LC_SW-3374-DUP_20220713	Dissolved Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3374-DUP_20220713	Dissolved Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3374-DUP_20220713	Dissolved Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374-DUP_20220713	Dissolved Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3374-DUP_20220713	Dissolved Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3374-DUP_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3374-DUP_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3374-DUP_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3374-DUP_20220713	Fluoride	16984-48-8	0.2		0.1	0.2	mg/L	0.2	J
GR/LC_SW-3374-DUP_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3374-DUP_20220713	Sulfate as SO4	148-08-798	43.1		2.5	5.0	mg/L	43.1	
GR/LC_SW-3374-DUP_20220713	Total Suspended Solids	NA	18		10	10	mg/L	18	
GR/LC_SW-3387_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3387_20220713	Total Aluminum	7429-90-5	1030		50.0	100	ug/L	1030	
GR/LC_SW-3387_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220713	Total Calcium	7440-70-2	8840		175	350	ug/L	8840	
GR/LC_SW-3387_20220713	Total Iron	7439-89-6	1020		100	250	ug/L	1020	
GR/LC_SW-3387_20220713	Total Magnesium	7439-95-4	1710		250	500	ug/L	1710	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3387_20220713	Total Manganese	7439-96-5	33.1		7.50	15.0	ug/L	33.1	
GR/LC_SW-3387_20220713	Total Potassium	7440-09-7	398	J	250	1000	ug/L	398	J
GR/LC_SW-3387_20220713	Total Silica (SiO2)	763-18-69	6180		250	1000	ug/L	6180	
GR/LC_SW-3387_20220713	Total Sodium	7440-23-5	1320		250	1000	ug/L	1320	
GR/LC_SW-3387_20220713	Total Zinc	7440-66-6	17.7	J	15.0	30.0	ug/L	17.7	J
GR/LC_SW-3387_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220713	Total Arsenic	7440-38-2	3.90	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3387_20220713	Total Barium	7440-39-3	33.3	JD	25.0	50.0	ug/L	33.3	J
GR/LC_SW-3387_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3387_20220713	Total Cobalt	7440-48-4	0.986	JD	0.500	1.00	ug/L	0.986	J
GR/LC_SW-3387_20220713	Total Copper	7440-50-8	40.7	D	2.50	5.00	ug/L	40.7	
GR/LC_SW-3387_20220713	Total Lead	7439-92-1	1.41	D	0.500	1.00	ug/L	1.41	
GR/LC_SW-3387_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3387_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3387_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3387_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3387_20220713	Hardness	NA	28		2	2	mg/L	28	
GR/LC_SW-3387_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3387_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220713	Dissolved Calcium	7440-70-2	8570		175	350	ug/L	8570	
GR/LC_SW-3387_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3387_20220713	Dissolved Magnesium	7439-95-4	1540		250	500	ug/L	1540	
GR/LC_SW-3387_20220713	Dissolved Manganese	7439-96-5	10.7	J	7.50	15.0	ug/L	10.7	J
GR/LC_SW-3387_20220713	Dissolved Potassium	7440-09-7	339	J	250	1000	ug/L	339	J
GR/LC_SW-3387_20220713	Dissolved Silica (SiO2)	763-18-69	4340		250	1000	ug/L	4340	
GR/LC_SW-3387_20220713	Dissolved Sodium	7440-23-5	1270		250	1000	ug/L	1270	
GR/LC_SW-3387_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3387_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3387_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3387_20220713	Dissolved Barium	7440-39-3	22.3		5.00	10.0	ug/L	22.3	
GR/LC_SW-3387_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3387_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3387_20220713	Dissolved Cobalt	7440-48-4	0.649		0.100	0.200	ug/L	0.649	
GR/LC_SW-3387_20220713	Dissolved Copper	7440-50-8	13.6		0.500	1.00	ug/L	13.6	
GR/LC_SW-3387_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3387_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220713	Dissolved Nickel	7440-02-0	1.20		0.500	1.00	ug/L	1.20	
GR/LC_SW-3387_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3387_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3387_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3387_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3387_20220713	Total Alkalinity	NA	18.4		5.00	10.0	mg CaCO3 / L	18.4	
GR/LC_SW-3387_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3387_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3387_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J
GR/LC_SW-3387_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3387_20220713	Sulfate as SO4	148-08-798	17.4		2.5	5.0	mg/L	17.4	
GR/LC_SW-3387_20220713	Total Suspended Solids	NA	17		10	10	mg/L	17	
GR/LC_SW-3433_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3433_20220713	Total Aluminum	7429-90-5	328		50.0	100	ug/L	328	
GR/LC_SW-3433_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220713	Total Calcium	7440-70-2	8230		175	350	ug/L	8230	
GR/LC_SW-3433_20220713	Total Iron	7439-89-6	353		100	250	ug/L	353	
GR/LC_SW-3433_20220713	Total Magnesium	7439-95-4	1500		250	500	ug/L	1500	
GR/LC_SW-3433_20220713	Total Manganese	7439-96-5	11.8	J	7.50	15.0	ug/L	11.8	J
GR/LC_SW-3433_20220713	Total Potassium	7440-09-7	315	J	250	1000	ug/L	315	J
GR/LC_SW-3433_20220713	Total Silica (SiO2)	763-18-69	4490		250	1000	ug/L	4490	
GR/LC_SW-3433_20220713	Total Sodium	7440-23-5	1290		250	1000	ug/L	1290	
GR/LC_SW-3433_20220713	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3433_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3433_20220713	Total Arsenic	7440-38-2	3.58	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3433_20220713	Total Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-3433_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3433_20220713	Total Cobalt	7440-48-4	0.736	JD	0.500	1.00	ug/L	0.736	J
GR/LC_SW-3433_20220713	Total Copper	7440-50-8	24.8	D	2.50	5.00	ug/L	24.8	
GR/LC_SW-3433_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3433_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3433_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3433_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3433_20220713	Hardness	NA	25		2	2	mg/L	25	
GR/LC_SW-3433_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3433_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220713	Dissolved Calcium	7440-70-2	7790		175	350	ug/L	7790	
GR/LC_SW-3433_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3433_20220713	Dissolved Magnesium	7439-95-4	1370		250	500	ug/L	1370	
GR/LC_SW-3433_20220713	Dissolved Manganese	7439-96-5	10.8	J	7.50	15.0	ug/L	10.8	J
GR/LC_SW-3433_20220713	Dissolved Potassium	7440-09-7	308	J	250	1000	ug/L	308	J
GR/LC_SW-3433_20220713	Dissolved Silica (SiO2)	763-18-69	4710		250	1000	ug/L	4710	
GR/LC_SW-3433_20220713	Dissolved Sodium	7440-23-5	1250		250	1000	ug/L	1250	
GR/LC_SW-3433_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3433_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3433_20220713	Dissolved Barium	7440-39-3	18.6		5.00	10.0	ug/L	18.6	
GR/LC_SW-3433_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3433_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3433_20220713	Dissolved Cobalt	7440-48-4	0.611		0.100	0.200	ug/L	0.611	
GR/LC_SW-3433_20220713	Dissolved Copper	7440-50-8	13.1		0.500	1.00	ug/L	13.1	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-3433_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3433_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220713	Dissolved Nickel	7440-02-0	1.20		0.500	1.00	ug/L	1.20	
GR/LC_SW-3433_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3433_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3433_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3433_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3433_20220713	Total Alkalinity	NA	16.2		5.00	10.0	mg CaCO3 / L	16.2	
GR/LC_SW-3433_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3433_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3433_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J
GR/LC_SW-3433_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3433_20220713	Sulfate as SO4	148-08-798	15.4		2.5	5.0	mg/L	15.4	
GR/LC_SW-3433_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-487-A_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-487-A_20220713	Total Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-487-A_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-487-A_20220713	Total Calcium	7440-70-2	6110		175	350	ug/L	6110	
GR/LC_SW-487-A_20220713	Total Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-487-A_20220713	Total Magnesium	7439-95-4	871		250	500	ug/L	871	
GR/LC_SW-487-A_20220713	Total Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-487-A_20220713	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW-487-A_20220713	Total Silica (SiO2)	763-18-69	3250		250	1000	ug/L	3250	
GR/LC_SW-487-A_20220713	Total Sodium	7440-23-5	765	J	250	1000	ug/L	765	J
GR/LC_SW-487-A_20220713	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-487-A_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-487-A_20220713	Total Arsenic	7440-38-2	3.50	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-487-A_20220713	Total Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-487-A_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-487-A_20220713	Total Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Total Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-487-A_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-487-A_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-487-A_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-487-A_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-487-A_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-487-A_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-487-A_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-487-A_20220713	Hardness	NA	18		2	2	mg/L	18	
GR/LC_SW-487-A_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-487-A_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-487-A_20220713	Dissolved Calcium	7440-70-2	5990		175	350	ug/L	5990	
GR/LC_SW-487-A_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-487-A_20220713	Dissolved Magnesium	7439-95-4	824		250	500	ug/L	824	
GR/LC_SW-487-A_20220713	Dissolved Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-487-A_20220713	Dissolved Potassium	7440-09-7	273	J	250	1000	ug/L	273	J
GR/LC_SW-487-A_20220713	Dissolved Silica (SiO2)	763-18-69	3250		250	1000	ug/L	3250	
GR/LC_SW-487-A_20220713	Dissolved Sodium	7440-23-5	781	J	250	1000	ug/L	781	J
GR/LC_SW-487-A_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-487-A_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-487-A_20220713	Dissolved Barium	7440-39-3	6.03	J	5.00	10.0	ug/L	6.03	J
GR/LC_SW-487-A_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-487-A_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-487-A_20220713	Dissolved Cobalt	7440-48-4	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-487-A_20220713	Dissolved Copper	7440-50-8	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-487-A_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Dissolved Nickel	7440-02-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-487-A_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487-A_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-487-A_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-487-A_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-487-A_20220713	Total Alkalinity	NA	23.0		5.00	10.0	mg CaCO3 / L	0.5	
GR/LC_SW-487-A_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-487-A_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-487-A_20220713	Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW-487-A_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-487-A_20220713	Sulfate as SO4	148-08-798	2.7	J	2.5	5.0	mg/L	2.7	J
GR/LC_SW-487-A_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-489_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-489_20220713	Total Aluminum	7429-90-5	184		50.0	100	ug/L	184	
GR/LC_SW-489_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-489_20220713	Total Calcium	7440-70-2	8860		175	350	ug/L	8860	
GR/LC_SW-489_20220713	Total Iron	7439-89-6	148	J	100	250	ug/L	148	J
GR/LC_SW-489_20220713	Total Magnesium	7439-95-4	1580		250	500	ug/L	1580	
GR/LC_SW-489_20220713	Total Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-489_20220713	Total Potassium	7440-09-7	324	J	250	1000	ug/L	324	J
GR/LC_SW-489_20220713	Total Silica (SiO2)	763-18-69	4820		250	1000	ug/L	4820	
GR/LC_SW-489_20220713	Total Sodium	7440-23-5	1390		250	1000	ug/L	1390	
GR/LC_SW-489_20220713	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-489_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-489_20220713	Total Arsenic	7440-38-2	3.22	JD	3.00	10.0	ug/L	10.0	U
GR/LC_SW-489_20220713	Total Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-489_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-489_20220713	Total Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220713	Total Copper	7440-50-8	10.8	D	2.50	5.00	ug/L	10.8	
GR/LC_SW-489_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-489_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-489_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-489_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-489_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-489_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-489_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-489_20220713	Hardness	NA	28		2	2	mg/L	28	
GR/LC_SW-489_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-489_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-489_20220713	Dissolved Calcium	7440-70-2	8800		175	350	ug/L	8800	
GR/LC_SW-489_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-489_20220713	Dissolved Magnesium	7439-95-4	1540		250	500	ug/L	1540	
GR/LC_SW-489_20220713	Dissolved Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-489_20220713	Dissolved Potassium	7440-09-7	363	J	250	1000	ug/L	363	J
GR/LC_SW-489_20220713	Dissolved Silica (SiO2)	763-18-69	4910		250	1000	ug/L	4910	
GR/LC_SW-489_20220713	Dissolved Sodium	7440-23-5	1390		250	1000	ug/L	1390	
GR/LC_SW-489_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-489_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-489_20220713	Dissolved Barium	7440-39-3	22.5		5.00	10.0	ug/L	22.5	
GR/LC_SW-489_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-489_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-489_20220713	Dissolved Cobalt	7440-48-4	0.128	J	0.100	0.200	ug/L	0.128	J
GR/LC_SW-489_20220713	Dissolved Copper	7440-50-8	8.01		0.500	1.00	ug/L	8.01	
GR/LC_SW-489_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-489_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-489_20220713	Dissolved Nickel	7440-02-0	0.980	J	0.500	1.00	ug/L	0.980	J
GR/LC_SW-489_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-489_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-489_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-489_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-489_20220713	Total Alkalinity	NA	18.4		5.00	10.0	mg CaCO3 / L	18.4	
GR/LC_SW-489_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-489_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-489_20220713	Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.1	J

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_SW-489_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-489_20220713	Sulfate as SO4	148-08-798	17.1		2.5	5.0	mg/L	17.1	
GR/LC_SW-489_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC-SW-FB_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC-SW-FB_20220713	Total Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC-SW-FB_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC-SW-FB_20220713	Total Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC-SW-FB_20220713	Total Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC-SW-FB_20220713	Total Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U
GR/LC-SW-FB_20220713	Total Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC-SW-FB_20220713	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC-SW-FB_20220713	Total Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC-SW-FB_20220713	Total Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC-SW-FB_20220713	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC-SW-FB_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SW-FB_20220713	Total Arsenic	7440-38-2	4.87	JD	3.00	10.0	ug/L	10.0	U
GR/LC-SW-FB_20220713	Total Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC-SW-FB_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SW-FB_20220713	Total Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Total Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SW-FB_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC-SW-FB_20220713	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SW-FB_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC-SW-FB_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SW-FB_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SW-FB_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC-SW-FB_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC-SW-FB_20220713	Hardness	NA	<2	U	2	2	mg/L	2	U
GR/LC-SW-FB_20220713	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC-SW-FB_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SW-FB_20220713	Dissolved Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC-SW-FB_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC-SW-FB_20220713	Dissolved Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U
GR/LC-SW-FB_20220713	Dissolved Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC-SW-FB_20220713	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC-SW-FB_20220713	Dissolved Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC-SW-FB_20220713	Dissolved Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC-SW-FB_20220713	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC-SW-FB_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC-SW-FB_20220713	Dissolved Barium	7440-39-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SW-FB_20220713	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SW-FB_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC-SW-FB_20220713	Dissolved Cobalt	7440-48-4	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SW-FB_20220713	Dissolved Copper	7440-50-8	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SW-FB_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Dissolved Nickel	7440-02-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC-SW-FB_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-FB_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC-SW-FB_20220713	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SW-FB_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC-SW-FB_20220713	Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC-SW-FB_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC-SW-FB_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC-SW-FB_20220713	Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC-SW-FB_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC-SW-FB_20220713	Sulfate as SO4	148-08-798	<2.5	U	2.5	5.0	mg/L	5.0	U
GR/LC-SW-FB_20220713	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC-SW-Opp_20220713	Total Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC-SW-Opp_20220713	Total Aluminum	7429-90-5	320		50.0	100	ug/L	320	
GR/LC-SW-Opp_20220713	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SW-Opp_20220713	Total Calcium	7440-70-2	29000		175	350	ug/L	29000	
GR/LC-SW-Opp_20220713	Total Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC-SW-Opp_20220713	Total Magnesium	7439-95-4	6240		250	500	ug/L	6240	
GR/LC-SW-Opp_20220713	Total Manganese	7439-96-5	29.0		7.50	15.0	ug/L	29.0	
GR/LC-SW-Opp_20220713	Total Potassium	7440-09-7	372	J	250	1000	ug/L	372	J
GR/LC-SW-Opp_20220713	Total Silica (SiO2)	763-18-69	4820		250	1000	ug/L	4820	
GR/LC-SW-Opp_20220713	Total Sodium	7440-23-5	1770		250	1000	ug/L	1770	
GR/LC-SW-Opp_20220713	Total Zinc	7440-66-6	29.7	J	15.0	30.0	ug/L	29.7	J
GR/LC-SW-Opp_20220713	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SW-Opp_20220713	Total Arsenic	7440-38-2	4.59	JD	3.00	10.0	ug/L	10.0	U
GR/LC-SW-Opp_20220713	Total Barium	7440-39-3	47.8	JD	25.0	50.0	ug/L	47.8	J
GR/LC-SW-Opp_20220713	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-Opp_20220713	Total Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SW-Opp_20220713	Total Cobalt	7440-48-4	0.735	JD	0.500	1.00	ug/L	0.735	J
GR/LC-SW-Opp_20220713	Total Copper	7440-50-8	9.99	D	2.50	5.00	ug/L	9.99	
GR/LC-SW-Opp_20220713	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-Opp_20220713	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC-SW-Opp_20220713	Total Nickel	7440-02-0	4.22	JD	2.50	5.00	ug/L	4.22	J
GR/LC-SW-Opp_20220713	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC-SW-Opp_20220713	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC-SW-Opp_20220713	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC-SW-Opp_20220713	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-Opp_20220713	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC-SW-Opp_20220713	Dissolved Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC-SW-Opp_20220713	Hardness	NA	93		2	2	mg/L	93	
GR/LC-SW-Opp_20220713	Dissolved Aluminum	7429-90-5	95.2	J	50.0	100	ug/L	95.2	J
GR/LC-SW-Opp_20220713	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC-SW-Opp_20220713	Dissolved Calcium	7440-70-2	27700		175	350	ug/L	27700	
GR/LC-SW-Opp_20220713	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC-SW-Opp_20220713	Dissolved Magnesium	7439-95-4	5770		250	500	ug/L	5770	
GR/LC-SW-Opp_20220713	Dissolved Manganese	7439-96-5	28.9		7.50	15.0	ug/L	28.9	
GR/LC-SW-Opp_20220713	Dissolved Potassium	7440-09-7	457	J	250	1000	ug/L	457	J
GR/LC-SW-Opp_20220713	Dissolved Silica (SiO2)	763-18-69	4710		250	1000	ug/L	4710	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220711

Scribe ID	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SW-Opp_20220713	Dissolved Sodium	7440-23-5	1720		250	1000	ug/L	1720	
GR/LC-SW-Opp_20220713	Dissolved Zinc	7440-66-6	32.3		15.0	30.0	ug/L	32.3	
GR/LC-SW-Opp_20220713	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-Opp_20220713	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC-SW-Opp_20220713	Dissolved Barium	7440-39-3	46.3		5.00	10.0	ug/L	46.3	
GR/LC-SW-Opp_20220713	Dissolved Cadmium	7440-43-9	0.176	J	0.100	0.200	ug/L	0.176	J
GR/LC-SW-Opp_20220713	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC-SW-Opp_20220713	Dissolved Cobalt	7440-48-4	0.728		0.100	0.200	ug/L	0.728	
GR/LC-SW-Opp_20220713	Dissolved Copper	7440-50-8	5.20		0.500	1.00	ug/L	5.20	
GR/LC-SW-Opp_20220713	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC-SW-Opp_20220713	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC-SW-Opp_20220713	Dissolved Nickel	7440-02-0	4.45		0.500	1.00	ug/L	4.45	
GR/LC-SW-Opp_20220713	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC-SW-Opp_20220713	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC-SW-Opp_20220713	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC-SW-Opp_20220713	Dissolved Uranium	7440-61-1	0.247		0.100	0.200	ug/L	0.247	
GR/LC-SW-Opp_20220713	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC-SW-Opp_20220713	Total Alkalinity	NA	26.8		5.00	10.0	mg CaCO3 / L	26.8	
GR/LC-SW-Opp_20220713	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC-SW-Opp_20220713	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC-SW-Opp_20220713	Fluoride	16984-48-8	0.2		0.1	0.2	mg/L	0.2	
GR/LC-SW-Opp_20220713	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC-SW-Opp_20220713	Sulfate as SO4	148-08-798	82.1		2.5	5.0	mg/L	82.1	

ATTACHMENT 2

**DATA VALIDATION REPORT
TECHLAW/R8 ESAT REPORT NO. C220713**

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Site Name	Ruby Mine Combined Assessment		TO/TD No.	68HE0820F0083/2083-2203-09
Document Tracking No.	0719a-b		Technical Reviewer (signature and date)	<i>Kelly D. Thomas</i> 1/12/2023
Data Reviewer (signature and date)	<i>Maureen</i>	12/19/2022	Laboratory	TechLaw Inc, Environmental Services Assistance Team (ESAT)– Denver, CO
Laboratory Report No.	C220713			
Analyses	Total metals including mercury by EPA Methods 200.2/200.7, 200.2/200.8 and 7473			
Samples and Matrix	Five soil samples			
Collection Date(s)	July 13, 2022			
Field Duplicate Pairs	GR/LC-SO-WRP01-02_2022713 and GR/LC-SO-WRP01-02-DUP_2022713			
Field QC Blanks	None			

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4* (May 2021) and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	The laboratory report and electronic data deliverable (EDD) did not include the complete sample IDs. Instead, samples were identified by a “Lab Number” and a “Station ID.” The sample IDs were added to the validated EDD and attachment. The chain of custody form (COC) indicates analysis of the toxicity characteristic leaching procedure (TCLP) and synthetic precipitation leaching procedure (SPLP) extracts was requested for sample GR/LC_SO-WRP01-01_20220713; however, results for the TCLP and SPLP analyses were not included in the laboratory report. The analyses were subcontracted to another lab under the Contract Laboratory Program (CLP) and were reported in lab report MH1A02. No qualifications were applied.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

Method blanks:

Within Criteria	Exceedance/Notes
Y	

Field blanks:

Within Criteria	Exceedance/Notes
NA	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
N	GR/LC-SO-WRP01-03_2022713: The percent recovery (%R) values do not apply for copper, aluminum, iron, manganese, and zinc because the parent sample concentrations were greater than four times the spike concentrations; therefore, no qualifications were applied. The %R values were below the START QAPP lower acceptance limits for antimony, molybdenum, and silver; therefore, the results for these metals were qualified as estimated, possibly biased low (flagged UJ/J-) in the parent sample.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Laboratory duplicates:

Within Criteria	Exceedance/Notes
N	GR/LC-SO-WRP01-03_2022713: The relative percent difference (RPD) value exceeded the QAPP acceptance limit (20%) for arsenic; therefore, the arsenic result was qualified as estimated (flagged J) in the sample.

Field duplicates:

Within Criteria	Exceedance/Notes
Y	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
N	The %R value was below the NFG lower acceptance limit for antimony; therefore, the results antimony results were qualified as estimated, possibly biased low (flagged UJ) in all samples.

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	The samples were analyzed at the following dilution factors: <u>Method 200.7</u> 5-fold for all samples <u>Method 200.8</u> 50-fold dilution for all samples

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results greater than the MDL but less than the RL were qualified as estimated by the laboratory (flagged J). Non-detect results were reported as <MDL in the report and EDD. The non-detect results reported at the RL and flagged U in the attached validated data table. MDLs and RLs are provided in the attached analytical data table

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220713

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SO-BKG-01-GRB_2022713B	7473	Mercury	7439-97-6	<0.020	U	0.020	0.040	mg/kg	0.040	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Antimony	7440-36-0	<2510	U	2510	5030	ug/kg	5030	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Arsenic	7440-38-2	<3020	U	3020	10100	ug/kg	10100	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Barium	7440-39-3	162000	D	25100	50300	ug/kg	162000	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Cadmium	7440-43-9	<503	U	503	1010	ug/kg	1010	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Chromium	7440-47-3	7170	JD	5030	10100	ug/kg	7170	J
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Cobalt	7440-48-4	3650	D	503	1010	ug/kg	3650	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Copper	7440-50-8	7360	D	2510	5030	ug/kg	7360	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Lead	7439-92-1	22300	D	503	1010	ug/kg	22300	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Molybdenum	7439-98-7	<5030	U	5030	5030	ug/kg	5030	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Nickel	7440-02-0	5960	D	2510	5030	ug/kg	5960	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Selenium	7782-49-2	<7540	U	7540	15100	ug/kg	15100	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Silver	7440-22-4	<2510	U	2510	5030	ug/kg	5030	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Thallium	7440-28-0	<5030	U	5030	10100	ug/kg	10100	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Uranium	7440-61-1	537	JD	503	1010	ug/kg	537	J
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2 / 200.8	Vanadium	7440-62-2	15000	JD	10100	15100	ug/kg	15000	J
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Aluminum	7429-90-5	11300	D	25.1	50.3	mg/kg	11300	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Beryllium	7440-41-7	<1.01	U	1.01	2.51	mg/kg	2.51	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Calcium	7440-70-2	2460	D	88.0	176	mg/kg	2460	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Iron	7439-89-6	12400	D	50.3	126	mg/kg	12400	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Magnesium	7439-95-4	2860	D	126	251	mg/kg	2860	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Manganese	7439-96-5	617	D	3.77	7.54	mg/kg	617	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Potassium	7440-09-7	1460	D	126	503	mg/kg	1460	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Silica (SiO2)	763-18-69	9610	D	126	503	mg/kg	9610	
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Sodium	7440-23-5	<126	U	126	503	mg/kg	503	U
GR/LC-SO-BKG-01-GRB_2022713B	EPA 200.2/200.7	Zinc	7440-66-6	54.2	D	7.54	15.1	mg/kg	54.2	
GR/LC-SO-WRP01-01_2022713	7473	Mercury	7439-97-6	0.136	D	0.020	0.040	mg/kg	0.136	
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Antimony	7440-36-0	<2510	U	2510	5020	ug/kg	5020	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Arsenic	7440-38-2	12200	D	3010	10000	ug/kg	12200	
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Barium	7440-39-3	35200	JD	25100	50200	ug/kg	35200	J
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Cadmium	7440-43-9	<502	U	502	1000	ug/kg	1000	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Chromium	7440-47-3	<5020	U	5020	10000	ug/kg	10000	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Cobalt	7440-48-4	1870	D	502	1000	ug/kg	1870	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220713

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Copper	7440-50-8	759000	D	2510	5020	ug/kg	759000	
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Lead	7439-92-1	64400	D	502	1000	ug/kg	64400	
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Molybdenum	7439-98-7	9060	D	5020	5020	ug/kg	9060	
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Nickel	7440-02-0	<2510	U	2510	5020	ug/kg	5020	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Selenium	7782-49-2	<7520	U	7520	15000	ug/kg	15000	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Silver	7440-22-4	<2510	U	2510	5020	ug/kg	5020	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Thallium	7440-28-0	<5020	U	5020	10000	ug/kg	10000	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Uranium	7440-61-1	718	JD	502	1000	ug/kg	718	J
GR/LC-SO-WRP01-01_2022713	EPA 200.2 / 200.8	Vanadium	7440-62-2	18800	D	10000	15000	ug/kg	18800	
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Aluminum	7429-90-5	7180	D	25.1	50.2	mg/kg	7180	
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Beryllium	7440-41-7	<1.00	U	1.00	2.51	mg/kg	2.51	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Calcium	7440-70-2	129	JD	87.8	176	mg/kg	129	J
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Iron	7439-89-6	374000	D	50.2	125	mg/kg	374000	
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Magnesium	7439-95-4	147	JD	125	251	mg/kg	147	J
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Manganese	7439-96-5	124	D	3.76	7.52	mg/kg	124	
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Potassium	7440-09-7	792	D	125	502	mg/kg	792	
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Silica (SiO2)	763-18-69	6500	D	125	502	mg/kg	6500	
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Sodium	7440-23-5	<125	U	125	502	mg/kg	502	U
GR/LC-SO-WRP01-01_2022713	EPA 200.2/200.7	Zinc	7440-66-6	253	D	7.52	15.0	mg/kg	253	
GR/LC-SO-WRP01-02_2022713	7473	Mercury	7439-97-6	0.117	D	0.020	0.040	mg/kg	0.117	
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Antimony	7440-36-0	<2510	U	2510	5020	ug/kg	5020	U
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Arsenic	7440-38-2	11300	D	3010	10000	ug/kg	11300	
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Barium	7440-39-3	36800	JD	25100	50200	ug/kg	36800	J
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Cadmium	7440-43-9	<502	U	502	1000	ug/kg	1000	U
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Chromium	7440-47-3	<5020	U	5020	10000	ug/kg	10000	U
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Cobalt	7440-48-4	1450	D	502	1000	ug/kg	1450	
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Copper	7440-50-8	766000	D	2510	5020	ug/kg	766000	
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Lead	7439-92-1	79500	D	502	1000	ug/kg	79500	
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Molybdenum	7439-98-7	10300	D	5020	5020	ug/kg	10300	
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Nickel	7440-02-0	<2510	U	2510	5020	ug/kg	5020	U
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Selenium	7782-49-2	<7530	U	7530	15100	ug/kg	15100	U
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Silver	7440-22-4	<2510	U	2510	5020	ug/kg	5020	U
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Thallium	7440-28-0	<5020	U	5020	10000	ug/kg	10000	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220713

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Uranium	7440-61-1	1740	D	502	1000	ug/kg	1740	
GR/LC-SO-WRP01-02_2022713	EPA 200.2 / 200.8	Vanadium	7440-62-2	32100	D	10000	15100	ug/kg	32100	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Aluminum	7429-90-5	25800	D	25.1	50.2	mg/kg	25800	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Beryllium	7440-41-7	2.93	D	1.00	2.51	mg/kg	2.93	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Calcium	7440-70-2	242	D	87.9	176	mg/kg	242	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Iron	7439-89-6	338000	D	50.2	126	mg/kg	338000	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Magnesium	7439-95-4	185	JD	126	251	mg/kg	185	J
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Manganese	7439-96-5	88.2	D	3.77	7.53	mg/kg	88.2	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Potassium	7440-09-7	939	D	126	502	mg/kg	939	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Silica (SiO2)	763-18-69	7480	D	126	502	mg/kg	7480	
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Sodium	7440-23-5	<126	U	126	502	mg/kg	502	U
GR/LC-SO-WRP01-02_2022713	EPA 200.2/200.7	Zinc	7440-66-6	183	D	7.53	15.1	mg/kg	183	
GR/LC-SO-WRP01-02-DUP_2022713	7473	Mercury	7439-97-6	0.144	D	0.020	0.039	mg/kg	0.144	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Antimony	7440-36-0	<2480	U	2480	4970	ug/kg	4970	UJ
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Arsenic	7440-38-2	12100	D	2980	9930	ug/kg	12100	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Barium	7440-39-3	40700	JD	24800	49700	ug/kg	40700	J
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Cadmium	7440-43-9	<497	U	497	993	ug/kg	993	U
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Chromium	7440-47-3	<4970	U	4970	9930	ug/kg	9930	U
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Cobalt	7440-48-4	1480	D	497	993	ug/kg	1480	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Copper	7440-50-8	734000	D	2480	4970	ug/kg	734000	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Lead	7439-92-1	68900	D	497	993	ug/kg	68900	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Molybdenum	7439-98-7	10700	D	4970	4970	ug/kg	10700	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Nickel	7440-02-0	<2480	U	2480	4970	ug/kg	4970	U
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Selenium	7782-49-2	<7450	U	7450	14900	ug/kg	14900	U
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Silver	7440-22-4	<2480	U	2480	4970	ug/kg	4970	U
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Thallium	7440-28-0	<4970	U	4970	9930	ug/kg	9930	U
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Uranium	7440-61-1	1660	D	497	993	ug/kg	1660	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2 / 200.8	Vanadium	7440-62-2	31300	D	9930	14900	ug/kg	31300	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Aluminum	7429-90-5	22600	D	24.8	49.7	mg/kg	22600	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Beryllium	7440-41-7	2.53	D	0.993	2.48	mg/kg	2.53	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Calcium	7440-70-2	211	D	86.9	174	mg/kg	211	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Iron	7439-89-6	349000	D	49.7	124	mg/kg	349000	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Magnesium	7439-95-4	202	JD	124	248	mg/kg	202	J

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220713

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Manganese	7439-96-5	96.4	D	3.73	7.45	mg/kg	96.4	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Potassium	7440-09-7	967	D	124	497	mg/kg	967	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Silica (SiO2)	763-18-69	7410	D	124	497	mg/kg	7410	
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Sodium	7440-23-5	<124	U	124	497	mg/kg	497	U
GR/LC-SO-WRP01-02-DUP_2022713	EPA 200.2/200.7	Zinc	7440-66-6	180	D	7.45	14.9	mg/kg	180	
GR/LC-SO-WRP01-03_2022713	7473	Mercury	7439-97-6	0.073	D	0.020	0.040	mg/kg	0.073	
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Antimony	7440-36-0	<2500	UJ	2500	4990	ug/kg	4990	UJ
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Arsenic	7440-38-2	11700	D	3000	9980	ug/kg	11700	J
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Barium	7440-39-3	25100	JD	25000	49900	ug/kg	25100	J
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Cadmium	7440-43-9	<499	U	499	998	ug/kg	998	U
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Chromium	7440-47-3	<4990	U	4990	9980	ug/kg	9980	U
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Cobalt	7440-48-4	1800	D	499	998	ug/kg	1800	
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Copper	7440-50-8	626000	D	2500	4990	ug/kg	626000	
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Lead	7439-92-1	68600	D	499	998	ug/kg	68600	
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Molybdenum	7439-98-7	9530	D	4990	4990	ug/kg	9530	J-
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Nickel	7440-02-0	<2500	U	2500	4990	ug/kg	4990	U
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Selenium	7782-49-2	<7490	U	7490	15000	ug/kg	15000	U
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Silver	7440-22-4	<2500	UJ	2500	4990	ug/kg	4990	UJ
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Thallium	7440-28-0	<4990	U	4990	9980	ug/kg	9980	U
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Uranium	7440-61-1	2420	D	499	998	ug/kg	2420	
GR/LC-SO-WRP01-03_2022713	EPA 200.2 / 200.8	Vanadium	7440-62-2	32700	D	9980	15000	ug/kg	32700	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Aluminum	7429-90-5	42100	D	25.0	49.9	mg/kg	42100	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Beryllium	7440-41-7	5.05	D	0.998	2.50	mg/kg	5.05	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Calcium	7440-70-2	290	D	87.4	175	mg/kg	290	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Iron	7439-89-6	312000	D	49.9	125	mg/kg	312000	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Magnesium	7439-95-4	<125	U	125	250	mg/kg	250	U
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Manganese	7439-96-5	107	D	3.74	7.49	mg/kg	107	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Potassium	7440-09-7	611	D	125	499	mg/kg	611	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Silica (SiO2)	763-18-69	9330	D	125	499	mg/kg	9330	
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Sodium	7440-23-5	<125	U	125	499	mg/kg	499	U
GR/LC-SO-WRP01-03_2022713	EPA 200.2/200.7	Zinc	7440-66-6	245	D	7.49	15.0	mg/kg	245	

ATTACHMENT 3

**DATA VALIDATION REPORT
TECHLAW/R8 ESAT REPORT NO. C220714**

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Site Name	Ruby Mine Combined Assessment		TO/TD No.	68HE0820F0083/2083-2203-09
Document Tracking No.	0719a-c		Technical Reviewer (signature and date)	<i>Kelly D. Thomas</i> 1/13/2023
Data Reviewer (signature and date)	<i>Maureen</i>	12/19/2022	Laboratory	TechLaw Inc., Environmental Services Assistance Team (ESAT) – Denver, CO
Laboratory Report No.	C220714			
Analyses	Total and dissolved metals including mercury by EPA Methods 200.7 and 200.8 and hardness by Standard Method (SM) 2340B			
Samples and Matrix	12 water samples			
Collection Date(s)	April – July 2022			
Field Duplicate Pairs	None			
Field QC Blanks	None			

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4* (May 2021), and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	The laboratory report and electronic data deliverable (EDD) did not include the complete sample IDs. Instead, samples were identified by a “Lab Number” and a “Station ID.” The sample IDs were added to the validated EDD and attachment. Hardness analysis was included in the laboratory report and EDD; however, the analysis was not requested on the chain of custody (COC) form. Hardness analysis results reported by the laboratory are included on the attached validated data table.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

Method blanks:

Within Criteria	Exceedance/Notes
N	Method 200.8 - Silver was detected in the method blank associated with the dissolved metals analysis (Batch 2207135) at a concentration above the method detection limit (MDL) but below the reporting limit (RL). Silver was not detected in any of the associated samples; therefore, no qualifications were applied. - Chromium and arsenic were detected between the MDL and RL in the method blank associated with the total metals analysis (Batch 2207149). Therefore, the results were raised to the reporting limit and qualified as non-detect (flagged U) for total arsenic in all samples and for total chromium in samples GR/LC_3374-A_20220512, GR/LC_3374-A_20220519, GR/LC_3374-A_20220526, GR/LC_3374-A_20220602, GR/LC_3374-A_20220616, and GR/LC_3374-A_20220617. The chromium result was qualified as estimated, possibly biased high (flagged J+) in sample GR/LC_3374-A_20220609. Chromium was not detected in the remaining samples; therefore, no additional qualifications were applied.

Field blanks:

Within Criteria	Exceedance/Notes
NA	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

MS/MSDs:

Within Criteria	Exceedance/Notes
Y	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
Y	

Field duplicates:

Within Criteria	Exceedance/Notes
NA	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	Samples were analyzed at the following dilutions: • 5-fold for all dissolved 200.8 metals: GR/LC_3374-A_20220505 • 5-fold for all total 200.8 metals: GR/LC_3374-A_20220512, GR/LC_3374-A_20220519, GR/LC_3374-A_20220526, GR/LC_3374-A_20220602, and GR/LC_3374-A_20220609 • 10-fold for all total 200.8 metals: GR/LC_3374-A_20220407, GR/LC_3374-A_20220505, GR/LC_3374-A_20220616, GR/LC_3374-A_20220617, GR/LC_3374-A_20220623, GR/LC_3374-A_20220630, and GR/LC_3374-A_20220707

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results greater than the MDL but less than the RL were qualified as estimated by the laboratory (flagged J). Non-detect results were reported as <MDL in the report and EDD. The non-detect results reported at the RL and flagged U in the attached validated data table. MDLs and RLs are provided in the attached analytical data table.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220407	200.8	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220407	200.8	Total Arsenic	7440-38-2	6.54	JD	6.00	20.0	ug/L	20.0	U
GR/LC_3374-A_20220407	200.8	Total Barium	7440-39-3	71.1	JD	50.0	100	ug/L	71.1	J
GR/LC_3374-A_20220407	200.8	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220407	200.8	Total Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220407	200.8	Total Cobalt	7440-48-4	7.94	D	1.00	2.00	ug/L	7.94	
GR/LC_3374-A_20220407	200.8	Total Copper	7440-50-8	305	D	5.00	10.0	ug/L	305	
GR/LC_3374-A_20220407	200.8	Total Lead	7439-92-1	1.50	JD	1.00	2.00	ug/L	1.50	J
GR/LC_3374-A_20220407	200.8	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_3374-A_20220407	200.8	Total Nickel	7440-02-0	7.74	JD	5.00	10.0	ug/L	7.74	J
GR/LC_3374-A_20220407	200.8	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220407	200.8	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220407	200.8	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220407	200.8	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220407	200.8	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220407	200.7	Total Aluminum	7429-90-5	5120		50.0	100	ug/L	5120	
GR/LC_3374-A_20220407	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220407	200.7	Total Calcium	7440-70-2	23400		175	350	ug/L	23400	
GR/LC_3374-A_20220407	200.7	Total Iron	7439-89-6	1760		100	250	ug/L	1760	
GR/LC_3374-A_20220407	200.7	Total Magnesium	7439-95-4	3400		250	500	ug/L	3400	
GR/LC_3374-A_20220407	200.7	Total Manganese	7439-96-5	244		7.50	15.0	ug/L	244	
GR/LC_3374-A_20220407	200.7	Total Potassium	7440-09-7	360	J	250	1000	ug/L	360	J
GR/LC_3374-A_20220407	200.7	Total (SiO2)	763-18-69	7780		250	1000	ug/L	7780	
GR/LC_3374-A_20220407	200.7	Total Sodium	7440-23-5	2070		250	1000	ug/L	2070	
GR/LC_3374-A_20220407	200.7	Total Zinc	7440-66-6	84.6		15.0	30.0	ug/L	84.6	
GR/LC_3374-A_20220407	2340B	Hardness	NA	74		2	2	mg/L	74	
GR/LC_3374-A_20220407	200.7	Dissolved Aluminum	7429-90-5	3010		50.0	100	ug/L	3010	
GR/LC_3374-A_20220407	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220407	200.7	Dissolved Calcium	7440-70-2	24100	J	175	350	ug/L	24100	J
GR/LC_3374-A_20220407	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220407	200.7	Dissolved Magnesium	7439-95-4	3410		250	500	ug/L	3410	
GR/LC_3374-A_20220407	200.7	Dissolved Manganese	7439-96-5	233		7.50	15.0	ug/L	233	
GR/LC_3374-A_20220407	200.7	Dissolved Potassium	7440-09-7	324	J	250	1000	ug/L	324	J

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220407	200.7	Dissolved Silica (SiO2)	763-18-69	7180		250	1000	ug/L	7180	
GR/LC_3374-A_20220407	200.7	Dissolved Sodium	7440-23-5	2120		250	1000	ug/L	2120	
GR/LC_3374-A_20220407	200.7	Dissolved Zinc	7440-66-6	82.7		15.0	30.0	ug/L	82.7	
GR/LC_3374-A_20220407	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220407	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220407	200.8	Dissolved Barium	7440-39-3	65.6		5.00	10.0	ug/L	65.6	
GR/LC_3374-A_20220407	200.8	Dissolved Cadmium	7440-43-9	0.873		0.100	0.200	ug/L	0.873	
GR/LC_3374-A_20220407	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220407	200.8	Dissolved Cobalt	7440-48-4	7.40		0.100	0.200	ug/L	7.4	
GR/LC_3374-A_20220407	200.8	Dissolved Copper	7440-50-8	285		0.500	1.00	ug/L	285	
GR/LC_3374-A_20220407	200.8	Dissolved Lead	7439-92-1	0.847		0.100	0.200	ug/L	0.847	
GR/LC_3374-A_20220407	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220407	200.8	Dissolved Nickel	7440-02-0	7.01		0.500	1.00	ug/L	7.01	
GR/LC_3374-A_20220407	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220407	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220407	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220407	200.8	Dissolved Uranium	7440-61-1	0.419		0.100	0.200	ug/L	0.419	
GR/LC_3374-A_20220407	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220505	200.8	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220505	200.8	Total Arsenic	7440-38-2	7.02	JD	6.00	20.0	ug/L	20.0	U
GR/LC_3374-A_20220505	200.8	Total Barium	7440-39-3	54.1	JD	50.0	100	ug/L	54.1	J
GR/LC_3374-A_20220505	200.8	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220505	200.8	Total Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220505	200.8	Total Cobalt	7440-48-4	3.86	D	1.00	2.00	ug/L	3.86	
GR/LC_3374-A_20220505	200.8	Total Copper	7440-50-8	149	D	5.00	10.0	ug/L	149	
GR/LC_3374-A_20220505	200.8	Total Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220505	200.8	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_3374-A_20220505	200.8	Total Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220505	200.8	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220505	200.8	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220505	200.8	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220505	200.8	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220505	200.8	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220505	200.7	Total Aluminum	7429-90-5	2670		50.0	100	ug/L	2670	
GR/LC_3374-A_20220505	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220505	200.7	Total Calcium	7440-70-2	16300		175	350	ug/L	16300	
GR/LC_3374-A_20220505	200.7	Total Iron	7439-89-6	837		100	250	ug/L	837	
GR/LC_3374-A_20220505	200.7	Total Magnesium	7439-95-4	2060		250	500	ug/L	2060	
GR/LC_3374-A_20220505	200.7	Total Manganese	7439-96-5	110		7.50	15.0	ug/L	110	
GR/LC_3374-A_20220505	200.7	Total Potassium	7440-09-7	344	J	250	1000	ug/L	344	J
GR/LC_3374-A_20220505	200.7	Total (SiO ₂)	763-18-69	6810		250	1000	ug/L	6810	
GR/LC_3374-A_20220505	200.7	Total Sodium	7440-23-5	1630		250	1000	ug/L	1630	
GR/LC_3374-A_20220505	200.7	Total Zinc	7440-66-6	44.1		15.0	30.0	ug/L	44.1	
GR/LC_3374-A_20220505	2340B	Hardness	NA	51		2	2	mg/L	51	
GR/LC_3374-A_20220505	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220505	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220505	200.7	Dissolved Calcium	7440-70-2	16900	J	175	350	ug/L	16900	J
GR/LC_3374-A_20220505	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220505	200.7	Dissolved Magnesium	7439-95-4	2050		250	500	ug/L	2050	
GR/LC_3374-A_20220505	200.7	Dissolved Manganese	7439-96-5	108		7.50	15.0	ug/L	108	
GR/LC_3374-A_20220505	200.7	Dissolved Potassium	7440-09-7	257	J	250	1000	ug/L	257	J
GR/LC_3374-A_20220505	200.7	Dissolved Silica (SiO ₂)	763-18-69	6130		250	1000	ug/L	6130	
GR/LC_3374-A_20220505	200.7	Dissolved Sodium	7440-23-5	1660		250	1000	ug/L	1660	
GR/LC_3374-A_20220505	200.7	Dissolved Zinc	7440-66-6	33.7		15.0	30.0	ug/L	33.7	
GR/LC_3374-A_20220505	200.8	Dissolved Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220505	200.8	Dissolved Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220505	200.8	Dissolved Barium	7440-39-3	52.1	D	25.0	50.0	ug/L	52.1	
GR/LC_3374-A_20220505	200.8	Dissolved Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220505	200.8	Dissolved Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220505	200.8	Dissolved Cobalt	7440-48-4	3.93	D	0.500	1.00	ug/L	3.93	
GR/LC_3374-A_20220505	200.8	Dissolved Copper	7440-50-8	61.1	D	2.50	5.00	ug/L	61.1	
GR/LC_3374-A_20220505	200.8	Dissolved Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220505	200.8	Dissolved Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220505	200.8	Dissolved Nickel	7440-02-0	3.11	JD	2.50	5.00	ug/L	3.11	J
GR/LC_3374-A_20220505	200.8	Dissolved Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_3374-A_20220505	200.8	Dissolved Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220505	200.8	Dissolved Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220505	200.8	Dissolved Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220505	200.8	Dissolved Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_3374-A_20220512	200.8	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220512	200.8	Total Arsenic	7440-38-2	6.66	JD	3.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220512	200.8	Total Barium	7440-39-3	36.0	JD	25.0	50.0	ug/L	36.0	J
GR/LC_3374-A_20220512	200.8	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220512	200.8	Total Chromium	7440-47-3	6.12	JD	5.00	10.0	ug/L	10	U
GR/LC_3374-A_20220512	200.8	Total Cobalt	7440-48-4	2.12	D	0.500	1.00	ug/L	2.12	
GR/LC_3374-A_20220512	200.8	Total Copper	7440-50-8	100	D	2.50	5.00	ug/L	100	
GR/LC_3374-A_20220512	200.8	Total Lead	7439-92-1	0.751	JD	0.500	1.00	ug/L	0.751	J
GR/LC_3374-A_20220512	200.8	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220512	200.8	Total Nickel	7440-02-0	2.63	JD	2.50	5.00	ug/L	2.63	J
GR/LC_3374-A_20220512	200.8	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_3374-A_20220512	200.8	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220512	200.8	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220512	200.8	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220512	200.8	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_3374-A_20220512	200.7	Total Aluminum	7429-90-5	2200		50.0	100	ug/L	2200	
GR/LC_3374-A_20220512	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220512	200.7	Total Calcium	7440-70-2	10000		175	350	ug/L	10000	
GR/LC_3374-A_20220512	200.7	Total Iron	7439-89-6	2020		100	250	ug/L	2020	
GR/LC_3374-A_20220512	200.7	Total Magnesium	7439-95-4	1290		250	500	ug/L	1290	
GR/LC_3374-A_20220512	200.7	Total Manganese	7439-96-5	61.4		7.50	15.0	ug/L	61.4	
GR/LC_3374-A_20220512	200.7	Total Potassium	7440-09-7	459	J	250	1000	ug/L	459	J
GR/LC_3374-A_20220512	200.7	Total (SiO2)	763-18-69	6120		250	1000	ug/L	6120	
GR/LC_3374-A_20220512	200.7	Total Sodium	7440-23-5	1060		250	1000	ug/L	1060	
GR/LC_3374-A_20220512	200.7	Total Zinc	7440-66-6	27.0	J	15.0	30.0	ug/L	27.0	J
GR/LC_3374-A_20220512	2340B	Hardness	NA	35		2	2	mg/L	35	
GR/LC_3374-A_20220512	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220512	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220512	200.7	Dissolved Calcium	7440-70-2	12000		175	350	ug/L	12000	
GR/LC_3374-A_20220512	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U

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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220512	200.7	Dissolved Magnesium	7439-95-4	1310		250	500	ug/L	1310	
GR/LC_3374-A_20220512	200.7	Dissolved Manganese	7439-96-5	54.1		7.50	15.0	ug/L	54.1	
GR/LC_3374-A_20220512	200.7	Dissolved Potassium	7440-09-7	425	J	250	1000	ug/L	425	J
GR/LC_3374-A_20220512	200.7	Dissolved Silica (SiO2)	763-18-69	5180		250	1000	ug/L	5180	
GR/LC_3374-A_20220512	200.7	Dissolved Sodium	7440-23-5	1070		250	1000	ug/L	1070	
GR/LC_3374-A_20220512	200.7	Dissolved Zinc	7440-66-6	26.9	J	15.0	30.0	ug/L	26.9	J
GR/LC_3374-A_20220512	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220512	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220512	200.8	Dissolved Barium	7440-39-3	33.0		5.00	10.0	ug/L	33.0	
GR/LC_3374-A_20220512	200.8	Dissolved Cadmium	7440-43-9	0.226		0.100	0.200	ug/L	0.226	
GR/LC_3374-A_20220512	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220512	200.8	Dissolved Cobalt	7440-48-4	1.99		0.100	0.200	ug/L	1.99	
GR/LC_3374-A_20220512	200.8	Dissolved Copper	7440-50-8	28.3		0.500	1.00	ug/L	28.3	
GR/LC_3374-A_20220512	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220512	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220512	200.8	Dissolved Nickel	7440-02-0	2.19		0.500	1.00	ug/L	2.19	
GR/LC_3374-A_20220512	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220512	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220512	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220512	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220512	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220519	200.8	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220519	200.8	Total Arsenic	7440-38-2	5.92	JD	3.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220519	200.8	Total Barium	7440-39-3	25.9	JD	25.0	50.0	ug/L	25.9	J
GR/LC_3374-A_20220519	200.8	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220519	200.8	Total Chromium	7440-47-3	5.42	JD	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220519	200.8	Total Cobalt	7440-48-4	1.08	D	0.500	1.00	ug/L	1.08	
GR/LC_3374-A_20220519	200.8	Total Copper	7440-50-8	55.5	D	2.50	5.00	ug/L	55.5	
GR/LC_3374-A_20220519	200.8	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220519	200.8	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220519	200.8	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220519	200.8	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_3374-A_20220519	200.8	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220519	200.8	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220519	200.8	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220519	200.8	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_3374-A_20220519	200.7	Total Aluminum	7429-90-5	1070		50.0	100	ug/L	1070	
GR/LC_3374-A_20220519	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220519	200.7	Total Calcium	7440-70-2	7520		175	350	ug/L	7520	
GR/LC_3374-A_20220519	200.7	Total Iron	7439-89-6	873		100	250	ug/L	873	
GR/LC_3374-A_20220519	200.7	Total Magnesium	7439-95-4	945		250	500	ug/L	945	
GR/LC_3374-A_20220519	200.7	Total Manganese	7439-96-5	33.9		7.50	15.0	ug/L	33.9	
GR/LC_3374-A_20220519	200.7	Total Potassium	7440-09-7	325	J	250	1000	ug/L	325	J
GR/LC_3374-A_20220519	200.7	Total (SiO2)	763-18-69	4920		250	1000	ug/L	4920	
GR/LC_3374-A_20220519	200.7	Total Sodium	7440-23-5	829	J	250	1000	ug/L	829	J
GR/LC_3374-A_20220519	200.7	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220519	2340B	Hardness	NA	23		2	2	mg/L	23	
GR/LC_3374-A_20220519	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220519	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220519	200.7	Dissolved Calcium	7440-70-2	7640		175	350	ug/L	7640	
GR/LC_3374-A_20220519	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220519	200.7	Dissolved Magnesium	7439-95-4	925		250	500	ug/L	925	
GR/LC_3374-A_20220519	200.7	Dissolved Manganese	7439-96-5	28.7		7.50	15.0	ug/L	28.7	
GR/LC_3374-A_20220519	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220519	200.7	Dissolved Silica (SiO2)	763-18-69	4300		250	1000	ug/L	4300	
GR/LC_3374-A_20220519	200.7	Dissolved Sodium	7440-23-5	819	J	250	1000	ug/L	819	J
GR/LC_3374-A_20220519	200.7	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220519	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220519	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220519	200.8	Dissolved Barium	7440-39-3	22.9		5.00	10.0	ug/L	22.9	
GR/LC_3374-A_20220519	200.8	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220519	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220519	200.8	Dissolved Cobalt	7440-48-4	1.00		0.100	0.200	ug/L	0.100	
GR/LC_3374-A_20220519	200.8	Dissolved Copper	7440-50-8	17.5		0.500	1.00	ug/L	17.5	
GR/LC_3374-A_20220519	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220519	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220519	200.8	Dissolved Nickel	7440-02-0	1.10		0.500	1.00	ug/L	1.1	
GR/LC_3374-A_20220519	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220519	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220519	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220519	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220519	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220526	200.8	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220526	200.8	Total Arsenic	7440-38-2	6.22	JD	3.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220526	200.8	Total Barium	7440-39-3	30.0	JD	25.0	50.0	ug/L	30.0	J
GR/LC_3374-A_20220526	200.8	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220526	200.8	Total Chromium	7440-47-3	7.44	JD	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220526	200.8	Total Cobalt	7440-48-4	1.44	D	0.500	1.00	ug/L	1.44	
GR/LC_3374-A_20220526	200.8	Total Copper	7440-50-8	68.8	D	2.50	5.00	ug/L	68.8	
GR/LC_3374-A_20220526	200.8	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220526	200.8	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220526	200.8	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220526	200.8	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_3374-A_20220526	200.8	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220526	200.8	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220526	200.8	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220526	200.8	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_3374-A_20220526	200.7	Total Aluminum	7429-90-5	1200		50.0	100	ug/L	1200	
GR/LC_3374-A_20220526	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220526	200.7	Total Calcium	7440-70-2	9210		175	350	ug/L	9210	
GR/LC_3374-A_20220526	200.7	Total Iron	7439-89-6	399		100	250	ug/L	399	
GR/LC_3374-A_20220526	200.7	Total Magnesium	7439-95-4	1150		250	500	ug/L	1150	
GR/LC_3374-A_20220526	200.7	Total Manganese	7439-96-5	41.8		7.50	15.0	ug/L	41.8	
GR/LC_3374-A_20220526	200.7	Total Potassium	7440-09-7	260	J	250	1000	ug/L	260	J
GR/LC_3374-A_20220526	200.7	Total (SiO2)	763-18-69	5610		250	1000	ug/L	5610	
GR/LC_3374-A_20220526	200.7	Total Sodium	7440-23-5	1040		250	1000	ug/L	1040	
GR/LC_3374-A_20220526	200.7	Total Zinc	7440-66-6	19.7	J	15.0	30.0	ug/L	19.7	J
GR/LC_3374-A_20220526	2340B	Hardness	NA	28		2	2	mg/L	28	
GR/LC_3374-A_20220526	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220526	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220526	200.7	Dissolved Calcium	7440-70-2	9170		175	350	ug/L	9170	
GR/LC_3374-A_20220526	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220526	200.7	Dissolved Magnesium	7439-95-4	1180		250	500	ug/L	1180	
GR/LC_3374-A_20220526	200.7	Dissolved Manganese	7439-96-5	39.7		7.50	15.0	ug/L	39.7	
GR/LC_3374-A_20220526	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220526	200.7	Dissolved Silica (SiO2)	763-18-69	5020		250	1000	ug/L	5020	
GR/LC_3374-A_20220526	200.7	Dissolved Sodium	7440-23-5	1020		250	1000	ug/L	1020	
GR/LC_3374-A_20220526	200.7	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220526	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220526	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220526	200.8	Dissolved Barium	7440-39-3	27.7		5.00	10.0	ug/L	27.7	
GR/LC_3374-A_20220526	200.8	Dissolved Cadmium	7440-43-9	0.174	J	0.100	0.200	ug/L	0.174	J
GR/LC_3374-A_20220526	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220526	200.8	Dissolved Cobalt	7440-48-4	1.40		0.100	0.200	ug/L	1.40	
GR/LC_3374-A_20220526	200.8	Dissolved Copper	7440-50-8	21.1		0.500	1.00	ug/L	21.1	
GR/LC_3374-A_20220526	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220526	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220526	200.8	Dissolved Nickel	7440-02-0	1.72		0.500	1.00	ug/L	1.72	
GR/LC_3374-A_20220526	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220526	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220526	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220526	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220526	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220602	200.8	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220602	200.8	Total Arsenic	7440-38-2	8.17	JD	3.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220602	200.8	Total Barium	7440-39-3	27.1	JD	25.0	50.0	ug/L	27.1	J
GR/LC_3374-A_20220602	200.8	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220602	200.8	Total Chromium	7440-47-3	7.77	JD	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220602	200.8	Total Cobalt	7440-48-4	1.32	D	0.500	1.00	ug/L	1.32	
GR/LC_3374-A_20220602	200.8	Total Copper	7440-50-8	67.2	D	2.50	5.00	ug/L	67.2	
GR/LC_3374-A_20220602	200.8	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220602	200.8	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220602	200.8	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220602	200.8	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_3374-A_20220602	200.8	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220602	200.8	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220602	200.8	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220602	200.8	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_3374-A_20220602	200.7	Total Aluminum	7429-90-5	1120		50.0	100	ug/L	1120	
GR/LC_3374-A_20220602	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220602	200.7	Total Calcium	7440-70-2	8790		175	350	ug/L	8790	
GR/LC_3374-A_20220602	200.7	Total Iron	7439-89-6	417		100	250	ug/L	417	
GR/LC_3374-A_20220602	200.7	Total Magnesium	7439-95-4	1110		250	500	ug/L	1110	
GR/LC_3374-A_20220602	200.7	Total Manganese	7439-96-5	33.8		7.50	15.0	ug/L	33.8	
GR/LC_3374-A_20220602	200.7	Total Potassium	7440-09-7	284	J	250	1000	ug/L	284	J
GR/LC_3374-A_20220602	200.7	Total (SiO2)	763-18-69	5280		250	1000	ug/L	5280	
GR/LC_3374-A_20220602	200.7	Total Sodium	7440-23-5	949	J	250	1000	ug/L	949	J
GR/LC_3374-A_20220602	200.7	Total Zinc	7440-66-6	17.6	J	15.0	30.0	ug/L	17.6	J
GR/LC_3374-A_20220602	2340B	Hardness	NA	25		2	2	mg/L	25	
GR/LC_3374-A_20220602	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220602	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220602	200.7	Dissolved Calcium	7440-70-2	8400		175	350	ug/L	8400	
GR/LC_3374-A_20220602	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220602	200.7	Dissolved Magnesium	7439-95-4	1090		250	500	ug/L	1090	
GR/LC_3374-A_20220602	200.7	Dissolved Manganese	7439-96-5	31.7		7.50	15.0	ug/L	31.7	
GR/LC_3374-A_20220602	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220602	200.7	Dissolved Silica (SiO2)	763-18-69	4690		250	1000	ug/L	4690	
GR/LC_3374-A_20220602	200.7	Dissolved Sodium	7440-23-5	958	J	250	1000	ug/L	958	J
GR/LC_3374-A_20220602	200.7	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220602	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220602	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220602	200.8	Dissolved Barium	7440-39-3	25.5		5.00	10.0	ug/L	25.5	
GR/LC_3374-A_20220602	200.8	Dissolved Cadmium	7440-43-9	0.112	J	0.100	0.200	ug/L	0.112	J
GR/LC_3374-A_20220602	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220602	200.8	Dissolved Cobalt	7440-48-4	1.30		0.100	0.200	ug/L	1.30	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220602	200.8	Dissolved Copper	7440-50-8	20.2		0.500	1.00	ug/L	20.2	
GR/LC_3374-A_20220602	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220602	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220602	200.8	Dissolved Nickel	7440-02-0	1.55		0.500	1.00	ug/L	1.55	
GR/LC_3374-A_20220602	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220602	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220602	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220602	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220602	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220609	200.8	Total Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220609	200.8	Total Arsenic	7440-38-2	7.72	JD	3.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220609	200.8	Total Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_3374-A_20220609	200.8	Total Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220609	200.8	Total Chromium	7440-47-3	11.3	D	5.00	10.0	ug/L	11.3	J+
GR/LC_3374-A_20220609	200.8	Total Cobalt	7440-48-4	0.707	JD	0.500	1.00	ug/L	0.707	J
GR/LC_3374-A_20220609	200.8	Total Copper	7440-50-8	38.6	D	2.50	5.00	ug/L	38.6	
GR/LC_3374-A_20220609	200.8	Total Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220609	200.8	Total Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220609	200.8	Total Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220609	200.8	Total Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_3374-A_20220609	200.8	Total Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_3374-A_20220609	200.8	Total Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220609	200.8	Total Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220609	200.8	Total Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_3374-A_20220609	200.7	Total Aluminum	7429-90-5	659		50.0	100	ug/L	659	
GR/LC_3374-A_20220609	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220609	200.7	Total Calcium	7440-70-2	6830		175	350	ug/L	6830	
GR/LC_3374-A_20220609	200.7	Total Iron	7439-89-6	438		100	250	ug/L	438	
GR/LC_3374-A_20220609	200.7	Total Magnesium	7439-95-4	928		250	500	ug/L	928	
GR/LC_3374-A_20220609	200.7	Total Manganese	7439-96-5	24.1		7.50	15.0	ug/L	24.1	
GR/LC_3374-A_20220609	200.7	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220609	200.7	Total (SiO2)	763-18-69	4120		250	1000	ug/L	4120	
GR/LC_3374-A_20220609	200.7	Total Sodium	7440-23-5	732	J	250	1000	ug/L	732	J

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220609	200.7	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220609	2340B	Hardness	NA	20		2	2	mg/L	20	
GR/LC_3374-A_20220609	200.7	Dissolved Aluminum	7429-90-5	55.7	J	50.0	100	ug/L	55.7	J
GR/LC_3374-A_20220609	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220609	200.7	Dissolved Calcium	7440-70-2	6600		175	350	ug/L	6600	
GR/LC_3374-A_20220609	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220609	200.7	Dissolved Magnesium	7439-95-4	845		250	500	ug/L	845	
GR/LC_3374-A_20220609	200.7	Dissolved Manganese	7439-96-5	17.0		7.50	15.0	ug/L	17.0	
GR/LC_3374-A_20220609	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220609	200.7	Dissolved Silica (SiO2)	763-18-69	3710		250	1000	ug/L	3710	
GR/LC_3374-A_20220609	200.7	Dissolved Sodium	7440-23-5	715	J	250	1000	ug/L	715	J
GR/LC_3374-A_20220609	200.7	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220609	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220609	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220609	200.8	Dissolved Barium	7440-39-3	21.1		5.00	10.0	ug/L	21.1	
GR/LC_3374-A_20220609	200.8	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220609	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220609	200.8	Dissolved Cobalt	7440-48-4	0.696		0.100	0.200	ug/L	0.696	
GR/LC_3374-A_20220609	200.8	Dissolved Copper	7440-50-8	14.1		0.500	1.00	ug/L	14.1	
GR/LC_3374-A_20220609	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220609	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220609	200.8	Dissolved Nickel	7440-02-0	0.866	J	0.500	1.00	ug/L	0.866	J
GR/LC_3374-A_20220609	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220609	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220609	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220609	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220609	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220616	200.8	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220616	200.8	Total Arsenic	7440-38-2	8.71	JD	6.00	20.0	ug/L	20.0	U
GR/LC_3374-A_20220616	200.8	Total Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220616	200.8	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220616	200.8	Total Chromium	7440-47-3	10.9	JD	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220616	200.8	Total Cobalt	7440-48-4	<1.00	U	1.00	2.00	ug/L	2.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220616	200.8	Total Copper	7440-50-8	50.6	D	5.00	10.0	ug/L	50.6	
GR/LC_3374-A_20220616	200.8	Total Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220616	200.8	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_3374-A_20220616	200.8	Total Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220616	200.8	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220616	200.8	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220616	200.8	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220616	200.8	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220616	200.8	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220616	200.7	Total Aluminum	7429-90-5	754		50.0	100	ug/L	754	
GR/LC_3374-A_20220616	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220616	200.7	Total Calcium	7440-70-2	7930		175	350	ug/L	7930	
GR/LC_3374-A_20220616	200.7	Total Iron	7439-89-6	465		100	250	ug/L	465	
GR/LC_3374-A_20220616	200.7	Total Magnesium	7439-95-4	1030		250	500	ug/L	1030	
GR/LC_3374-A_20220616	200.7	Total Manganese	7439-96-5	24.0		7.50	15.0	ug/L	24.0	
GR/LC_3374-A_20220616	200.7	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220616	200.7	Total (SiO2)	763-18-69	4410		250	1000	ug/L	4410	
GR/LC_3374-A_20220616	200.7	Total Sodium	7440-23-5	811	J	250	1000	ug/L	811	J
GR/LC_3374-A_20220616	200.7	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220616	2340B	Hardness	NA	23		2	2	mg/L	23	
GR/LC_3374-A_20220616	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220616	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220616	200.7	Dissolved Calcium	7440-70-2	7340		175	350	ug/L	7340	
GR/LC_3374-A_20220616	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220616	200.7	Dissolved Magnesium	7439-95-4	1060		250	500	ug/L	1060	
GR/LC_3374-A_20220616	200.7	Dissolved Manganese	7439-96-5	20.1		7.50	15.0	ug/L	20.1	
GR/LC_3374-A_20220616	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220616	200.7	Dissolved Silica (SiO2)	763-18-69	3880		250	1000	ug/L	3880	
GR/LC_3374-A_20220616	200.7	Dissolved Sodium	7440-23-5	822	J	250	1000	ug/L	822	J
GR/LC_3374-A_20220616	200.7	Dissolved Zinc	7440-66-6	29.1	J	15.0	30.0	ug/L	29.1	J
GR/LC_3374-A_20220616	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220616	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220616	200.8	Dissolved Barium	7440-39-3	23.8		5.00	10.0	ug/L	23.8	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220616	200.8	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220616	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220616	200.8	Dissolved Cobalt	7440-48-4	0.903		0.100	0.200	ug/L	0.903	
GR/LC_3374-A_20220616	200.8	Dissolved Copper	7440-50-8	11.7		0.500	1.00	ug/L	11.7	
GR/LC_3374-A_20220616	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220616	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220616	200.8	Dissolved Nickel	7440-02-0	1.16		0.500	1.00	ug/L	1.16	
GR/LC_3374-A_20220616	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220616	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220616	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220616	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220616	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220617	200.8	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220617	200.8	Total Arsenic	7440-38-2	9.36	JD	6.00	20.0	ug/L	20.0	U
GR/LC_3374-A_20220617	200.8	Total Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220617	200.8	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220617	200.8	Total Chromium	7440-47-3	10.0	JD	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220617	200.8	Total Cobalt	7440-48-4	1.03	JD	1.00	2.00	ug/L	1.03	J
GR/LC_3374-A_20220617	200.8	Total Copper	7440-50-8	59.8	D	5.00	10.0	ug/L	59.8	
GR/LC_3374-A_20220617	200.8	Total Lead	7439-92-1	2.38	D	1.00	2.00	ug/L	2.38	
GR/LC_3374-A_20220617	200.8	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_3374-A_20220617	200.8	Total Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220617	200.8	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220617	200.8	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220617	200.8	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220617	200.8	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220617	200.8	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220617	200.7	Total Aluminum	7429-90-5	4960		50.0	100	ug/L	4960	
GR/LC_3374-A_20220617	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220617	200.7	Total Calcium	7440-70-2	8170		175	350	ug/L	8170	
GR/LC_3374-A_20220617	200.7	Total Iron	7439-89-6	1240		100	250	ug/L	1240	
GR/LC_3374-A_20220617	200.7	Total Magnesium	7439-95-4	1070		250	500	ug/L	1070	
GR/LC_3374-A_20220617	200.7	Total Manganese	7439-96-5	30.5		7.50	15.0	ug/L	30.5	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220617	200.7	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220617	200.7	Total (SiO2)	763-18-69	4890		250	1000	ug/L	4890	
GR/LC_3374-A_20220617	200.7	Total Sodium	7440-23-5	845	J	250	1000	ug/L	845	J
GR/LC_3374-A_20220617	200.7	Total Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220617	2340B	Hardness	NA	22		2	2	mg/L	22	
GR/LC_3374-A_20220617	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220617	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220617	200.7	Dissolved Calcium	7440-70-2	7170		175	350	ug/L	7170	
GR/LC_3374-A_20220617	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220617	200.7	Dissolved Magnesium	7439-95-4	1060		250	500	ug/L	1060	
GR/LC_3374-A_20220617	200.7	Dissolved Manganese	7439-96-5	25.2		7.50	15.0	ug/L	25.2	
GR/LC_3374-A_20220617	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220617	200.7	Dissolved Silica (SiO2)	763-18-69	3320		250	1000	ug/L	3320	
GR/LC_3374-A_20220617	200.7	Dissolved Sodium	7440-23-5	827	J	250	1000	ug/L	827	J
GR/LC_3374-A_20220617	200.7	Dissolved Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220617	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220617	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220617	200.8	Dissolved Barium	7440-39-3	24.4		5.00	10.0	ug/L	24.4	
GR/LC_3374-A_20220617	200.8	Dissolved Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220617	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220617	200.8	Dissolved Cobalt	7440-48-4	0.997		0.100	0.200	ug/L	0.997	
GR/LC_3374-A_20220617	200.8	Dissolved Copper	7440-50-8	4.65		0.500	1.00	ug/L	4.65	
GR/LC_3374-A_20220617	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220617	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220617	200.8	Dissolved Nickel	7440-02-0	1.19		0.500	1.00	ug/L	1.19	
GR/LC_3374-A_20220617	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220617	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220617	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220617	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220617	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220623	200.8	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220623	200.8	Total Arsenic	7440-38-2	10.5	JD	6.00	20.0	ug/L	20.0	U
GR/LC_3374-A_20220623	200.8	Total Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220623	200.8	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220623	200.8	Total Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220623	200.8	Total Cobalt	7440-48-4	1.45	JD	1.00	2.00	ug/L	1.45	J
GR/LC_3374-A_20220623	200.8	Total Copper	7440-50-8	80.2	D	5.00	10.0	ug/L	80.2	
GR/LC_3374-A_20220623	200.8	Total Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220623	200.8	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_3374-A_20220623	200.8	Total Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220623	200.8	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220623	200.8	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220623	200.8	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220623	200.8	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220623	200.8	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220623	200.7	Total Aluminum	7429-90-5	1270		50.0	100	ug/L	1270	
GR/LC_3374-A_20220623	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220623	200.7	Total Calcium	7440-70-2	9050		175	350	ug/L	9050	
GR/LC_3374-A_20220623	200.7	Total Iron	7439-89-6	949		100	250	ug/L	949	
GR/LC_3374-A_20220623	200.7	Total Magnesium	7439-95-4	1220		250	500	ug/L	1220	
GR/LC_3374-A_20220623	200.7	Total Manganese	7439-96-5	29.5		7.50	15.0	ug/L	29.5	
GR/LC_3374-A_20220623	200.7	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220623	200.7	Total (SiO2)	763-18-69	4630		250	1000	ug/L	4630	
GR/LC_3374-A_20220623	200.7	Total Sodium	7440-23-5	905	J	250	1000	ug/L	905	J
GR/LC_3374-A_20220623	200.7	Total Zinc	7440-66-6	16.0	J	15.0	30.0	ug/L	16.0	J
GR/LC_3374-A_20220623	2340B	Hardness	NA	25		2	2	mg/L	25	
GR/LC_3374-A_20220623	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220623	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220623	200.7	Dissolved Calcium	7440-70-2	8070		175	350	ug/L	8070	
GR/LC_3374-A_20220623	200.7	Dissolved Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_3374-A_20220623	200.7	Dissolved Magnesium	7439-95-4	1210		250	500	ug/L	1210	
GR/LC_3374-A_20220623	200.7	Dissolved Manganese	7439-96-5	24.0		7.50	15.0	ug/L	24.0	
GR/LC_3374-A_20220623	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220623	200.7	Dissolved Silica (SiO2)	763-18-69	3920		250	1000	ug/L	3920	
GR/LC_3374-A_20220623	200.7	Dissolved Sodium	7440-23-5	900	J	250	1000	ug/L	900	J
GR/LC_3374-A_20220623	200.7	Dissolved Zinc	7440-66-6	17.2	J	15.0	30.0	ug/L	17.2	J

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
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Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220623	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220623	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220623	200.8	Dissolved Barium	7440-39-3	26.1		5.00	10.0	ug/L	26.1	
GR/LC_3374-A_20220623	200.8	Dissolved Cadmium	7440-43-9	0.102	J	0.100	0.200	ug/L	0.102	J
GR/LC_3374-A_20220623	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220623	200.8	Dissolved Cobalt	7440-48-4	1.47		0.100	0.200	ug/L	1.47	
GR/LC_3374-A_20220623	200.8	Dissolved Copper	7440-50-8	12.8		0.500	1.00	ug/L	12.8	
GR/LC_3374-A_20220623	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220623	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220623	200.8	Dissolved Nickel	7440-02-0	1.65		0.500	1.00	ug/L	1.65	
GR/LC_3374-A_20220623	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220623	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220623	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220623	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220623	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_3374-A_20220630	200.8	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220630	200.8	Total Arsenic	7440-38-2	11.2	JD	6.00	20.0	ug/L	20.0	U
GR/LC_3374-A_20220630	200.8	Total Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220630	200.8	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220630	200.8	Total Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220630	200.8	Total Cobalt	7440-48-4	2.08	D	1.00	2.00	ug/L	2.08	
GR/LC_3374-A_20220630	200.8	Total Copper	7440-50-8	115	D	5.00	10.0	ug/L	115	
GR/LC_3374-A_20220630	200.8	Total Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220630	200.8	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_3374-A_20220630	200.8	Total Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220630	200.8	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220630	200.8	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220630	200.8	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220630	200.8	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220630	200.8	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220630	200.7	Total Aluminum	7429-90-5	1850		50.0	100	ug/L	1850	
GR/LC_3374-A_20220630	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220630	200.7	Total Calcium	7440-70-2	9500		175	350	ug/L	9500	

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220630	200.7	Total Iron	7439-89-6	1500		100	250	ug/L	1500	
GR/LC_3374-A_20220630	200.7	Total Magnesium	7439-95-4	1320		250	500	ug/L	1320	
GR/LC_3374-A_20220630	200.7	Total Manganese	7439-96-5	29.2		7.50	15.0	ug/L	29.2	
GR/LC_3374-A_20220630	200.7	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220630	200.7	Total (SiO ₂)	763-18-69	4510		250	1000	ug/L	4510	
GR/LC_3374-A_20220630	200.7	Total Sodium	7440-23-5	943	J	250	1000	ug/L	943	J
GR/LC_3374-A_20220630	200.7	Total Zinc	7440-66-6	15.7	J	15.0	30.0	ug/L	15.7	J
GR/LC_3374-A_20220630	2340B	Hardness	NA	34		2	2	mg/L	34	
GR/LC_3374-A_20220630	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220630	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220630	200.7	Dissolved Calcium	7440-70-2	11300		175	350	ug/L	11300	
GR/LC_3374-A_20220630	200.7	Dissolved Iron	7439-89-6	190	J	100	250	ug/L	190	J
GR/LC_3374-A_20220630	200.7	Dissolved Magnesium	7439-95-4	1320		250	500	ug/L	1320	
GR/LC_3374-A_20220630	200.7	Dissolved Manganese	7439-96-5	26.6		7.50	15.0	ug/L	26.6	
GR/LC_3374-A_20220630	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220630	200.7	Dissolved Silica (SiO ₂)	763-18-69	3780		250	1000	ug/L	3780	
GR/LC_3374-A_20220630	200.7	Dissolved Sodium	7440-23-5	935	J	250	1000	ug/L	935	J
GR/LC_3374-A_20220630	200.7	Dissolved Zinc	7440-66-6	15.7	J	15.0	30.0	ug/L	15.7	J
GR/LC_3374-A_20220630	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220630	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_3374-A_20220630	200.8	Dissolved Barium	7440-39-3	27.6		5.00	10.0	ug/L	27.6	
GR/LC_3374-A_20220630	200.8	Dissolved Cadmium	7440-43-9	0.123	J	0.100	0.200	ug/L	0.123	J
GR/LC_3374-A_20220630	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220630	200.8	Dissolved Cobalt	7440-48-4	2.01		0.100	0.200	ug/L	2.01	
GR/LC_3374-A_20220630	200.8	Dissolved Copper	7440-50-8	17.3		0.500	1.00	ug/L	17.3	
GR/LC_3374-A_20220630	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220630	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_3374-A_20220630	200.8	Dissolved Nickel	7440-02-0	2.02		0.500	1.00	ug/L	2.02	
GR/LC_3374-A_20220630	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_3374-A_20220630	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_3374-A_20220630	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220630	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_3374-A_20220630	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220707	200.8	Total Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220707	200.8	Total Arsenic	7440-38-2	9.22	JD	6.00	20.0	ug/L	20.0	U
GR/LC_3374-A_20220707	200.8	Total Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220707	200.8	Total Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220707	200.8	Total Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220707	200.8	Total Cobalt	7440-48-4	2.69	D	1.00	2.00	ug/L	2.69	
GR/LC_3374-A_20220707	200.8	Total Copper	7440-50-8	153	D	5.00	10.0	ug/L	153	
GR/LC_3374-A_20220707	200.8	Total Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220707	200.8	Total Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_3374-A_20220707	200.8	Total Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220707	200.8	Total Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220707	200.8	Total Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_3374-A_20220707	200.8	Total Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_3374-A_20220707	200.8	Total Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_3374-A_20220707	200.8	Total Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_3374-A_20220707	200.7	Total Aluminum	7429-90-5	2380		50.0	100	ug/L	2380	
GR/LC_3374-A_20220707	200.7	Total Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220707	200.7	Total Calcium	7440-70-2	10400		175	350	ug/L	10400	
GR/LC_3374-A_20220707	200.7	Total Iron	7439-89-6	2090		100	250	ug/L	2090	
GR/LC_3374-A_20220707	200.7	Total Magnesium	7439-95-4	1470		250	500	ug/L	1470	
GR/LC_3374-A_20220707	200.7	Total Manganese	7439-96-5	34.2		7.50	15.0	ug/L	34.2	
GR/LC_3374-A_20220707	200.7	Total Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_3374-A_20220707	200.7	Total (SiO2)	763-18-69	4820		250	1000	ug/L	4820	
GR/LC_3374-A_20220707	200.7	Total Sodium	7440-23-5	1010		250	1000	ug/L	1010	
GR/LC_3374-A_20220707	200.7	Total Zinc	7440-66-6	18.5	J	15.0	30.0	ug/L	18.5	J
GR/LC_3374-A_20220707	2340B	Hardness	NA	31		2	2	mg/L	31	
GR/LC_3374-A_20220707	200.7	Dissolved Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_3374-A_20220707	200.7	Dissolved Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_3374-A_20220707	200.7	Dissolved Calcium	7440-70-2	9830		175	350	ug/L	9830	
GR/LC_3374-A_20220707	200.7	Dissolved Iron	7439-89-6	434		100	250	ug/L	434	
GR/LC_3374-A_20220707	200.7	Dissolved Magnesium	7439-95-4	1470		250	500	ug/L	1470	
GR/LC_3374-A_20220707	200.7	Dissolved Manganese	7439-96-5	31.6		7.50	15.0	ug/L	31.6	
GR/LC_3374-A_20220707	200.7	Dissolved Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY

ESAT/TECHLAW REPORT NO. C220714

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab_Qual	MDL	RL	Units	VAL_Result	VAL_Qual
GR/LC_3374-A_20220707	200.7	Dissolved Silica (SiO ₂)	763-18-69	4060		250	1000	ug/L	4060	
GR/LC_3374-A_20220707	200.7	Dissolved Sodium	7440-23-5	988	J	250	1000	ug/L	988 J	
GR/LC_3374-A_20220707	200.7	Dissolved Zinc	7440-66-6	16.1	J	15.0	30.0	ug/L	16.1 J	
GR/LC_3374-A_20220707	200.8	Dissolved Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00 U	
GR/LC_3374-A_20220707	200.8	Dissolved Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00 U	
GR/LC_3374-A_20220707	200.8	Dissolved Barium	7440-39-3	29.1		5.00	10.0	ug/L	29.1	
GR/LC_3374-A_20220707	200.8	Dissolved Cadmium	7440-43-9	0.138	J	0.100	0.200	ug/L	0.138 J	
GR/LC_3374-A_20220707	200.8	Dissolved Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00 U	
GR/LC_3374-A_20220707	200.8	Dissolved Cobalt	7440-48-4	2.64		0.100	0.200	ug/L	2.64	
GR/LC_3374-A_20220707	200.8	Dissolved Copper	7440-50-8	52.6		0.500	1.00	ug/L	52.6	
GR/LC_3374-A_20220707	200.8	Dissolved Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200 U	
GR/LC_3374-A_20220707	200.8	Dissolved Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00 U	
GR/LC_3374-A_20220707	200.8	Dissolved Nickel	7440-02-0	2.58		0.500	1.00	ug/L	2.58	
GR/LC_3374-A_20220707	200.8	Dissolved Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00 U	
GR/LC_3374-A_20220707	200.8	Dissolved Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00 U	
GR/LC_3374-A_20220707	200.8	Dissolved Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00 U	
GR/LC_3374-A_20220707	200.8	Dissolved Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200 U	
GR/LC_3374-A_20220707	200.8	Dissolved Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00 U	

ATTACHMENT 4

**DATA VALIDATION REPORT
CLP CHEMTECH REPORT NO. MH1A01**

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Site Name	Ruby Mine Combined Assessment	TO/TD No.	68HE0820F0083/2083-2203-09
Document Tracking No.	0719a-e	Technical Reviewer (signature and date)	<i>Kelly D. Thomas</i> 1/13/2023
Data Reviewer (signature and date)	<i>Maureen Hughes</i> 12/19/2022	Laboratory	ChemTech Consulting Group – Mountainside, NJ
Laboratory Report No.	MH1A01		
Analyses	Synthetic Precipitation Leaching Procedure (SPLP) for target analyte list (TAL) metals by CLP Method SFAM01.1		
Sample and Matrix	One soil sample		
Collection Date(s)	July 13, 2022		
Field Duplicate Pairs	None		
Field QC Blanks	None		

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4* (May 2021) and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	The chain of custody (COC) form includes requested analysis for SPLP and toxicity characteristic leaching procedure (TCLP) analyses however, TCLP results are not included in the lab report. TCLP results are provided in a separate report (MH1A02). No qualifications were applied. The SPLP and TCLP analyses were subcontracted to ChemTech by TechLaw and the TechLaw provided COC did not include the sample ID (GR/LC_SO-WRP01-01_20220713) from the original COC. The sample ID was added to the validated EDD and attachment.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

Method blanks:

Within Criteria	Exceedance/Notes
N	Arsenic was detected in the method blank at a concentration between the method detection limit (MDL) and the reporting limit (RL). The associated arsenic result is nondetect; therefore, the result was not qualified. Vanadium was detected in the method blank at a negative value less than the MDL. The associated vanadium result is nondetect; therefore, the vanadium result was qualified as estimated (flagged UJ). Chromium, iron, and manganese were detected in the leachate blank between the MDL and RL. The chromium result was nondetect in the sample, and the iron and manganese results are greater than ten times the concentration of the blank; therefore, no qualifications were applied. Thallium and vanadium were detected in the leachate blank at negative values less than the MDL. The associated results were nondetect for both metals; therefore, the results were qualified as estimated (flagged UJ).

Field blanks:

Within Criteria	Exceedance/Notes
NA	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

MS/MSDs:

Within Criteria	Exceedance/Notes
N	An MS was performed on MH1A01S and recovered below lower acceptance limits for arsenic and selenium. The sample results are nondetect; therefore, they were qualified as estimated with a low bias (flagged UJ).

Laboratory duplicates:

Within Criteria	Exceedance/Notes
Y	

Field duplicates:

Within Criteria	Exceedance/Notes
NA	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

Sample dilutions:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results greater than the MDL but less than the RL (identified as the contract required quantitation limit (CRQL) in the lab report) were qualified as estimated by the laboratory (flagged J). Non-detect results were reported as <MDL in the report and EDD. The non-detect results reported at the RL and flagged U in the attached validated data table. MDLs and RLs are provided in the attached analytical data table.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
CLP/CHEMTECH CONSULTING REPORT NO. MH1A01

Scribe ID	Method	Analyte	CAS No.	Lab Result	Lab Qual	MDL	CRQL	Units	VAL Result	VAL Qual
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Aluminum	7429-90-5	140000		60	200	ug/L	140000	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Antimony	7440-36-0	60 U		6.6	60	ug/L	60 U	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Arsenic	7440-38-2	10 U*		3.9	10	ug/L	10 U	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Barium	7440-39-3	69 J		7.7	200	ug/L	69 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Beryllium	7440-41-7	26		0.52	5.0	ug/L	26	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Cadmium	7440-43-9	2.9 J		0.62	5.0	ug/L	2.9 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Calcium	7440-70-2	13000		130	5000	ug/L	13000	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Chromium	7440-47-3	10 U		1.3	10	ug/L	10 U	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Cobalt	7440-48-4	17 J		1.9	50	ug/L	17 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Copper	7440-50-8	1200		4.1	25	ug/L	1200	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Iron	7439-89-6	110000		14	100	ug/L	110000	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Lead	7439-92-1	260		4.2	10	ug/L	260	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Magnesium	7439-95-4	810 J		170	5000	ug/L	810 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Manganese	7439-96-5	1700		1.4	15	ug/L	1700	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Nickel	7440-02-0	9.2 J		3.8	40	ug/L	9.2 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Potassium	7440-09-7	2400 J		440	5000	ug/L	2400 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Selenium	7782-49-2	35 U*		11	35	ug/L	35 UJ	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Silver	7440-22-4	10 U		1.6	10	ug/L	10 U	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Sodium	7440-23-5	4200 J		690	5000	ug/L	4200 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Thallium	7440-28-0	25 U		6.3	25	ug/L	25 UJ	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Vanadium	7440-62-2	50 U		5.0	50	ug/L	50 UJ	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Zinc	7440-66-6	690		12	60	ug/L	690	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	SPLP Mercury	7439-97-6	0.20 U		0.049	0.20	ug/L	0.20 U	

ATTACHMENT 5

**DATA VALIDATION REPORT
CLP CHEMTECH REPORT NO. MH1A02**

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Site Name	Ruby Mine Combined Assessment		TO/TD No.	68HE0820F0083/2083-2203-09
Document Tracking No.	0719a-d		Technical Reviewer (signature and date)	<i>Kelly D. Thomas</i> 1/13/2023
Data Reviewer (signature and date)	<i>Maureen</i>	12/19/2022	Laboratory	ChemTech Consulting Group — Mountainside, NJ
Laboratory Report No.	MH1A02			
Analyses	Toxicity Characteristic Leaching Procedure (TCLP) for Resource Conservation and Recovery Act (RCRA) metals by CLP Method SFAM01.1			
Sample and Matrix	One soil sample			
Collection Date(s)	July 13, 2022			
Field Duplicate Pairs	None			
Field QC Blanks	None			

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4* (May 2021) and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	The chain of custody (COC) form includes requested analysis for TCLP and Synthetic Precipitation Leaching Procedure (SPLP) analyses however, SPLP results are not included in the lab report. SPLP results are provided in a separate report (MH1A01). The SPLP and TCLP analyses were subcontracted to ChemTech by TechLaw, but the TechLaw-provided COC did not include the sample ID (GR/LC_SO-WRP01-01_20220713) from the original COC. The sample ID was added to the validated EDD and attachment.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	

Method blanks:

Within Criteria	Exceedance/Notes
N	Arsenic was detected in the method blank between the method detection limit (MDL) and the reporting limit (RL). The associated arsenic result is nondetect; therefore, the result was not qualified. Chromium was detected in the leachate blank chromium between the MDL and RL; therefore, the chromium result was raised to the reporting limit and qualified as non-detect (flagged U) in the sample. Arsenic was detected in the leachate blank at a negative value less than the MDL. The associated result was nondetect; therefore, the arsenic result was qualified as estimated (flagged UJ).

Field blanks:

Within Criteria	Exceedance/Notes
NA	

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
N	An MS was performed on MH1A01S and recovered below lower acceptance limits for arsenic. The sample result is nondetect; therefore, was qualified as estimated with a low bias (flagged UJ).

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	.

Field duplicates:

Within Criteria	Exceedance/Notes
NA	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

Sample dilutions:

Within Criteria	Exceedance/Notes
NA	

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results greater than the MDL but less than the RL (identified as the contract required quantitation limit [CRQL] in the lab report) were qualified as estimated by the laboratory (flagged J). Non-detect results were reported as <MDL in the report and EDD. The non-detect results are reported at the RL and flagged U in the attached validated data table. MDLs and RLs are provided in the attached analytical data table.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

Other [none]:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

RUBY MINE COMBINED ASSESSMENT ANALYTICAL RESULTS SUMMARY
CLP/CHEMTECH CONSULTING REPORT NO. MH1A02

Scribe ID	Method	ANALYTE	CAS No.	Lab Result	Lab Qual	MDL	CRQL	Units	VAL Result	VAL Qual
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Arsenic	7440-38-2	10 U*		3.9	10	ug/L	10 UJ	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Barium	7440-39-3	110 J		7.7	200	ug/L	110 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Cadmium	7440-43-9	0.76 J		0.62	5.0	ug/L	0.76 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Chromium	7440-47-3	2.1 J		1.3	10	ug/L	10 U	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Lead	7439-92-1	4.5 J		4.2	10	ug/L	4.5 J	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Selenium	7782-49-2	35 U		11	35	ug/L	35 U	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Silver	7440-22-4	10 U		1.6	10	ug/L	10 U	
GR/LC_SO-WRP01-01_20220713	SFAM01.1	TCLP Mercury	7439-97-6	0.20 U		0.049	0.20	ug/L	0.20 U	



February 24, 2023

Ms. Jean Wyatt & Ms. Joni Sandoval

On-Scene Coordinators
U.S. Environmental Protection Agency, Region 8
Superfund and Emergency Management Division
1595 Wynkoop Street
Denver, CO 80202

**Subject: Data Validation Report
Ruby Mine Combined Assessment Report
EPA Contract No.: 68HE0820D0001
Task Order/Technical Direction No.: 68HE0820F0083 / 2083-2203-09
Document Tracking No. 0719b**

Dear Ms Wyatt and Ms Sandoval:

Tetra Tech, Inc. (Tetra Tech) is submitting this data validation report for 24 water samples (including two duplicate water samples and three field blank samples) collected at the Ruby Mine Combined Assessment Report site. The samples were collected on September 27, 2022. All water samples were analyzed by TechLaw/R8 ESAT for total and dissolved metals, hardness, anions, total suspended solids, and alkalinity. The final laboratory data package was received on January 4, 2023.

Analytical data were evaluated in general accordance with the Tetra Tech Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4 (May 2021) and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

If you have any questions regarding this data validation report, please call me at (303)-312-8828

Sincerely,

A handwritten signature in black ink, appearing to read 'Maura McAleese'.

Maura McAleese
Environmental Chemist

Enclosure

cc: Didi Fung, Tetra Tech R8 START Program Manager
Megan Caldwell, Tetra Tech R8 START Project Manager
Clayton Longest, Tetra Tech Project Document Control Coordinator
TO/TD File

ATTACHMENT 1

**DATA VALIDATION REPORT
TECHLAW/R8 ESAT REPORT NO. C221002**

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Site Name	Ruby Mine Combined Assessment		TO/TD No.	68HE0820F0083/2083-2203-09
Document Tracking No.	0719b		Technical Reviewer (signature and date)	<i>Kelly D. Thomas</i> 2/21/2023
Data Reviewer (signature and date)	<i>Maureen Hughes</i>	2/10/2023	Laboratory	TechLaw Inc., Environmental Services Assistance Team (ESAT) – Denver, CO
Laboratory Report No.	C221001			
Analyses	Total and dissolved metals by EPA Methods 200.7 and 200.8, total mercury by EPA method 245.1, hardness by Standard Method (SM) 2340B, anions by EPA method 300.0, total suspended solids (TSS) by EPA method 160.2, and total alkalinity by EPA method 310.1			
Samples and Matrix	24 water samples including two duplicate water samples and three field blank samples			
Collection Date(s)	September 27, 2022			
Field Duplicate Pairs	GR/LC_SW-3262_20220927/ GR/LC_SW-3262-DUP_20220927 and GR/LC_SW-3268_20220927/ GR/LC_SW-3268-DUP_20220927			
Field QC Blanks	GR/LC_SW_FB01_20220927, GR/LC_SW_FB02_20220927, and GR/LC_SW_FB03_20220927			

INTRODUCTION

This checklist summarizes the Stage 2A validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Programmatic Quality Assurance Project Plan for Emergency Response and Site Assessment Task Orders, Superfund Technical Assessment and Response Team (START V), EPA Region 8, Revision 4* (May 2021), and the EPA *National Functional Guidelines (NFG) for Inorganic Superfund Methods Data Review* (November 2020).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Data completeness:

Within Criteria	Exceedance/Notes
Y	The laboratory report and electronic data deliverable (EDD) did not include the complete sample IDs. Instead, samples were identified by a “Lab Number” and a “Station ID.” The sample IDs were added to the validated EDD and attached validated data summary table. Hardness analysis was included in the laboratory report and EDD; however, the analysis was not requested on the chain of custody (COC) form. Hardness analysis results reported by the laboratory are included on the attached validated data summary table.

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
N	All samples were received at the laboratory with pH greater than 2 standard units (S.U.). The samples were acidified using additional nitric acid by the laboratory prior to metals analysis. No qualifications were applied.

Method blanks:

Within Criteria	Exceedance/Notes
N	Lead was detected in the method blank for total metals analyzed on December 26 above the method detection limit (MDL) but below the reporting limit (RL). Therefore, the result for total lead was raised to the RL and qualified as non-detect (flagged U) in samples GR/LC_SW_FB01_20220927, GR/LC_SW-3258_20220927, GR/LC_SW-3259_20220927, GR/LC_SW-3262_20220927, and GR/LC_SW-3371B_20220927. The results for total lead were qualified as estimated, possibly biased high (flagged J+) in samples GR/LC_SW-3267_20220927, GR/LC_SW-3268_20220927, GR/LC_SW-3268-DUP_20220927, and GR/LC_SW-3374_20220927.

DATA VALIDATION CHECKLIST – STAGE 2A **EPA REGION 8 START CONTRACT**

Field blanks:

Within Criteria	Exceedance/Notes
N	GR/LC_SW_FB01_20220927 had detections for total lead between the MDL and RL. The laboratory report shows a detection of lead in the field blank above the MDL but below the RL. The field blank result was raised to the RL and qualified as ND based on method blank contamination. No additional qualifiers were applied. GR/LC_SW_FB03_20220927: Zinc was detected in the dissolved metals analysis at a concentration above the MDL but below the RL and in the total metals analysis above the RL in this field blank. Therefore, the results were raised to the RL and qualified as non-detect (flagged U) for dissolved zinc in samples GR/LC_SW-3262-DUP_20220927, GR/LC_SW-3387_20220927, GR/LC_SW-3433_20220927, GR/LC_SW-489_20220927, GR/LC_SW-RF-DNS-01_20220927, and GR/LC_SW-RMA1-UPS_20220927 and for total zinc in samples GR/LC_SW-3262_20220927, GR/LC_SW-3262-DUP_20220927, GR/LC_SW-3387_20220927, GR/LC_SW-489_20220927, GR/LC_SW-RF-DNS-01_20220927, and GR/LC_SW-RMA1-UPS_20220927 The results were qualified as estimated, possibly biased high (flagged J+) for dissolved zinc in samples GR/LC_SW-3258_20220927, GR/LC_SW-3259_20220927, GR/LC_SW-3267_20220927, GR/LC_SW-3268_20220927, GR/LC_SW-3268-DUP_20220927, GR/LC_SW-3371B_20220927, GR/LC_SW-3372A_20220927, GR/LC_SW-3374_20220927, and GR/LC_SW-B4-HSE_20220927, and for total zinc in samples GR/LC_SW-3258_20220927, GR/LC_SW-3259_20220927, GR/LC_SW-3267_20220927, GR/LC_SW-3268_20220927, GR/LC_SW-3268-DUP_20220927, GR/LC_SW-3371B_20220927, GR/LC_SW-3372A_20220927, GR/LC_SW-3374_20220927, GR/LC_SW-B4-HSE_20220927, and GR/LC_SW-DNS-RM_20220927. Zinc was either not detected or was detected at concentrations greater than 10 times the concentration of the blanks in the remaining samples, therefore, no additional qualifications were applied.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Surrogates and labeled compounds:

Within Criteria	Exceedance/Notes
NA	

MS/MSDs:

Within Criteria	Exceedance/Notes
Y	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
N	Anions: A laboratory duplicate was performed on sample GR/LC_SW-3371B_20220927. The relative percent difference (RPD) value exceeded the laboratory acceptance limit for fluoride. The parent sample result was less than five times the RL; therefore, no qualification was applied. Dissolved Metals: A laboratory duplicate was performed on sample GR/LC_SW-3258_20220927. The RPD value for zinc exceeded the QAPP acceptance criteria. The dissolved zinc result was qualified as estimated, possibly biased high (flagged J+) due to detections in the field blank. No additional qualification was applied.

Field duplicates:

Within Criteria	Exceedance/Notes
N	GR/LC_SW-3268_20220927/GR/LC_SW-3268-DUP_20220927: The RPD value exceeded the acceptance limit. No qualifications were applied because the sample concentrations were less than five times the RL values. Additionally, the data user should be aware that GR/LC_SW-3268_20220927 and GR/LC_SW-3268-DUP_20220927 were reported at different dilution factors.

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	Samples were analyzed at the following dilutions: • Two-fold for anions by EPA method 300.0: GR/LC_SW-3268_20220927, GR/LC_SW-3268-DUP_20220927, and GR/LC_SW-B4-HSE_20220927. • Five-fold for total metals by EPA method 200.8: GR/LC_SW_FB01_20220927, GR/LC_SW_FB02_20220927, GR/LC_SW_FB03_20220927, GR/LC_SW-3258_20220927, GR/LC_SW-3259_20220927, GR/LC_SW-3262_20220927, GR/LC_SW-3262-DUP_20220927, GR/LC_SW-3267_20220927, GR/LC_SW-3371B_20220927, GR/LC_SW-3372A_20220927, GR/LC_SW-3387_20220927, GR/LC_SW-3433_20220927, GR/LC_SW-487A_20220927, GR/LC_SW-489_20220927, GR/LC_SW-B4-HSE_20220927, GR/LC_SW-RF-DNS-01_20220927, GR/LC_SW-RF-UPS-01_20220927, and GR/LC_SW-RMA1-UPS_20220927. • Five-fold for dissolved metals by EPA method 200.8: GR/LC_SW-3262-DUP_20220927, GR/LC_SW-RMA1-UPS_20220927, and GR/LC_SW-RF-UPS-01_20220927. • Five-fold for total metals method 200.7: GR/LC_SW-RMA1_20220927. • Five-fold for anions by EPA method 300.0: GR/LC_SW-DNS-RM_20220927 and GR/LC_SW-RMA1_20220927. • 10-fold for dissolved metals by EPA method 200.8: GR/LC_SW-3267_20220927, GR/LC_SW-3371B_20220927, GR/LC_SW-3372A_20220927, GR/LC_SW-3374_20220927, GR/LC_SW-B4-HSE_20220927, and GR/LC_SW-RF-DNS-01_20220927.

**DATA VALIDATION CHECKLIST – STAGE 2A
EPA REGION 8 START CONTRACT**

	• 20-fold for total metals by EPA method 200.8: GR/LC_SW-3268_20220927, GR/LC_SW-3268-DUP_20220927, GR/LC_SW-3374_20220927, GR/LC_SW-DNS-RM_20220927, and GR/LC_SW-RMA1_20220927. • 20-fold for dissolved metals by EPA method 200.8: GR/LC_SW-3268_20220927 and GR/LC_SW-3268-DUP_20220927. • 20-fold for anions by EPA method 300.0: GR/LC_SW-3371A_20220927. • 50-fold for total and dissolved metals by EPA method 200.7 and hardness by EPA method 2340B: GR/LC_SW-3371A_20220927. • 50-fold for dissolved metals by EPA method 200.8: GR/LC_SW-DNS-RM_20220927 and GR/LC_SW-RMA1_20220927. • 100-fold for total and dissolved metals by EPA method 200.8: GR/LC_SW-3371A_20220927.

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	

MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results greater than the MDL but less than the RL were qualified as estimated by the laboratory (flagged J). Non-detect results were reported as "<MDL" in the laboratory report and electronic data deliverable (EDD). The non-detect results are reported at the RL and flagged "U" in the attached validated data table. MDLs and RLs are provided in the attached data table.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	

DATA VALIDATION CHECKLIST – STAGE 2A EPA REGION 8 START CONTRACT

Other [Serial dilution]:

Within Criteria	Exceedance/Notes
NA	GR/LC_SW-3258_20220927: The percent recovery values exceeded the laboratory acceptance limit for lead and zinc. No qualifications were applied because the sample concentrations were less than 50 times the MDL values.

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW_FB01_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L		100 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L		5.00 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Calcium	7440-70-2	<175	U	175	350	ug/L		350 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L		250 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Magnesium	7439-95-4	<250	U	250	500	ug/L		500 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L		15.0 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Potassium	7440-09-7	<250	U	250	1000	ug/L		1000 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L		1000 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Sodium	7440-23-5	<250	U	250	1000	ug/L		1000 U
GR/LC_SW_FB01_20220927	200.7	Total Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L		30.0 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L		10.0 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L		50.0 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L		10.0 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Lead	7439-92-1	0.553	JD	0.500	1.50	ug/L		1.50 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L		5.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L		15.0 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L		10.0 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW_FB01_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L		15.0 U
GR/LC_SW_FB01_20220927	2340B	Dissolved Metals	Hardness	NA	<2	U	2	2	mg/L		2 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L		100 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L		5.00 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	<175	U	175	350	ug/L		350 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L		250 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	<250	U	250	500	ug/L		500 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L		15.0 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	<250	U	250	1000	ug/L		1000 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L		1000 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	<250	U	250	1000	ug/L		1000 U
GR/LC_SW_FB01_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L		30.0 U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L		2.00 U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<5.00	U	5.00	10.0	ug/L		10.0 U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L		0.200 U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L		2.00 U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	<0.100	U	0.100	0.200	ug/L		0.200 U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Copper	7440-50-8	<0.500	U	0.500	1.00	ug/L		1.00 U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB01_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW_FB01_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW_FB01_20220927	EPA 310.1		Total Alkalinity	NA	12.6		5.00	10.0	mg CaCO3 / L	12.60	
GR/LC_SW_FB01_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW_FB01_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW_FB01_20220927	EPA 300.0		Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW_FB01_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW_FB01_20220927	EPA 300.0		Sulfate as SO4	148-08-798	<2.5	U	2.5	5.0	mg/L	5.0	U
GR/LC_SW_FB02_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB02_20220927	200.7	Total Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW_FB02_20220927	2340B	Dissolved Metals	Hardness	NA	<2	U	2	2	mg/L	2	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB02_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Copper	7440-50-8	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB02_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW_FB02_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW_FB02_20220927	EPA 310.1		Total Alkalinity	NA	11.6		5.00	10.0	mg CaCO3 / L	11.60	
GR/LC_SW_FB02_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW_FB02_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW_FB02_20220927	EPA 300.0		Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW_FB02_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW_FB02_20220927	EPA 300.0		Sulfate as SO4	148-08-798	<2.5	U	2.5	5.0	mg/L	5.0	U
GR/LC_SW_FB03_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB03_20220927	200.7	Total Metals	Zinc	7440-66-6	30.9		15.0	30.0	ug/L	30.90	
GR/LC_SW_FB03_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW_FB03_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW_FB03_20220927	2340B	Dissolved Metals	Hardness	NA	<2	U	2	2	mg/L	2	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	<175	U	175	350	ug/L	350	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	<250	U	250	500	ug/L	500	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	<250	U	250	1000	ug/L	1000	U
GR/LC_SW_FB03_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	16.6	J	15.0	30.0	ug/L	16.60	J
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Copper	7440-50-8	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW_FB03_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW_FB03_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW_FB03_20220927	EPA 310.1		Total Alkalinity	NA	14.6		5.00	10.0	mg CaCO3 / L	14.60	
GR/LC_SW_FB03_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW_FB03_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW_FB03_20220927	EPA 300.0		Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW_FB03_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW_FB03_20220927	EPA 300.0		Sulfate as SO4	148-08-798	<2.5	U	2.5	5.0	mg/L	5.0	U
GR/LC_SW-3258_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3258_20220927	200.7	Total Metals	Aluminum	7429-90-5	3990		50.0	100	ug/L	3990.00	
GR/LC_SW-3258_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220927	200.7	Total Metals	Calcium	7440-70-2	16500		175	350	ug/L	16500.00	
GR/LC_SW-3258_20220927	200.7	Total Metals	Iron	7439-89-6	1030		100	250	ug/L	1030.00	
GR/LC_SW-3258_20220927	200.7	Total Metals	Magnesium	7439-95-4	3180		250	500	ug/L	3180.00	
GR/LC_SW-3258_20220927	200.7	Total Metals	Manganese	7439-96-5	46.6		7.50	15.0	ug/L	46.60	
GR/LC_SW-3258_20220927	200.7	Total Metals	Potassium	7440-09-7	462	J	250	1000	ug/L	462.00	J
GR/LC_SW-3258_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5910		250	1000	ug/L	5910.00	
GR/LC_SW-3258_20220927	200.7	Total Metals	Sodium	7440-23-5	2010		250	1000	ug/L	2010.00	
GR/LC_SW-3258_20220927	200.7	Total Metals	Zinc	7440-66-6	35.0		15.0	30.0	ug/L	35.00	J+
GR/LC_SW-3258_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Barium	7440-39-3	41.3	JD	25.0	50.0	ug/L	41.30	J
GR/LC_SW-3258_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Cobalt	7440-48-4	5.22	D	0.500	1.00	ug/L	5.22	
GR/LC_SW-3258_20220927	200.8	Total Metals	Copper	7440-50-8	263	D	2.50	5.00	ug/L	263.00	
GR/LC_SW-3258_20220927	200.8	Total Metals	Lead	7439-92-1	1.19	JD	0.500	1.50	ug/L	1.50	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Nickel	7440-02-0	5.56	D	2.50	5.00	ug/L	5.56	
GR/LC_SW-3258_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3258_20220927	2340B	Dissolved Metals	Hardness	NA	50		2	2	mg/L	50.00	
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	2510		50.0	100	ug/L	2510.00	
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	15400		175	350	ug/L	15400.00	
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2800		250	500	ug/L	2800.00	
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	45.9		7.50	15.0	ug/L	45.90	
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	409	J	250	1000	ug/L	409.00	J
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5850		250	1000	ug/L	5850.00	
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1810		250	1000	ug/L	1810.00	
GR/LC_SW-3258_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	33.6		15.0	30.0	ug/L	33.60	J+
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Barium	7440-39-3	42.0		5.00	10.0	ug/L	42.00	
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	0.239		0.100	0.200	ug/L	0.24	
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	5.23		0.100	0.200	ug/L	5.23	
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Copper	7440-50-8	246		0.500	1.00	ug/L	246.00	
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Lead	7439-92-1	0.263		0.100	0.200	ug/L	0.26	
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	4.98		0.500	1.00	ug/L	4.98	
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	0.171	J	0.100	0.200	ug/L	0.17	J
GR/LC_SW-3258_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3258_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3258_20220927	EPA 310.1		Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3258_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3258_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3258_20220927	EPA 300.0		Fluoride	16984-48-8	0.3		0.1	0.2	mg/L	0.30	
GR/LC_SW-3258_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3258_20220927	EPA 300.0		Sulfate as SO4	148-08-798	71.5		2.5	5.0	mg/L	71.50	
GR/LC_SW-3259_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3259_20220927	200.7	Total Metals	Aluminum	7429-90-5	2490		50.0	100	ug/L	2490.00	
GR/LC_SW-3259_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220927	200.7	Total Metals	Calcium	7440-70-2	15700		175	350	ug/L	15700.00	
GR/LC_SW-3259_20220927	200.7	Total Metals	Iron	7439-89-6	646		100	250	ug/L	646.00	
GR/LC_SW-3259_20220927	200.7	Total Metals	Magnesium	7439-95-4	3050		250	500	ug/L	3050.00	
GR/LC_SW-3259_20220927	200.7	Total Metals	Manganese	7439-96-5	37.3		7.50	15.0	ug/L	37.30	
GR/LC_SW-3259_20220927	200.7	Total Metals	Potassium	7440-09-7	417	J	250	1000	ug/L	417.00	J
GR/LC_SW-3259_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	6210		250	1000	ug/L	6210.00	
GR/LC_SW-3259_20220927	200.7	Total Metals	Sodium	7440-23-5	2010		250	1000	ug/L	2010.00	
GR/LC_SW-3259_20220927	200.7	Total Metals	Zinc	7440-66-6	31.1		15.0	30.0	ug/L	31.10	J+
GR/LC_SW-3259_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Barium	7440-39-3	41.7	JD	25.0	50.0	ug/L	41.70	J
GR/LC_SW-3259_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Cobalt	7440-48-4	3.82	D	0.500	1.00	ug/L	3.82	
GR/LC_SW-3259_20220927	200.8	Total Metals	Copper	7440-50-8	188	D	2.50	5.00	ug/L	188.00	
GR/LC_SW-3259_20220927	200.8	Total Metals	Lead	7439-92-1	0.742	JD	0.500	1.50	ug/L	1.50	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Nickel	7440-02-0	4.05	JD	2.50	5.00	ug/L	4.05	J
GR/LC_SW-3259_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3259_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3259_20220927	2340B	Dissolved Metals	Hardness	NA	51		2	2	mg/L	51.00	
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	55.4	J	50.0	100	ug/L	55.40	J
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	15600		175	350	ug/L	15600.00	
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2830		250	500	ug/L	2830.00	
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	35.6		7.50	15.0	ug/L	35.60	
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	414	J	250	1000	ug/L	414.00	J
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5870		250	1000	ug/L	5870.00	
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1910		250	1000	ug/L	1910.00	
GR/LC_SW-3259_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	31.5		15.0	30.0	ug/L	31.50	J+
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Barium	7440-39-3	41.0		5.00	10.0	ug/L	41.00	
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	0.173	J	0.100	0.200	ug/L	0.17	J
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	3.83		0.100	0.200	ug/L	3.83	
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Copper	7440-50-8	147		0.500	1.00	ug/L	147.00	
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	3.85		0.500	1.00	ug/L	3.85	
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3259_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3259_20220927	EPA 160.2	Total Suspended Solids		NA	10		10	10	mg/L	10.00	
GR/LC_SW-3259_20220927	EPA 310.1	Total Alkalinity		NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3259_20220927	EPA 300.0	Bromide		24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3259_20220927	EPA 300.0	Chloride		16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3259_20220927	EPA 300.0	Fluoride		16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW-3259_20220927	EPA 300.0	Nitrate/Nitrite as N		NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3259_20220927	EPA 300.0	Sulfate as SO4		148-08-798	58.4		2.5	5.0	mg/L	58.40	
GR/LC_SW-3262_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3262_20220927	200.7	Total Metals	Aluminum	7429-90-5	677		50.0	100	ug/L	677.00	
GR/LC_SW-3262_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220927	200.7	Total Metals	Calcium	7440-70-2	14900		175	350	ug/L	14900.00	
GR/LC_SW-3262_20220927	200.7	Total Metals	Iron	7439-89-6	186	J	100	250	ug/L	186.00	J
GR/LC_SW-3262_20220927	200.7	Total Metals	Magnesium	7439-95-4	2850		250	500	ug/L	2850.00	
GR/LC_SW-3262_20220927	200.7	Total Metals	Manganese	7439-96-5	30.7		7.50	15.0	ug/L	30.70	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3262_20220927	200.7	Total Metals	Potassium	7440-09-7	487	J	250	1000	ug/L	487.00	J
GR/LC_SW-3262_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5760		250	1000	ug/L	5760.00	
GR/LC_SW-3262_20220927	200.7	Total Metals	Sodium	7440-23-5	2140		250	1000	ug/L	2140.00	
GR/LC_SW-3262_20220927	200.7	Total Metals	Zinc	7440-66-6	25.5	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Barium	7440-39-3	40.5	JD	25.0	50.0	ug/L	40.50	J
GR/LC_SW-3262_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Cobalt	7440-48-4	1.93	D	0.500	1.00	ug/L	1.93	
GR/LC_SW-3262_20220927	200.8	Total Metals	Copper	7440-50-8	43.2	D	2.50	5.00	ug/L	43.20	
GR/LC_SW-3262_20220927	200.8	Total Metals	Lead	7439-92-1	0.548	JD	0.500	1.50	ug/L	1.50	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Nickel	7440-02-0	2.95	JD	2.50	5.00	ug/L	2.95	J
GR/LC_SW-3262_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3262_20220927	2340B	Dissolved Metals	Hardness	NA	45		2	2	mg/L	45.00	
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	13800		175	350	ug/L	13800.00	
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2460		250	500	ug/L	2460.00	
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	26.6		7.50	15.0	ug/L	26.60	
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	365	J	250	1000	ug/L	365.00	J
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5650		250	1000	ug/L	5650.00	
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1910		250	1000	ug/L	1910.00	
GR/LC_SW-3262_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Barium	7440-39-3	40.0		5.00	10.0	ug/L	40.00	
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	1.90		0.100	0.200	ug/L	1.90	
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Copper	7440-50-8	18.7		0.500	1.00	ug/L	18.70	
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	2.68		0.500	1.00	ug/L	2.68	
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3262_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3262_20220927	EPA 160.2	Total Suspended Solids	NA	<10	U	10	10	mg/L		10	U
GR/LC_SW-3262_20220927	EPA 310.1	Total Alkalinity	NA	5.91	J	5.00	10.0	mg CaCO3 / L		5.91	J
GR/LC_SW-3262_20220927	EPA 300.0	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L		0.5	U
GR/LC_SW-3262_20220927	EPA 300.0	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L		2.0	U
GR/LC_SW-3262_20220927	EPA 300.0	Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L		0.2	U
GR/LC_SW-3262_20220927	EPA 300.0	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L		1.0	U
GR/LC_SW-3262_20220927	EPA 300.0	Sulfate as SO4	148-08-798	49.5		2.5	5.0	mg/L		49.50	
GR/LC_SW-3262-DUP_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Aluminum	7429-90-5	670		50.0	100	ug/L	670.00	
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Calcium	7440-70-2	14900		175	350	ug/L	14900.00	
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Iron	7439-89-6	176	J	100	250	ug/L	176.00	J
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Magnesium	7439-95-4	2810		250	500	ug/L	2810.00	
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Manganese	7439-96-5	30.3		7.50	15.0	ug/L	30.30	
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Potassium	7440-09-7	438	J	250	1000	ug/L	438.00	J
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5770		250	1000	ug/L	5770.00	
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Sodium	7440-23-5	2080		250	1000	ug/L	2080.00	
GR/LC_SW-3262-DUP_20220927	200.7	Total Metals	Zinc	7440-66-6	18.9	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Barium	7440-39-3	40.1	JD	25.0	50.0	ug/L	40.10	J
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Cobalt	7440-48-4	1.92	D	0.500	1.00	ug/L	1.92	
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Copper	7440-50-8	42.9	D	2.50	5.00	ug/L	42.90	
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Nickel	7440-02-0	2.73	JD	2.50	5.00	ug/L	2.73	J
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3262-DUP_20220927	2340B	Dissolved Metals	Hardness	NA	45		2	2	mg/L	45.00	
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	14100		175	350	ug/L	14100.00	
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2490		250	500	ug/L	2490.00	
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	26.9		7.50	15.0	ug/L	26.90	
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	400	J	250	1000	ug/L	400.00	J

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5700		250	1000	ug/L	5700.00	
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1940		250	1000	ug/L	1940.00	
GR/LC_SW-3262-DUP_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	23.4	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Barium	7440-39-3	39.8	JD	25.0	50.0	ug/L	39.80	J
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	1.96	D	0.500	1.00	ug/L	1.96	
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Copper	7440-50-8	18.9	D	2.50	5.00	ug/L	18.90	
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	2.75	JD	2.50	5.00	ug/L	2.75	J
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3262-DUP_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3262-DUP_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3262-DUP_20220927	EPA 310.1		Total Alkalinity	NA	7.39	J	5.00	10.0	mg CaCO3 / L	7.39	J
GR/LC_SW-3262-DUP_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3262-DUP_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3262-DUP_20220927	EPA 300.0		Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW-3262-DUP_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3262-DUP_20220927	EPA 300.0		Sulfate as SO4	148-08-798	49.2		2.5	5.0	mg/L	49.20	
GR/LC_SW-3267_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3267_20220927	200.7	Total Metals	Aluminum	7429-90-5	15100		50.0	100	ug/L	15100.00	
GR/LC_SW-3267_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220927	200.7	Total Metals	Calcium	7440-70-2	19900		175	350	ug/L	19900.00	
GR/LC_SW-3267_20220927	200.7	Total Metals	Iron	7439-89-6	2070		100	250	ug/L	2070.00	
GR/LC_SW-3267_20220927	200.7	Total Metals	Magnesium	7439-95-4	3850		250	500	ug/L	3850.00	
GR/LC_SW-3267_20220927	200.7	Total Metals	Manganese	7439-96-5	108		7.50	15.0	ug/L	108.00	
GR/LC_SW-3267_20220927	200.7	Total Metals	Potassium	7440-09-7	555	J	250	1000	ug/L	555.00	J
GR/LC_SW-3267_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	6950		250	1000	ug/L	6950.00	
GR/LC_SW-3267_20220927	200.7	Total Metals	Sodium	7440-23-5	1980		250	1000	ug/L	1980.00	
GR/LC_SW-3267_20220927	200.7	Total Metals	Zinc	7440-66-6	99.3		15.0	30.0	ug/L	99.30	J+
GR/LC_SW-3267_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220927	200.8	Total Metals	Barium	7440-39-3	51.5	D	25.0	50.0	ug/L	51.50	
GR/LC_SW-3267_20220927	200.8	Total Metals	Cadmium	7440-43-9	0.745	JD	0.500	1.00	ug/L	0.75	J
GR/LC_SW-3267_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220927	200.8	Total Metals	Cobalt	7440-48-4	13.8	D	0.500	1.00	ug/L	13.80	
GR/LC_SW-3267_20220927	200.8	Total Metals	Copper	7440-50-8	727	D	2.50	5.00	ug/L	727.00	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3267_20220927	200.8	Total Metals	Lead	7439-92-1	1.60	D	0.500	1.50	ug/L	1.60	J+
GR/LC_SW-3267_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220927	200.8	Total Metals	Nickel	7440-02-0	11.4	D	2.50	5.00	ug/L	11.40	
GR/LC_SW-3267_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220927	200.8	Total Metals	Uranium	7440-61-1	0.893	JD	0.500	1.00	ug/L	0.89	J
GR/LC_SW-3267_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3267_20220927	2340B	Dissolved Metals	Hardness	NA	61		2	2	mg/L	61.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	15200		50.0	100	ug/L	15200.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	18800		175	350	ug/L	18800.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Iron	7439-89-6	434		100	250	ug/L	434.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	3340		250	500	ug/L	3340.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	104		7.50	15.0	ug/L	104.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	475	J	250	1000	ug/L	475.00	J
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	6820		250	1000	ug/L	6820.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1750		250	1000	ug/L	1750.00	
GR/LC_SW-3267_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	92.6		15.0	30.0	ug/L	92.60	J+
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Barium	7440-39-3	52.1	JD	50.0	100	ug/L	52.10	J
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	14.1	D	1.00	2.00	ug/L	14.10	
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Copper	7440-50-8	751	D	5.00	10.0	ug/L	751.00	
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Lead	7439-92-1	1.26	JD	1.00	2.00	ug/L	1.26	J
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	11.9	D	5.00	10.0	ug/L	11.90	
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3267_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_SW-3267_20220927	EPA 160.2		Total Suspended Solids	NA	22		10	10	mg/L	22.00	
GR/LC_SW-3267_20220927	EPA 310.1		Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3267_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3267_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3267_20220927	EPA 300.0		Fluoride	16984-48-8	0.3		0.1	0.2	mg/L	0.30	
GR/LC_SW-3267_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3267_20220927	EPA 300.0		Sulfate as SO4	148-08-798	167		2.5	5.0	mg/L	167.00	
GR/LC_SW-3268_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3268_20220927	200.7	Total Metals	Aluminum	7429-90-5	29200		50.0	100	ug/L	29200.00	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3268_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3268_20220927	200.7	Total Metals	Calcium	7440-70-2	21300		175	350	ug/L	21300.00	
GR/LC_SW-3268_20220927	200.7	Total Metals	Iron	7439-89-6	24300		100	250	ug/L	24300.00	
GR/LC_SW-3268_20220927	200.7	Total Metals	Magnesium	7439-95-4	5150		250	500	ug/L	5150.00	
GR/LC_SW-3268_20220927	200.7	Total Metals	Manganese	7439-96-5	180		7.50	15.0	ug/L	180.00	
GR/LC_SW-3268_20220927	200.7	Total Metals	Potassium	7440-09-7	644	J	250	1000	ug/L	644.00	J
GR/LC_SW-3268_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	7900		250	1000	ug/L	7900.00	
GR/LC_SW-3268_20220927	200.7	Total Metals	Sodium	7440-23-5	1800		250	1000	ug/L	1800.00	
GR/LC_SW-3268_20220927	200.7	Total Metals	Zinc	7440-66-6	110		15.0	30.0	ug/L	110.00	J+
GR/LC_SW-3268_20220927	200.8	Total Metals	Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Cadmium	7440-43-9	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Cobalt	7440-48-4	25.9	D	2.00	4.00	ug/L	25.90	
GR/LC_SW-3268_20220927	200.8	Total Metals	Copper	7440-50-8	1440	D	10.0	20.0	ug/L	1440.00	
GR/LC_SW-3268_20220927	200.8	Total Metals	Lead	7439-92-1	2.61	JD	2.00	6.00	ug/L	2.61	J+
GR/LC_SW-3268_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Nickel	7440-02-0	19.8	JD	10.0	20.0	ug/L	19.80	J
GR/LC_SW-3268_20220927	200.8	Total Metals	Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Uranium	7440-61-1	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268_20220927	200.8	Total Metals	Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-3268_20220927	2340B	Dissolved Metals	Hardness	NA	68		2	2	mg/L	68.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	28500		50.0	100	ug/L	28500.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	19800		175	350	ug/L	19800.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Iron	7439-89-6	9430		100	250	ug/L	9430.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	4640		250	500	ug/L	4640.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	174		7.50	15.0	ug/L	174.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	515	J	250	1000	ug/L	515.00	J
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	7840		250	1000	ug/L	7840.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1630		250	1000	ug/L	1630.00	
GR/LC_SW-3268_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	113		15.0	30.0	ug/L	113.00	J+
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	26.3	D	2.00	4.00	ug/L	26.30	
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Copper	7440-50-8	1440	D	10.0	20.0	ug/L	1440.00	
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<2.00	U	2.00	4.00	ug/L	4.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	20.9	D	10.0	20.0	ug/L	20.90	
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-3268_20220927	EPA 160.2		Total Suspended Solids	NA	47		10	10	mg/L	47.00	
GR/LC_SW-3268_20220927	EPA 310.1		Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3268_20220927	EPA 300.0		Bromide	24959-67-9	<0.5	U	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3268_20220927	EPA 300.0		Chloride	16887-00-6	<2.0	U	2.0	4.0	mg/L	4.0	U
GR/LC_SW-3268_20220927	EPA 300.0		Fluoride	16984-48-8	0.5	D	0.2	0.4	mg/L	0.50	
GR/LC_SW-3268_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<1.0	UJ	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3268_20220927	EPA 300.0		Sulfate as SO4	148-08-798	287	D	5.0	10.0	mg/L	287.00	
GR/LC_SW-3268-DUP_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Aluminum	7429-90-5	28900		50.0	100	ug/L	28900.00	
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Calcium	7440-70-2	21600		175	350	ug/L	21600.00	
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Iron	7439-89-6	24900		100	250	ug/L	24900.00	
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Magnesium	7439-95-4	5240		250	500	ug/L	5240.00	
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Manganese	7439-96-5	177		7.50	15.0	ug/L	177.00	
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Potassium	7440-09-7	596	J	250	1000	ug/L	596.00	J
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	7840		250	1000	ug/L	7840.00	
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Sodium	7440-23-5	1870		250	1000	ug/L	1870.00	
GR/LC_SW-3268-DUP_20220927	200.7	Total Metals	Zinc	7440-66-6	109		15.0	30.0	ug/L	109.00	J+
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Cadmium	7440-43-9	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Cobalt	7440-48-4	25.9	D	2.00	4.00	ug/L	25.90	
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Copper	7440-50-8	1410	D	10.0	20.0	ug/L	1410.00	
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Lead	7439-92-1	2.41	JD	2.00	6.00	ug/L	2.41	J+
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Nickel	7440-02-0	19.8	JD	10.0	20.0	ug/L	19.80	J
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Uranium	7440-61-1	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268-DUP_20220927	200.8	Total Metals	Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-3268-DUP_20220927	2340B	Dissolved Metals	Hardness	NA	69		2	2	mg/L	69.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	28600		50.0	100	ug/L	28600.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	19800		175	350	ug/L	19800.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Iron	7439-89-6	9640		100	250	ug/L	9640.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	4650		250	500	ug/L	4650.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	171		7.50	15.0	ug/L	171.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	556	J	250	1000	ug/L	556.00	J
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	7720		250	1000	ug/L	7720.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1620		250	1000	ug/L	1620.00	
GR/LC_SW-3268-DUP_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	109		15.0	30.0	ug/L	109.00	J+
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	26.2	D	2.00	4.00	ug/L	26.20	
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Copper	7440-50-8	1430	D	10.0	20.0	ug/L	1430.00	
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	19.9	JD	10.0	20.0	ug/L	19.90	J
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3268-DUP_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-3268-DUP_20220927	EPA 160.2		Total Suspended Solids	NA	48		10	10	mg/L	48.00	
GR/LC_SW-3268-DUP_20220927	EPA 310.1		Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3268-DUP_20220927	EPA 300.0		Bromide	24959-67-9	<0.5	U	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3268-DUP_20220927	EPA 300.0		Chloride	16887-00-6	<2.0	U	2.0	4.0	mg/L	4.0	U
GR/LC_SW-3268-DUP_20220927	EPA 300.0		Fluoride	16984-48-8	0.9	D	0.2	0.4	mg/L	0.90	
GR/LC_SW-3268-DUP_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<1.0	UJ	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3268-DUP_20220927	EPA 300.0		Sulfate as SO4	148-08-798	286	D	5.0	10.0	mg/L	286.00	
GR/LC_SW-3371A_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3371A_20220927	200.7	Total Metals	Aluminum	7429-90-5	1090000	D	2500	5000	ug/L	1090000.00	
GR/LC_SW-3371A_20220927	200.7	Total Metals	Beryllium	7440-41-7	<100	U	100	250	ug/L	250	U
GR/LC_SW-3371A_20220927	200.7	Total Metals	Calcium	7440-70-2	30800	D	8750	17500	ug/L	30800.00	
GR/LC_SW-3371A_20220927	200.7	Total Metals	Iron	7439-89-6	1240000	D	5000	12500	ug/L	1240000.00	
GR/LC_SW-3371A_20220927	200.7	Total Metals	Magnesium	7439-95-4	66600	D	12500	25000	ug/L	66600.00	
GR/LC_SW-3371A_20220927	200.7	Total Metals	Manganese	7439-96-5	1280	D	375	750	ug/L	1280.00	
GR/LC_SW-3371A_20220927	200.7	Total Metals	Potassium	7440-09-7	<12500	U	12500	50000	ug/L	50000	U
GR/LC_SW-3371A_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	62400	D	12500	50000	ug/L	62400.00	
GR/LC_SW-3371A_20220927	200.7	Total Metals	Sodium	7440-23-5	<12500	U	12500	50000	ug/L	50000	U
GR/LC_SW-3371A_20220927	200.7	Total Metals	Zinc	7440-66-6	2520	D	750	1500	ug/L	2520.00	
GR/LC_SW-3371A_20220927	200.8	Total Metals	Antimony	7440-36-0	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Arsenic	7440-38-2	80.9	JD	60.0	200	ug/L	80.90	J

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3371A_20220927	200.8	Total Metals	Barium	7440-39-3	<500	U	500	1000	ug/L	1000	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Cadmium	7440-43-9	16.3	JD	10.0	20.0	ug/L	16.30	J
GR/LC_SW-3371A_20220927	200.8	Total Metals	Chromium	7440-47-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Cobalt	7440-48-4	889	D	10.0	20.0	ug/L	889.00	
GR/LC_SW-3371A_20220927	200.8	Total Metals	Copper	7440-50-8	50800	D	50.0	100	ug/L	50800.00	
GR/LC_SW-3371A_20220927	200.8	Total Metals	Lead	7439-92-1	<10.0	U	10.0	30.0	ug/L	30.0	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<100	U	100	100	ug/L	100	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Nickel	7440-02-0	600	D	50.0	100	ug/L	600.00	
GR/LC_SW-3371A_20220927	200.8	Total Metals	Selenium	7782-49-2	<150	U	150	300	ug/L	300	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Silver	7440-22-4	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Thallium	7440-28-0	<100	U	100	200	ug/L	200	U
GR/LC_SW-3371A_20220927	200.8	Total Metals	Uranium	7440-61-1	41.8	D	10.0	20.0	ug/L	41.80	
GR/LC_SW-3371A_20220927	200.8	Total Metals	Vanadium	7440-62-2	<200	U	200	300	ug/L	300	U
GR/LC_SW-3371A_20220927	2340B	Dissolved Metals	Hardness	NA	379	D	75	75	mg/L	379.00	
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	1030000	D	2500	5000	ug/L	1030000.00	
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<100	U	100	250	ug/L	250	U
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	27800	D	8750	17500	ug/L	27800.00	
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Iron	7439-89-6	1030000	D	5000	12500	ug/L	1030000.00	
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	75100	D	12500	25000	ug/L	75100.00	
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	1130	D	375	750	ug/L	1130.00	
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	<12500	U	12500	50000	ug/L	50000	U
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	59400	D	12500	50000	ug/L	59400.00	
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	<12500	U	12500	50000	ug/L	50000	U
GR/LC_SW-3371A_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	1840	D	750	1500	ug/L	1840.00	
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	99.7	JD	60.0	200	ug/L	99.70	J
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<500	U	500	1000	ug/L	1000	U
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	14.4	JD	10.0	20.0	ug/L	14.40	J
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	121	JD	100	200	ug/L	121.00	J
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	937	D	10.0	20.0	ug/L	937.00	
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Copper	7440-50-8	52300	D	50.0	100	ug/L	52300.00	
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<100	U	100	100	ug/L	100	U
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	633	D	50.0	100	ug/L	633.00	
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<150	U	150	300	ug/L	300	U
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<100	U	100	200	ug/L	200	U
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	41.8	D	10.0	20.0	ug/L	41.80	
GR/LC_SW-3371A_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<200	U	200	300	ug/L	300	U
GR/LC_SW-3371A_20220927	EPA 160.2		Total Suspended Solids	NA	19		10	10	mg/L	19.00	
GR/LC_SW-3371A_20220927	EPA 310.1		Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3371A_20220927	EPA 300.0		Bromide	24959-67-9	<5.0	U	5.0	10.0	mg/L	10.0	U
GR/LC_SW-3371A_20220927	EPA 300.0		Chloride	16887-00-6	<20.0	U	20.0	40.0	mg/L	40.0	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3371A_20220927	EPA 300.0		Fluoride	16984-48-8	14.5	D	2.0	4.0	mg/L	14.50	
GR/LC_SW-3371A_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<10.0	UJ	10.0	20.0	mg/L	20.0	U
GR/LC_SW-3371A_20220927	EPA 300.0		Sulfate as SO4	148-08-798	9420	D	50.0	100	mg/L	9420.00	
GR/LC_SW-3371B_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3371B_20220927	200.7	Total Metals	Aluminum	7429-90-5	3150		50.0	100	ug/L	3150.00	
GR/LC_SW-3371B_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3371B_20220927	200.7	Total Metals	Calcium	7440-70-2	16800		175	350	ug/L	16800.00	
GR/LC_SW-3371B_20220927	200.7	Total Metals	Iron	7439-89-6	1670		100	250	ug/L	1670.00	
GR/LC_SW-3371B_20220927	200.7	Total Metals	Magnesium	7439-95-4	2750		250	500	ug/L	2750.00	
GR/LC_SW-3371B_20220927	200.7	Total Metals	Manganese	7439-96-5	213		7.50	15.0	ug/L	213.00	
GR/LC_SW-3371B_20220927	200.7	Total Metals	Potassium	7440-09-7	598	J	250	1000	ug/L	598.00	J
GR/LC_SW-3371B_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	6450		250	1000	ug/L	6450.00	
GR/LC_SW-3371B_20220927	200.7	Total Metals	Sodium	7440-23-5	1560		250	1000	ug/L	1560.00	
GR/LC_SW-3371B_20220927	200.7	Total Metals	Zinc	7440-66-6	61.8		15.0	30.0	ug/L	61.80	J+
GR/LC_SW-3371B_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Cadmium	7440-43-9	0.674	JD	0.500	1.00	ug/L	0.67	J
GR/LC_SW-3371B_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Cobalt	7440-48-4	3.96	D	0.500	1.00	ug/L	3.96	
GR/LC_SW-3371B_20220927	200.8	Total Metals	Copper	7440-50-8	184	D	2.50	5.00	ug/L	184.00	
GR/LC_SW-3371B_20220927	200.8	Total Metals	Lead	7439-92-1	0.944	JD	0.500	1.50	ug/L	1.50	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Nickel	7440-02-0	5.68	D	2.50	5.00	ug/L	5.68	
GR/LC_SW-3371B_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3371B_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3371B_20220927	2340B	Dissolved Metals	Hardness	NA	48		2	2	mg/L	48.00	
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	50.2	J	50.0	100	ug/L	50.20	J
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	15500		175	350	ug/L	15500.00	
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Iron	7439-89-6	1030		100	250	ug/L	1030.00	
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2360		250	500	ug/L	2360.00	
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	207		7.50	15.0	ug/L	207.00	
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	544	J	250	1000	ug/L	544.00	J
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	6120		250	1000	ug/L	6120.00	
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1390		250	1000	ug/L	1390.00	
GR/LC_SW-3371B_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	65.0		15.0	30.0	ug/L	65.00	J+
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	4.05	D	1.00	2.00	ug/L	4.05	
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Copper	7440-50-8	78.1	D	5.00	10.0	ug/L	78.10	
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	5.17	JD	5.00	10.0	ug/L	5.17	J
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3371B_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_SW-3371B_20220927	EPA 160.2		Total Suspended Solids	NA	17		10	10	mg/L	17.00	
GR/LC_SW-3371B_20220927	EPA 310.1		Total Alkalinity	NA	8.22	J	5.00	10.0	mg CaCO3 / L	8.22	J
GR/LC_SW-3371B_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3371B_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3371B_20220927	EPA 300.0		Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.10	J
GR/LC_SW-3371B_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3371B_20220927	EPA 300.0		Sulfate as SO4	148-08-798	51.8		2.5	5.0	mg/L	51.80	
GR/LC_SW-3372A_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3372A_20220927	200.7	Total Metals	Aluminum	7429-90-5	1570		50.0	100	ug/L	1570.00	
GR/LC_SW-3372A_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3372A_20220927	200.7	Total Metals	Calcium	7440-70-2	12300		175	350	ug/L	12300.00	
GR/LC_SW-3372A_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3372A_20220927	200.7	Total Metals	Magnesium	7439-95-4	2020		250	500	ug/L	2020.00	
GR/LC_SW-3372A_20220927	200.7	Total Metals	Manganese	7439-96-5	41.8		7.50	15.0	ug/L	41.80	
GR/LC_SW-3372A_20220927	200.7	Total Metals	Potassium	7440-09-7	467	J	250	1000	ug/L	467.00	J
GR/LC_SW-3372A_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5870		250	1000	ug/L	5870.00	
GR/LC_SW-3372A_20220927	200.7	Total Metals	Sodium	7440-23-5	1320		250	1000	ug/L	1320.00	
GR/LC_SW-3372A_20220927	200.7	Total Metals	Zinc	7440-66-6	34.6		15.0	30.0	ug/L	34.60	J+
GR/LC_SW-3372A_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Cobalt	7440-48-4	1.52	D	0.500	1.00	ug/L	1.52	
GR/LC_SW-3372A_20220927	200.8	Total Metals	Copper	7440-50-8	131	D	2.50	5.00	ug/L	131.00	
GR/LC_SW-3372A_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Nickel	7440-02-0	2.82	JD	2.50	5.00	ug/L	2.82	J
GR/LC_SW-3372A_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3372A_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3372A_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3372A_20220927	2340B	Dissolved Metals	Hardness	NA	36		2	2	mg/L	36.00	
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	11700		175	350	ug/L	11700.00	
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	1770		250	500	ug/L	1770.00	
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	40.8		7.50	15.0	ug/L	40.80	
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	438	J	250	1000	ug/L	438.00	J
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5490		250	1000	ug/L	5490.00	
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1230		250	1000	ug/L	1230.00	
GR/LC_SW-3372A_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	49.8		15.0	30.0	ug/L	49.80	J+
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	1.54	JD	1.00	2.00	ug/L	1.54	J
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Copper	7440-50-8	40.0	D	5.00	10.0	ug/L	40.00	
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3372A_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_SW-3372A_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3372A_20220927	EPA 310.1		Total Alkalinity	NA	18.7		5.00	10.0	mg CaCO3 / L	18.70	
GR/LC_SW-3372A_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3372A_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3372A_20220927	EPA 300.0		Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.10	J
GR/LC_SW-3372A_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3372A_20220927	EPA 300.0		Sulfate as SO4	148-08-798	25.6		2.5	5.0	mg/L	25.60	
GR/LC_SW-3374_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3374_20220927	200.7	Total Metals	Aluminum	7429-90-5	14800		50.0	100	ug/L	14800.00	
GR/LC_SW-3374_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220927	200.7	Total Metals	Calcium	7440-70-2	19600		175	350	ug/L	19600.00	
GR/LC_SW-3374_20220927	200.7	Total Metals	Iron	7439-89-6	8630		100	250	ug/L	8630.00	
GR/LC_SW-3374_20220927	200.7	Total Metals	Magnesium	7439-95-4	3640		250	500	ug/L	3640.00	
GR/LC_SW-3374_20220927	200.7	Total Metals	Manganese	7439-96-5	104		7.50	15.0	ug/L	104.00	
GR/LC_SW-3374_20220927	200.7	Total Metals	Potassium	7440-09-7	523	J	250	1000	ug/L	523.00	J

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3374_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	6950		250	1000	ug/L	6950.00	
GR/LC_SW-3374_20220927	200.7	Total Metals	Sodium	7440-23-5	1770		250	1000	ug/L	1770.00	
GR/LC_SW-3374_20220927	200.7	Total Metals	Zinc	7440-66-6	75.8		15.0	30.0	ug/L	75.80	J+
GR/LC_SW-3374_20220927	200.8	Total Metals	Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Cadmium	7440-43-9	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Cobalt	7440-48-4	13.3	D	2.00	4.00	ug/L	13.30	
GR/LC_SW-3374_20220927	200.8	Total Metals	Copper	7440-50-8	725	D	10.0	20.0	ug/L	725.00	
GR/LC_SW-3374_20220927	200.8	Total Metals	Lead	7439-92-1	4.10	JD	2.00	6.00	ug/L	4.10	J+
GR/LC_SW-3374_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Nickel	7440-02-0	11.3	JD	10.0	20.0	ug/L	11.30	J
GR/LC_SW-3374_20220927	200.8	Total Metals	Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Uranium	7440-61-1	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-3374_20220927	200.8	Total Metals	Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-3374_20220927	2340B	Dissolved Metals	Hardness	NA	60		2	2	mg/L	60.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	14200		50.0	100	ug/L	14200.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	18800		175	350	ug/L	18800.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Iron	7439-89-6	293		100	250	ug/L	293.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	3260		250	500	ug/L	3260.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	101		7.50	15.0	ug/L	101.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	461	J	250	1000	ug/L	461.00	J
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	6870		250	1000	ug/L	6870.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1630		250	1000	ug/L	1630.00	
GR/LC_SW-3374_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	75.7		15.0	30.0	ug/L	75.70	J+
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Barium	7440-39-3	54.2	JD	50.0	100	ug/L	54.20	J
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	13.5	D	1.00	2.00	ug/L	13.50	
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Copper	7440-50-8	719	D	5.00	10.0	ug/L	719.00	
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Lead	7439-92-1	1.05	JD	1.00	2.00	ug/L	1.05	J
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	11.5	D	5.00	10.0	ug/L	11.50	
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3374_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_SW-3374_20220927	EPA 160.2		Total Suspended Solids	NA	21		10	10	mg/L	21.00	
GR/LC_SW-3374_20220927	EPA 310.1		Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-3374_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3374_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3374_20220927	EPA 300.0		Fluoride	16984-48-8	0.3		0.1	0.2	mg/L	0.30	
GR/LC_SW-3374_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3374_20220927	EPA 300.0		Sulfate as SO4	148-08-798	160		2.5	5.0	mg/L	160.00	
GR/LC_SW-3387_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3387_20220927	200.7	Total Metals	Aluminum	7429-90-5	696		50.0	100	ug/L	696.00	
GR/LC_SW-3387_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220927	200.7	Total Metals	Calcium	7440-70-2	13400		175	350	ug/L	13400.00	
GR/LC_SW-3387_20220927	200.7	Total Metals	Iron	7439-89-6	184	J	100	250	ug/L	184.00	J
GR/LC_SW-3387_20220927	200.7	Total Metals	Magnesium	7439-95-4	2590		250	500	ug/L	2590.00	
GR/LC_SW-3387_20220927	200.7	Total Metals	Manganese	7439-96-5	31.5		7.50	15.0	ug/L	31.50	
GR/LC_SW-3387_20220927	200.7	Total Metals	Potassium	7440-09-7	492	J	250	1000	ug/L	492.00	J
GR/LC_SW-3387_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5290		250	1000	ug/L	5290.00	
GR/LC_SW-3387_20220927	200.7	Total Metals	Sodium	7440-23-5	1990		250	1000	ug/L	1990.00	
GR/LC_SW-3387_20220927	200.7	Total Metals	Zinc	7440-66-6	19.1	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Barium	7440-39-3	32.8	JD	25.0	50.0	ug/L	32.80	J
GR/LC_SW-3387_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Cobalt	7440-48-4	2.75	D	0.500	1.00	ug/L	2.75	
GR/LC_SW-3387_20220927	200.8	Total Metals	Copper	7440-50-8	94.0	D	2.50	5.00	ug/L	94.00	
GR/LC_SW-3387_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Nickel	7440-02-0	3.08	JD	2.50	5.00	ug/L	3.08	J
GR/LC_SW-3387_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3387_20220927	2340B	Dissolved Metals	Hardness	NA	42		2	2	mg/L	42.00	
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	12600		175	350	ug/L	12600.00	
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2450		250	500	ug/L	2450.00	
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	29.9		7.50	15.0	ug/L	29.90	
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	354	J	250	1000	ug/L	354.00	J
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5160		250	1000	ug/L	5160.00	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1960		250	1000	ug/L	1960.00	
GR/LC_SW-3387_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	15.9	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Barium	7440-39-3	32.6		5.00	10.0	ug/L	32.60	
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	0.118	J	0.100	0.200	ug/L	0.12	J
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	2.74		0.100	0.200	ug/L	2.74	
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Copper	7440-50-8	70.6	J	0.500	1.00	ug/L	70.60	J
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	2.83		0.500	1.00	ug/L	2.83	
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Silver	7440-22-4	0.634	J	0.500	1.00	ug/L	0.63	J
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3387_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3387_20220927	EPA 160.2	Total Suspended Solids	NA	<10	U		10	10	mg/L	10	U
GR/LC_SW-3387_20220927	EPA 310.1	Total Alkalinity	NA	8.03	J		5.00	10.0	mg CaCO3 / L	8.03	J
GR/LC_SW-3387_20220927	EPA 300.0	Bromide	24959-67-9	<0.2	U		0.2	0.5	mg/L	0.5	U
GR/LC_SW-3387_20220927	EPA 300.0	Chloride	16887-00-6	<1.0	U		1.0	2.0	mg/L	2.0	U
GR/LC_SW-3387_20220927	EPA 300.0	Fluoride	16984-48-8	<0.1	U		0.1	0.2	mg/L	0.2	U
GR/LC_SW-3387_20220927	EPA 300.0	Nitrate/Nitrite as N	NA	<0.5	UJ		0.5	1.0	mg/L	1.0	U
GR/LC_SW-3387_20220927	EPA 300.0	Sulfate as SO4	148-08-798	43.7			2.5	5.0	mg/L	43.70	
GR/LC_SW-3433_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-3433_20220927	200.7	Total Metals	Aluminum	7429-90-5	560		50.0	100	ug/L	560.00	
GR/LC_SW-3433_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220927	200.7	Total Metals	Calcium	7440-70-2	13200		175	350	ug/L	13200.00	
GR/LC_SW-3433_20220927	200.7	Total Metals	Iron	7439-89-6	116	J	100	250	ug/L	116.00	J
GR/LC_SW-3433_20220927	200.7	Total Metals	Magnesium	7439-95-4	2550		250	500	ug/L	2550.00	
GR/LC_SW-3433_20220927	200.7	Total Metals	Manganese	7439-96-5	30.8		7.50	15.0	ug/L	30.80	
GR/LC_SW-3433_20220927	200.7	Total Metals	Potassium	7440-09-7	378	J	250	1000	ug/L	378.00	J
GR/LC_SW-3433_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5280		250	1000	ug/L	5280.00	
GR/LC_SW-3433_20220927	200.7	Total Metals	Sodium	7440-23-5	1950		250	1000	ug/L	1950.00	
GR/LC_SW-3433_20220927	200.7	Total Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Barium	7440-39-3	32.7	JD	25.0	50.0	ug/L	32.70	J
GR/LC_SW-3433_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Cobalt	7440-48-4	2.79	D	0.500	1.00	ug/L	2.79	
GR/LC_SW-3433_20220927	200.8	Total Metals	Copper	7440-50-8	93.8	D	2.50	5.00	ug/L	93.80	
GR/LC_SW-3433_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-3433_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Nickel	7440-02-0	3.17	JD	2.50	5.00	ug/L	3.17	J
GR/LC_SW-3433_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-3433_20220927	2340B	Dissolved Metals	Hardness	NA	42		2	2	mg/L	42.00	
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	12700		175	350	ug/L	12700.00	
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2450		250	500	ug/L	2450.00	
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	30.3		7.50	15.0	ug/L	30.30	
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	374	J	250	1000	ug/L	374.00	J
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5240		250	1000	ug/L	5240.00	
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1950		250	1000	ug/L	1950.00	
GR/LC_SW-3433_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	16.4	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Barium	7440-39-3	32.3		5.00	10.0	ug/L	32.30	
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	2.74		0.100	0.200	ug/L	2.74	
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Copper	7440-50-8	70.8		0.500	1.00	ug/L	70.80	
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	2.92		0.500	1.00	ug/L	2.92	
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-3433_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-3433_20220927	EPA 160.2	Total Suspended Solids	Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-3433_20220927	EPA 310.1	Total Alkalinity	Total Alkalinity	NA	8.24	J	5.00	10.0	mg CaCO3 / L	8.24	J
GR/LC_SW-3433_20220927	EPA 300.0	Bromide	Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-3433_20220927	EPA 300.0	Chloride	Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-3433_20220927	EPA 300.0	Fluoride	Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW-3433_20220927	EPA 300.0	Nitrate/Nitrite as N	Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-3433_20220927	EPA 300.0	Sulfate as SO4	Sulfate as SO4	148-08-798	43.5		2.5	5.0	mg/L	43.50	
GR/LC_SW-487A_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-487A_20220927	200.7	Total Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-487A_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-487A_20220927	200.7	Total Metals	Calcium	7440-70-2	8810		175	350	ug/L	8810.00	
GR/LC_SW-487A_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L		250 U
GR/LC_SW-487A_20220927	200.7	Total Metals	Magnesium	7439-95-4	1210		250	500	ug/L	1210.00	
GR/LC_SW-487A_20220927	200.7	Total Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L		15.0 U
GR/LC_SW-487A_20220927	200.7	Total Metals	Potassium	7440-09-7	377	J	250	1000	ug/L	377.00	J
GR/LC_SW-487A_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	3920		250	1000	ug/L	3920.00	
GR/LC_SW-487A_20220927	200.7	Total Metals	Sodium	7440-23-5	1050		250	1000	ug/L	1050.00	
GR/LC_SW-487A_20220927	200.7	Total Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L		30.0 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L		10.0 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L		50.0 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L		10.0 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L		1.50 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L		5.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L		15.0 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L		5.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L		10.0 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW-487A_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L		15.0 U
GR/LC_SW-487A_20220927	2340B	Dissolved Metals	Hardness	NA	24		2	2	mg/L	24.00	
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L		100 U
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L		5.00 U
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	7990		175	350	ug/L	7990.00	
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L		250 U
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	1090		250	500	ug/L	1090.00	
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L		15.0 U
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	275	J	250	1000	ug/L	275.00	J
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	3840		250	1000	ug/L	3840.00	
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1030		250	1000	ug/L	1030.00	
GR/LC_SW-487A_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L		30.0 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L		2.00 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Barium	7440-39-3	9.67	J	5.00	10.0	ug/L		9.67 J
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L		0.200 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L		2.00 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	<0.100	U	0.100	0.200	ug/L		0.200 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Copper	7440-50-8	<0.500	U	0.500	1.00	ug/L		1.00 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L		0.200 U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L		1.00 U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	0.542	J	0.500	1.00	ug/L	0.54	J
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-487A_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-487A_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-487A_20220927	EPA 310.1		Total Alkalinity	NA	27.9		5.00	10.0	mg CaCO3 / L	27.90	
GR/LC_SW-487A_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-487A_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-487A_20220927	EPA 300.0		Fluoride	16984-48-8	<0.1	U	0.1	0.2	mg/L	0.2	U
GR/LC_SW-487A_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-487A_20220927	EPA 300.0		Sulfate as SO4	148-08-798	4.9	J	2.5	5.0	mg/L	4.90	J
GR/LC_SW-489_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-489_20220927	200.7	Total Metals	Aluminum	7429-90-5	758		50.0	100	ug/L	758.00	
GR/LC_SW-489_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-489_20220927	200.7	Total Metals	Calcium	7440-70-2	14200		175	350	ug/L	14200.00	
GR/LC_SW-489_20220927	200.7	Total Metals	Iron	7439-89-6	178	J	100	250	ug/L	178.00	J
GR/LC_SW-489_20220927	200.7	Total Metals	Magnesium	7439-95-4	2700		250	500	ug/L	2700.00	
GR/LC_SW-489_20220927	200.7	Total Metals	Manganese	7439-96-5	30.5		7.50	15.0	ug/L	30.50	
GR/LC_SW-489_20220927	200.7	Total Metals	Potassium	7440-09-7	376	J	250	1000	ug/L	376.00	J
GR/LC_SW-489_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5720		250	1000	ug/L	5720.00	
GR/LC_SW-489_20220927	200.7	Total Metals	Sodium	7440-23-5	1980		250	1000	ug/L	1980.00	
GR/LC_SW-489_20220927	200.7	Total Metals	Zinc	7440-66-6	16.6	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-489_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-489_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-489_20220927	200.8	Total Metals	Barium	7440-39-3	40.4	JD	25.0	50.0	ug/L	40.40	J
GR/LC_SW-489_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-489_20220927	200.8	Total Metals	Cobalt	7440-48-4	1.79	D	0.500	1.00	ug/L	1.79	
GR/LC_SW-489_20220927	200.8	Total Metals	Copper	7440-50-8	48.8	D	2.50	5.00	ug/L	48.80	
GR/LC_SW-489_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-489_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-489_20220927	200.8	Total Metals	Nickel	7440-02-0	2.88	JD	2.50	5.00	ug/L	2.88	J
GR/LC_SW-489_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-489_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-489_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-489_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-489_20220927	2340B	Dissolved Metals	Hardness	NA	46		2	2	mg/L	46.00	
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	14200		175	350	ug/L	14200.00	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2680		250	500	ug/L	2680.00	
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	29.3		7.50	15.0	ug/L	29.30	
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	349	J	250	1000	ug/L	349.00	J
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5530		250	1000	ug/L	5530.00	
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	2030		250	1000	ug/L	2030.00	
GR/LC_SW-489_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	15.4	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<0.600	U	0.600	2.00	ug/L	2.00	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Barium	7440-39-3	41.9		5.00	10.0	ug/L	41.90	
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	1.85		0.100	0.200	ug/L	1.85	
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Copper	7440-50-8	22.6		0.500	1.00	ug/L	22.60	
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<1.00	U	1.00	1.00	ug/L	1.00	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	2.64		0.500	1.00	ug/L	2.64	
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<1.50	U	1.50	3.00	ug/L	3.00	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.100	U	0.100	0.200	ug/L	0.200	U
GR/LC_SW-489_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<2.00	U	2.00	3.00	ug/L	3.00	U
GR/LC_SW-489_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-489_20220927	EPA 310.1		Total Alkalinity	NA	7.58	J	5.00	10.0	mg CaCO3 / L	7.58	J
GR/LC_SW-489_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-489_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-489_20220927	EPA 300.0		Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.10	J
GR/LC_SW-489_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-489_20220927	EPA 300.0		Sulfate as SO4	148-08-798	51.6		2.5	5.0	mg/L	51.60	
GR/LC_SW-B4-HSE_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Aluminum	7429-90-5	1040		50.0	100	ug/L	1040.00	
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Calcium	7440-70-2	93900		175	350	ug/L	93900.00	
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Magnesium	7439-95-4	21700		250	500	ug/L	21700.00	
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Manganese	7439-96-5	29.7		7.50	15.0	ug/L	29.70	
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Potassium	7440-09-7	1090		250	1000	ug/L	1090.00	
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5380		250	1000	ug/L	5380.00	
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Sodium	7440-23-5	4240		250	1000	ug/L	4240.00	
GR/LC_SW-B4-HSE_20220927	200.7	Total Metals	Zinc	7440-66-6	58.2		15.0	30.0	ug/L	58.20	J+
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Barium	7440-39-3	122	D	25.0	50.0	ug/L	122.00	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Cadmium	7440-43-9	0.522	JD	0.500	1.00	ug/L	0.52	J
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Cobalt	7440-48-4	1.01	D	0.500	1.00	ug/L	1.01	
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Copper	7440-50-8	27.8	D	2.50	5.00	ug/L	27.80	
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Nickel	7440-02-0	9.32	D	2.50	5.00	ug/L	9.32	
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Uranium	7440-61-1	1.53	D	0.500	1.00	ug/L	1.53	
GR/LC_SW-B4-HSE_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-B4-HSE_20220927	2340B	Dissolved Metals	Hardness	NA	300		2	2	mg/L	300.00	
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	78.0	J	50.0	100	ug/L	78.00	J
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	87200		175	350	ug/L	87200.00	
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	19900		250	500	ug/L	19900.00	
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	31.5		7.50	15.0	ug/L	31.50	
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	1040		250	1000	ug/L	1040.00	
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	4950		250	1000	ug/L	4950.00	
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	3970		250	1000	ug/L	3970.00	
GR/LC_SW-B4-HSE_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	34.4		15.0	30.0	ug/L	34.40	J+
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Barium	7440-39-3	125	D	50.0	100	ug/L	125.00	
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Copper	7440-50-8	6.58	JD	5.00	10.0	ug/L	6.58	J
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	9.71	JD	5.00	10.0	ug/L	9.71	J
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-B4-HSE_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_SW-B4-HSE_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-B4-HSE_20220927	EPA 310.1		Total Alkalinity	NA	28.7		5.00	10.0	mg CaCO3 / L	28.70	
GR/LC_SW-B4-HSE_20220927	EPA 300.0		Bromide	24959-67-9	<0.5	U	0.5	1.0	mg/L	1.0	U
GR/LC_SW-B4-HSE_20220927	EPA 300.0		Chloride	16887-00-6	<2.0	U	2.0	4.0	mg/L	4.0	U
GR/LC_SW-B4-HSE_20220927	EPA 300.0		Fluoride	16984-48-8	<0.2	U	0.2	0.4	mg/L	0.4	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
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Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-B4-HSE_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<1.0	UJ	1.0	2.0	mg/L	2.0	U
GR/LC_SW-B4-HSE_20220927	EPA 300.0		Sulfate as SO4	148-08-798	322	D	5.0	10.0	mg/L	322.00	
GR/LC_SW-DNS-RM_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Aluminum	7429-90-5	69800		50.0	100	ug/L	69800.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Beryllium	7440-41-7	2.04	J	2.00	5.00	ug/L	2.04	J
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Calcium	7440-70-2	18300		175	350	ug/L	18300.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Iron	7439-89-6	74800		100	250	ug/L	74800.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Magnesium	7439-95-4	6410		250	500	ug/L	6410.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Manganese	7439-96-5	323		7.50	15.0	ug/L	323.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Potassium	7440-09-7	1040		250	1000	ug/L	1040.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	10200		250	1000	ug/L	10200.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Sodium	7440-23-5	1680		250	1000	ug/L	1680.00	
GR/LC_SW-DNS-RM_20220927	200.7	Total Metals	Zinc	7440-66-6	202		15.0	30.0	ug/L	202.00	J+
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Cadmium	7440-43-9	<2.00	U	2.00	4.00	ug/L	4.00	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Cobalt	7440-48-4	57.1	D	2.00	4.00	ug/L	57.10	
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Copper	7440-50-8	3380	D	10.0	20.0	ug/L	3380.00	
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Lead	7439-92-1	2.28	JD	2.00	6.00	ug/L	2.28	J
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Nickel	7440-02-0	41.4	D	10.0	20.0	ug/L	41.40	
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Uranium	7440-61-1	3.25	JD	2.00	4.00	ug/L	3.25	J
GR/LC_SW-DNS-RM_20220927	200.8	Total Metals	Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-DNS-RM_20220927	2340B	Dissolved Metals	Hardness	NA	65		2	2	mg/L	65.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	64800		50.0	100	ug/L	64800.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	16700		175	350	ug/L	16700.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Iron	7439-89-6	60600		100	250	ug/L	60600.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	5750		250	500	ug/L	5750.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	316		7.50	15.0	ug/L	316.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	829	J	250	1000	ug/L	829.00	J
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	9530		250	1000	ug/L	9530.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1570		250	1000	ug/L	1570.00	
GR/LC_SW-DNS-RM_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	185		15.0	30.0	ug/L	185.00	
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<30.0	U	30.0	100	ug/L	100	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<250	U	250	500	ug/L	500	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<5.00	U	5.00	10.0	ug/L	10.0	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	66.9	D	5.00	10.0	ug/L	66.90	
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Copper	7440-50-8	3770	D	25.0	50.0	ug/L	3770.00	
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<50.0	U	50.0	50.0	ug/L	50.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	50.3	D	25.0	50.0	ug/L	50.30	
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<75.0	U	75.0	150	ug/L	150	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-DNS-RM_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<100	U	100	150	ug/L	150	U
GR/LC_SW-DNS-RM_20220927	EPA 160.2		Total Suspended Solids	NA	106		10	10	mg/L	106.00	
GR/LC_SW-DNS-RM_20220927	EPA 310.1		Total Alkalinity	NA	<5.00	U	5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-DNS-RM_20220927	EPA 300.0		Bromide	24959-67-9	<1.2	U	1.2	2.5	mg/L	2.5	U
GR/LC_SW-DNS-RM_20220927	EPA 300.0		Chloride	16887-00-6	<5.0	U	5.0	10.0	mg/L	10.0	U
GR/LC_SW-DNS-RM_20220927	EPA 300.0		Fluoride	16984-48-8	1.2	D	0.5	1.0	mg/L	1.20	
GR/LC_SW-DNS-RM_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<2.5	UJ	2.5	5.0	mg/L	5.0	U
GR/LC_SW-DNS-RM_20220927	EPA 300.0		Sulfate as SO4	148-08-798	592	D	12.5	25.0	mg/L	592.00	
GR/LC_SW-RF-DNS-01_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Aluminum	7429-90-5	734		50.0	100	ug/L	734.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Calcium	7440-70-2	13600		175	350	ug/L	13600.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Iron	7439-89-6	185	J	100	250	ug/L	185.00	J
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Magnesium	7439-95-4	2640		250	500	ug/L	2640.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Manganese	7439-96-5	26.2		7.50	15.0	ug/L	26.20	
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Potassium	7440-09-7	419	J	250	1000	ug/L	419.00	J
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5600		250	1000	ug/L	5600.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Sodium	7440-23-5	2000		250	1000	ug/L	2000.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Total Metals	Zinc	7440-66-6	16.3	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Barium	7440-39-3	37.3	JD	25.0	50.0	ug/L	37.30	J
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Cobalt	7440-48-4	1.65	D	0.500	1.00	ug/L	1.65	
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Copper	7440-50-8	47.8	D	2.50	5.00	ug/L	47.80	
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-RF-DNS-01_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-RF-DNS-01_20220927	2340B	Dissolved Metals	Hardness	NA	43		2	2	mg/L	43.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	12900		175	350	ug/L	12900.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	2510		250	500	ug/L	2510.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	24.4		7.50	15.0	ug/L	24.40	
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	384	J	250	1000	ug/L	384.00	J
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5380		250	1000	ug/L	5380.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1980		250	1000	ug/L	1980.00	
GR/LC_SW-RF-DNS-01_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	15.7	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<6.00	U	6.00	20.0	ug/L	20.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	1.89	JD	1.00	2.00	ug/L	1.89	J
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Copper	7440-50-8	25.6	D	5.00	10.0	ug/L	25.60	
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<10.0	U	10.0	10.0	ug/L	10.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<1.00	U	1.00	2.00	ug/L	2.00	U
GR/LC_SW-RF-DNS-01_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<20.0	U	20.0	30.0	ug/L	30.0	U
GR/LC_SW-RF-DNS-01_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-RF-DNS-01_20220927	EPA 310.1		Total Alkalinity	NA	8.32	J	5.00	10.0	mg CaCO3 / L	8.32	J
GR/LC_SW-RF-DNS-01_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-RF-DNS-01_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-RF-DNS-01_20220927	EPA 300.0		Fluoride	16984-48-8	0.1	J	0.1	0.2	mg/L	0.10	J
GR/LC_SW-RF-DNS-01_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-RF-DNS-01_20220927	EPA 300.0		Sulfate as SO4	148-08-798	44.6		2.5	5.0	mg/L	44.60	
GR/LC_SW-RF-UPS-01_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Calcium	7440-70-2	6870		175	350	ug/L	6870.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Magnesium	7439-95-4	1540		250	500	ug/L	1540.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Potassium	7440-09-7	423	J	250	1000	ug/L	423.00	J
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	4340		250	1000	ug/L	4340.00	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Sodium	7440-23-5	1680		250	1000	ug/L	1680.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Total Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Copper	7440-50-8	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-RF-UPS-01_20220927	2340B	Dissolved Metals	Hardness	NA	22		2	2	mg/L	22.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	6380		175	350	ug/L	6380.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	1410		250	500	ug/L	1410.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	388	J	250	1000	ug/L	388.00	J
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	4390		250	1000	ug/L	4390.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1640		250	1000	ug/L	1640.00	
GR/LC_SW-RF-UPS-01_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	<15.0	U	15.0	30.0	ug/L	30.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Copper	7440-50-8	2.77	JD	2.50	5.00	ug/L	2.77	J
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Lead	7439-92-1	0.508	JD	0.500	1.00	ug/L	0.51	J
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RF-UPS-01_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-RF-UPS-01_20220927	EPA 160.2		Total Suspended Solids	NA	<10	U	10	10	mg/L	10	U
GR/LC_SW-RF-UPS-01_20220927	EPA 310.1		Total Alkalinity	NA	22.5		5.00	10.0	mg CaCO3 / L	22.50	
GR/LC_SW-RF-UPS-01_20220927	EPA 300.0		Bromide	24959-67-9	<0.2	U	0.2	0.5	mg/L	0.5	U
GR/LC_SW-RF-UPS-01_20220927	EPA 300.0		Chloride	16887-00-6	<1.0	U	1.0	2.0	mg/L	2.0	U
GR/LC_SW-RF-UPS-01_20220927	EPA 300.0		Fluoride	16984-48-8	0.2		0.1	0.2	mg/L	0.20	
GR/LC_SW-RF-UPS-01_20220927	EPA 300.0		Nitrate/Nitrite as N	NA	<0.5	UJ	0.5	1.0	mg/L	1.0	U
GR/LC_SW-RF-UPS-01_20220927	EPA 300.0		Sulfate as SO4	148-08-798	6.9		2.5	5.0	mg/L	6.90	
GR/LC_SW-RMA1_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Aluminum	7429-90-5	71200	D	250	500	ug/L	71200.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Beryllium	7440-41-7	11.4	JD	10.0	25.0	ug/L	11.40	J
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Calcium	7440-70-2	265000	D	875	1750	ug/L	265000.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Iron	7439-89-6	272000	D	500	1250	ug/L	272000.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Magnesium	7439-95-4	41000	D	1250	2500	ug/L	41000.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Manganese	7439-96-5	10600	D	37.5	75.0	ug/L	10600.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Potassium	7440-09-7	8770	D	1250	5000	ug/L	8770.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	17400	D	1250	5000	ug/L	17400.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Sodium	7440-23-5	12500	D	1250	5000	ug/L	12500.00	
GR/LC_SW-RMA1_20220927	200.7	Total Metals	Zinc	7440-66-6	1320	D	75.0	150	ug/L	1320.00	
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Antimony	7440-36-0	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Arsenic	7440-38-2	<12.0	U	12.0	40.0	ug/L	40.0	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Barium	7440-39-3	<100	U	100	200	ug/L	200	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Cadmium	7440-43-9	21.2	D	2.00	4.00	ug/L	21.20	
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Chromium	7440-47-3	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Cobalt	7440-48-4	146	D	2.00	4.00	ug/L	146.00	
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Copper	7440-50-8	2820	D	10.0	20.0	ug/L	2820.00	
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Lead	7439-92-1	38.4	D	2.00	6.00	ug/L	38.40	
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<20.0	U	20.0	20.0	ug/L	20.0	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Nickel	7440-02-0	104	D	10.0	20.0	ug/L	104.00	
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Selenium	7782-49-2	<30.0	U	30.0	60.0	ug/L	60.0	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Silver	7440-22-4	<10.0	U	10.0	20.0	ug/L	20.0	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Thallium	7440-28-0	<20.0	U	20.0	40.0	ug/L	40.0	U
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Uranium	7440-61-1	11.1	D	2.00	4.00	ug/L	11.10	
GR/LC_SW-RMA1_20220927	200.8	Total Metals	Vanadium	7440-62-2	<40.0	U	40.0	60.0	ug/L	60.0	U
GR/LC_SW-RMA1_20220927	2340B	Dissolved Metals	Hardness	NA	853		2	2	mg/L	853.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	70200		50.0	100	ug/L	70200.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	10.9		2.00	5.00	ug/L	10.90	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	274000		175	350	ug/L	274000.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Iron	7439-89-6	269000		100	250	ug/L	269000.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	41000		250	500	ug/L	41000.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	10400		7.50	15.0	ug/L	10400.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	8780		250	1000	ug/L	8780.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	17200		250	1000	ug/L	17200.00	
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	12800		250	1000	ug/L	12800.00	

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-RMA1_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	1390		15.0	30.0	ug/L	1390.00	
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<30.0	U	30.0	100	ug/L	100	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<250	U	250	500	ug/L	500	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	32.0	D	5.00	10.0	ug/L	32.00	
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	220	D	5.00	10.0	ug/L	220.00	
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Copper	7440-50-8	4140	D	25.0	50.0	ug/L	4140.00	
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Lead	7439-92-1	52.2	D	5.00	10.0	ug/L	52.20	
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<50.0	U	50.0	50.0	ug/L	50.0	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	166	D	25.0	50.0	ug/L	166.00	
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<75.0	U	75.0	150	ug/L	150	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	14.9	D	5.00	10.0	ug/L	14.90	
GR/LC_SW-RMA1_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<100	U	100	150	ug/L	150	U
GR/LC_SW-RMA1_20220927	EPA 160.2	Total Suspended Solids	NA	60			10	10	mg/L	60.00	
GR/LC_SW-RMA1_20220927	EPA 310.1	Total Alkalinity	NA	<5.00	U		5.00	10.0	mg CaCO3 / L	10.0	U
GR/LC_SW-RMA1_20220927	EPA 300.0	Bromide	24959-67-9	<1.2	U		1.2	2.5	mg/L	2.5	U
GR/LC_SW-RMA1_20220927	EPA 300.0	Chloride	16887-00-6	<5.0	U		5.0	10.0	mg/L	10.0	U
GR/LC_SW-RMA1_20220927	EPA 300.0	Fluoride	16984-48-8	4.1	D		0.5	1.0	mg/L	4.10	
GR/LC_SW-RMA1_20220927	EPA 300.0	Nitrate/Nitrite as N	NA	<2.5	UJ		2.5	5.0	mg/L	5.0	U
GR/LC_SW-RMA1_20220927	EPA 300.0	Sulfate as SO4	148-08-798	1810	D		12.5	25.0	mg/L	1810.00	
GR/LC_SW-RMA1-UPS_20220927	245.1	Total Metals	Mercury	7439-97-6	<0.0380	U	0.0380	0.0500	ug/L	0.0500	U
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Aluminum	7429-90-5	1650		50.0	100	ug/L	1650.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Calcium	7440-70-2	11700		175	350	ug/L	11700.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Magnesium	7439-95-4	1920		250	500	ug/L	1920.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Manganese	7439-96-5	41.7		7.50	15.0	ug/L	41.70	
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Potassium	7440-09-7	407	J	250	1000	ug/L	407.00	J
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Silica (SiO2)	763-18-69	5630		250	1000	ug/L	5630.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Sodium	7440-23-5	1260		250	1000	ug/L	1260.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Total Metals	Zinc	7440-66-6	24.9	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Cobalt	7440-48-4	1.62	D	0.500	1.00	ug/L	1.62	
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Copper	7440-50-8	138	D	2.50	5.00	ug/L	138.00	
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Lead	7439-92-1	<0.500	U	0.500	1.50	ug/L	1.50	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U

RUBY MINE COMBINED ASSESSMENT WATER ANALYTICAL RESULTS SUMMARY
ESAT-TECHLAW REPORT NO. C221002

Sample ID	Method	Total or Dissolved	Analyte	CAS No.	Lab_Result	Lab_Qual	MDL	MRL	Units	VAL_Result	Qual_Result
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Nickel	7440-02-0	2.57	JD	2.50	5.00	ug/L	2.57	J
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Total Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-RMA1-UPS_20220927	2340B	Dissolved Metals	Hardness	NA	36		2	2	mg/L	36.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Aluminum	7429-90-5	<50.0	U	50.0	100	ug/L	100	U
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Beryllium	7440-41-7	<2.00	U	2.00	5.00	ug/L	5.00	U
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Calcium	7440-70-2	11300		175	350	ug/L	11300.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Iron	7439-89-6	<100	U	100	250	ug/L	250	U
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Magnesium	7439-95-4	1800		250	500	ug/L	1800.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Manganese	7439-96-5	40.6		7.50	15.0	ug/L	40.60	
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Potassium	7440-09-7	376	J	250	1000	ug/L	376.00	J
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Silica (SiO2)	763-18-69	5300		250	1000	ug/L	5300.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Sodium	7440-23-5	1250		250	1000	ug/L	1250.00	
GR/LC_SW-RMA1-UPS_20220927	200.7	Dissolved Metals	Zinc	7440-66-6	21.0	J	15.0	30.0	ug/L	30.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Antimony	7440-36-0	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Arsenic	7440-38-2	<3.00	U	3.00	10.0	ug/L	10.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Barium	7440-39-3	<25.0	U	25.0	50.0	ug/L	50.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Cadmium	7440-43-9	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Chromium	7440-47-3	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Cobalt	7440-48-4	1.82	D	0.500	1.00	ug/L	1.82	
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Copper	7440-50-8	47.5	D	2.50	5.00	ug/L	47.50	
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Lead	7439-92-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Molybdenum	7439-98-7	<5.00	U	5.00	5.00	ug/L	5.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Nickel	7440-02-0	3.03	JD	2.50	5.00	ug/L	3.03	J
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Selenium	7782-49-2	<7.50	U	7.50	15.0	ug/L	15.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Silver	7440-22-4	<2.50	U	2.50	5.00	ug/L	5.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Thallium	7440-28-0	<5.00	U	5.00	10.0	ug/L	10.0	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Uranium	7440-61-1	<0.500	U	0.500	1.00	ug/L	1.00	U
GR/LC_SW-RMA1-UPS_20220927	200.8	Dissolved Metals	Vanadium	7440-62-2	<10.0	U	10.0	15.0	ug/L	15.0	U
GR/LC_SW-RMA1-UPS_20220927	EPA 160.2	Total Suspended Solids	NA	<10	U		10	10	mg/L	10	U
GR/LC_SW-RMA1-UPS_20220927	EPA 310.1	Total Alkalinity	NA	19.5			5.00	10.0	mg CaCO3 / L	19.50	
GR/LC_SW-RMA1-UPS_20220927	EPA 300.0	Bromide	24959-67-9	<0.2	U		0.2	0.5	mg/L	0.5	U
GR/LC_SW-RMA1-UPS_20220927	EPA 300.0	Chloride	16887-00-6	<1.0	U		1.0	2.0	mg/L	2.0	U
GR/LC_SW-RMA1-UPS_20220927	EPA 300.0	Fluoride	16984-48-8	<0.1	U		0.1	0.2	mg/L	0.2	U
GR/LC_SW-RMA1-UPS_20220927	EPA 300.0	Nitrate/Nitrite as N	NA	<0.5	UJ		0.5	1.0	mg/L	1.0	U
GR/LC_SW-RMA1-UPS_20220927	EPA 300.0	Sulfate as SO4	148-08-798	25.1			2.5	5.0	mg/L	25.10	

ATTACHMENTS

ATTACHMENT 1	COLORADO PARKS AND WILDLIFE – SITE FIELD VISITS 2022 – PHOTOGRAPHIC LOG
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ATTACHMENT 1
COLORADO PARKS AND WILDLIFE – SITE FIELD VISITS 2022 –
PHOTOGRAPHIC LOG

Photo Comparison Lincoln Cr and Ruby Mine

July 2022 and Sept 2022



Ruby Mine outflow

July 2022



Sept 2022



Ruby Mine outflow crossing road



Ruby Mine outflow downstream of road

July 2022



Sept 2022



Trib adjacent to Ruby

July 2022



Sept 2022



Lincoln Cr confluence with Trib adj to Ruby

July 2022



July 2022



Lincoln Cr downstream of Ruby area

Sept 2022



Sept 2022



Lincoln Cr downstream of Ruby area

Sept 2022 –fresh deposits of thick precipitate



Sept 2022-thick precip



Grizzley Reservoir

July 2022



Sept 2022



Lincoln Cr below Grizzly Reservoir

Sept 2022 –fresh orange and white precipitate



Sept 2022 – fresh precipitate scratched from rock



Lincoln Cr below New York Cr

July 2022

Sept 2022



ATTACHMENT 2
COLORADO PARKS AND WILDLIFE – LINCOLN CREEK FISHERIES SUMMARY

Lincoln Creek Fishery Summary
Kendall Bakich – CPW Aquatic Biologist
July 20, 2023

Purpose: Brief summary of CPW fishery data available for Lincoln Creek to inform EPA's Ruby Combined Assessment Report (CAR) developed following water quality investigation of the Ruby Mine area by staff from EPA, CPW, DMRS, and local stakeholders in 2021 and 2022 following a fish kill in Grizzly Reservoir in 2021.

Summary:

Aquatic life below Ruby Mine is inhibited by water inputs associated with Ruby Mine and the surrounding uphill geology. Table 1 summarizes the number of fish captured during recent electrofishing surveys at six locations on Lincoln Creek (LC01-06). Also reported is the historic data from one location (LC03) and at two reference locations in adjacent watersheds. Cutthroat trout are present in waters upstream of the mining area (LC01) and in tributary waters throughout the watershed including the unnamed tributary from Anderson Lake, New York Creek, and many high elevation lakes in the watershed. Recent surveys demonstrate the stream is uninhabitable by both fish and macroinvertebrates below the mine (LC03 and LC04). A trout captured in the tributary out of Anderson Lake, within arm's reach of its confluence with Lincoln Creek, exhibited stress and lost equilibrium within 45 seconds of exposure water in adjoining Lincoln Creek during a 2018 survey at LC05. Dead oligochaetes (worms) were the only macroinvertebrates found and documented by CPW during 2018 and 2021 fishery surveys in Lincoln Creek between the mine and Grizzly Reservoir.

Below Grizzly Reservoir, fisheries are also impacted with reservoir operations and diversions influencing fish presence in three survey reaches below the dam (LC01-03). Immediately below the dam, a 2018 survey in reach LC03 detected fish on one occasion - 2 Rainbow Trout that escaped and the only fish collected between the dam and New York Creek in recent surveys. The LC03 reach also has the only available historic Lincoln Creek fishery data which documents a significantly more abundant and diverse fishery below the dam in the mid-1980s with approximately 100 trout collected in two different years including a few catchable Rainbow Trout (more reservoir escapees), a significant number of Brook Trout, and Cutthroat Trout. Surveys at LC03 and the reach downstream of Tabor Creek (LC02) both note the presence of white or orange precipitate on the streambed and discolored water during the surveys in 2018 and 2021. This may be a result of declining water quality in Lincoln Creek over time and appeared to vary with reservoir releases and dilution by tributaries. At reach LC01, a notable number of trout were documented below New York Creek in two surveys in 2018, but an avalanche during the winter of 2019/2020 significantly impacted the survey reach. Prior to the avalanche, LC01 reflects a comparable abundance of trout to nearby reference reaches below multiple diluting tributaries. Fish abundance at LC01 also varied seasonally which could be related to water quality influenced by the dilution sources and

influenced by snowpack, in-basin and out-of-basin water diversions, and reservoir release operations down Lincoln Creek.

Table 1. The following table summarizes number of trout and species of trout collected in survey reaches in Lincoln Creek downstream of Grizzly Reservoir (LC01, LC02,LC03), between Ruby Mine and Grizzly Reservoir (LC02, LC03), and upstream of Ruby Mine (LC01). Hunter Creek and the upper Roaring Fork were identified as reference reaches due to similar stream characteristics with regard to flow, elevation, gradient, and species present. Historic surveys data is also reported for the reach below Grizzly Reservoir (LC03).

Survey Water – Location	Survey Year – Month	# Fish Collected	Species Present (number fish in survey)
Lincoln Creek – LC01	2021 – Sep	2	Brook Trout
Below New York Ck	2018 – Oct	129	Brook Trout
	2018 – Jun	269	Brook Trout
Lincoln Creek – LC02	2021 - Sep	0	No fish collected/observed
Below Tabor Ck	2018 – Oct	0	No fish collected/observed
	2018 – Jun	0	No fish collected/observed
Lincoln Creek – LC03	2021 – Sep	0	No fish collected/observed
Below Grizzly Res	2018 – Oct	2	Rainbow Trout
	1986 – Sep	100	Brook Trout (83), Rainbow Trout (15), Cutthroat Trout (2)
	1985 – Aug	64	Brook Trout (61), Cutthroat Trout (3)
Lincoln Creek – LC04	2021 – Sep	0	No fish collected/observed
Above Grizzly Res	2018 – Jul	0	No fish collected/observed
Lincoln Creek – LC05	2021 – Sep	0	No fish collected/observed
Confluence Unnamed Trib	2018 – Jul	0	No fish collected/observed
Lincoln Creek – LC06	2021 – Sep	31	Cutthroat Trout
Above Ruby	2018 – Jul	15	Cutthroat Trout
Roaring Fork Headwaters	2011 – Aug	153	Brook Trout
Hunter Creek Headwaters	2021 – Sep	104	Brook Trout

ATTACHMENT 3
EPA HISTORICAL WATER QUALITY TRENDS ANALYSIS

Attachment 3: Ruby Mine Combined Assessment Report - Historic Water Quality Trends Analysis

Prepared by U.S. Fish and Wildlife Service, Liaison to EPA, Michael Carney

This attachment summarizes historical and current water quality data obtained from surface water sampled in Lincoln Creek, Ruby Mine, and the Mineralized Tributary (located in the immediate vicinity of Ruby Mine). Analytical data are presented to identify trends in metals concentrations over time and characterize differences between potential natural and anthropogenic sources of metals to Lincoln Creek.

Data Availability

Surface water samples have been collected at various locations in and around Lincoln Creek since July 1994 including the most recent sampling event that occurred in September 2022 (**Table 1**). As shown in **Table 2**, water chemistry data are also available from September 2016 to 2022 for the Ruby Mine and the nearby Mineralized Tributary feature. As seen on the two tables, data collection activities have generally been sporadic, not been spatially expansive, and occurred for different locations over time. However, three datasets stand out because they include a larger number of similar locations and occur at the same time of year over multiple years. Specifically, sampling events in Lincoln Creek and Ruby Mine/Mineralized Tributary drainages conducted by:

- Colorado Department of Natural Resources, Renner (2002¹) in September 2001;
- Colorado Parks and Wildlife (CPW) in early September 2021 after the late August 2021 fish kill event²; and
- U.S. Environmental Protection Agency (EPA) in September 2022 (and other dates throughout the 2022 field season).

Thus, samples were collected by these entities in September 2001, 2021, and 2022 and include similar locations in Lincoln Creek, Ruby Mine adit, and the Mineralized Tributary allowing for representative comparisons over the 21-year period. In addition to these core sampling events, the Colorado Division of Reclamation, Mining, and Safety (DRMS) conducted sampling in the fall of 2016, but only at the Ruby Mine adit (**Table 2**). CPW-led Lincoln Creek sampling events conducted in 1994 and 1996 also occurred at select Lincoln Creek locations. Information from these and the DRMS sampling events are included with the above September core trends data when relevant.

September is often the time of year when Colorado mountain creeks are at baseflow conditions which occurs well past snowmelt/runoff periods and typically characterized as having lower discharge that is dominated by groundwater inflow. Such conditions are ideal for assessing the greatest impacts from metals contamination and source areas that occur throughout a typical water year. An important factor in assessing baseflow runoff from various years is to consider the influence of the previous year snowpack. Available SNOTEL data³ for the nearby Independence Pass indicates that snowpack water equivalent estimates were just under the 30-median and very similar for the 2001, 2021, and 2022 winter seasons.

This analysis focuses on three specific reaches of Lincoln Creek and the Mineralized Tributary/Ruby Mine drainages at locations where core water quality data were collected. All sampling locations occur

¹ Renner, S.G. 2002. Lincoln Creek water quality report. September 16.

² Rust, A., M. May, M. McConville, K. Bakich, and L. Martin. 2022. Lincoln Creek and Grizzly Reservoir investigation. January 12.

³ <https://www.nrcs.usda.gov/wps/portal/wcc/home/quicklinks/imap>

between the Grizzly Reservoir and the Ruby Mine. Results presented herein are summarized in a downstream to upstream order starting at the Grizzly Reservoir Lincoln Creek inlet to Ruby Mine. The three reaches in this analysis focus on samples collected in:

- 1) Lincoln Creek at Grizzly Reservoir inlet area (approximately 7 river miles downstream of both Ruby Mine and Mineralized Tributary discharges) (**Map 1**),
- 2) Lincoln Creek approximately 1 river mile below Ruby Mine and the Mineralized Tributary source area (**Map 2**), and,
- 3) Ruby Mine Adit and the Mineralized Tributary Drainage area, including two locations on Lincoln Creek in the immediate vicinity of these features (**Map 3**)

Samples collected within this geographic range are less likely to be influenced by water management activities that are known to occur in Grizzly Reservoir. They also represent the section of Lincoln Creek that is most impacted by the primary sources of heavy metals discharging to the creek.

Generally, surface water samples were analyzed for a common suite of total and dissolved metals. Sulfate was also commonly measured. Water quality measurements were sometimes taken with samples, but pH is the only parameter that is common among sampling events. Stream discharge estimates (as measured at the time of the sampling events) are also available but not for every sampling event and location. This trends analysis includes water quality and stream discharge measurement data whenever it is consistently available. Supporting data are available upon request.

Lincoln Creek Trends Results

This trends analysis primarily focus on total recoverable and dissolved copper results obtained from Lincoln Creek samples collected in September 2001, 2021, and 2022 and includes 1994 and 1997 CPW-led events when pertinent. While not shown herein, other commonly detected metals such as aluminum, iron, and zinc generally show the same trends as copper. While all three of these metals are elevated and above their corresponding water quality standards, copper is of particular interest in this watershed due to the significantly elevated concentrations that are well above acute water quality standards.

At the inlet of Grizzly Reservoir, available water quality data show an increasing trend in copper concentrations in Lincoln Creek from fall of 2001 to fall 2022 (**Figure 1**). An eightfold increase in copper is apparent between these sampling events. It is interesting to note that there was only a slight increase in copper concentrations from 2001 to 2021, but then a very large increase from 2021 to 2022. As shown in **Table 1**, CPW collected the September 2, 2021, samples after a fish kill event in Grizzly Reservoir. These samples were collected about three weeks earlier in the year than the EPA-collected samples on September 27, 2022. It is possible that seasonality and potential changes in Lincoln Creek flow or chemistry (e.g., pH, conductivity, redox) that affect dilution and adsorption kinetics could explain the substantial increase in copper concentrations in September 2022.

Figure 2 summarizes total recoverable and dissolved copper results between 1994 and 2022 measured in the Lincoln Creek reach downstream of the Mineralized Tributary approximately 6 miles upstream of the Grizzly Reservoir inlet. While sampling locations shown in this figure are at slightly different locations, they are all within about 0.5 river miles from each other (**Map 2**). This reach contains discharges from both the Ruby Mine adit and Mineralized Tributary thus represent a well-mixed reach of Lincoln Creek that is impacted from these sources. This figure clearly shows that copper concentrations are increasing over time from 1994 to present. For example, it is apparent that during baseflow conditions, concentrations have increased from <100 ug/L to >1,600 µg/L between September/October 1994 and 2022. A similar trend is also noted during early summer runoff conditions in July between 1994 and 2022,

but copper concentrations are much lower than those measured during fall baseflow conditions (likely due to dilution from spring runoff).

Figure 3 shows stream discharge and corresponding copper loading estimates for one Lincoln Creek location downstream of Ruby Mine but upstream of the Mineralized Tributary (Renner - Above Spring⁴ and EPA SW-3371-B) and another location on Lincoln Creek directly downstream from the Mineralized Tributary (Renner - Below Spring⁴ and EPA - SW-DNS-RM) (**Map 3**). Again, samples were collected almost exactly 21 years apart from each other.

It is very clear that Ruby Mine only contributes to a fraction of the copper loading seen in Lincoln Creek (1.5 lbs/day) when compared to Lincoln Creek just below the Mineralized Tributary (39.9 lbs/day) despite having a similar rate of discharge (1.5 cfs vs 1.7 cfs, respectively) (**Figure 3**). This indicates that elevated copper concentrations are driving loading estimates as opposed to increase in streamflow discharge rates. While there appears to be slight increase in loading from Ruby Mine since September 2001, the increase is negligible when compared to the more than ten-fold increase in copper loading in Lincoln Creek just downstream from the Mineralized Tributary over the same 21-year timespan.

It is important to note that analytical results associated with grab samples reflect a single moment in time, thus the differences in copper concentrations measured in Lincoln Creek between the September 28, 2001, September 2, 2021, and September 27, 2022, events provide a relatively small scale of inference in drawing conclusions about long-term trends. However, trends are consistently increasing between these, and the few additional sampling events conducted in the three Lincoln Creek reaches described above. Additional evidence of increasing copper concentrations may be obtained from recently installed EPA and USGS autosamplers (known as ‘minisippers’). These samplers were installed in late 2022 and will be retrieved in late 2023. They are calibrated to collect daily samples from Lincoln Creek at a location downstream of the Mineralized Tributary and a separate location downstream of Ruby Mine. The results from the minisippers are expected to assist in identifying the range and distribution of copper concentrations and other metals that may be occurring throughout a given day or month.

Ruby Mine Trends Results

Various locations at Ruby Mine have been sampled during baseflow conditions since September 2001 to 2022 (**Table 2**). Samples were collected at the adit, above the access road that crosses below the mine waste pile, from the pool between the adit and waste pile, and where the adit flowpath crosses at the access road between the mine and Lincoln Creek. Total and dissolved copper concentrations measured at these locations are shown in **Figure 4**. It is clear that copper concentrations have been steadily increasing in Ruby Mine samples over time. In September 2001, copper concentrations were generally identical at three different locations in a similar proximity to each other throughout the Ruby Mine sampling area (at adit, above road, and below road). These results support comparability of subsequent sampling results even though samples were not collected at the exact same location over time. This observation also suggests that metals concentrations did not increase as adit flow traversed the waste pile. However, this may not be valid under current conditions as significant changes have occurred over a 21-year period as seen in recent data (see climate change in Summary and Conclusions discussion below).

The results also indicate a significant increase in copper concentrations between the 2021 mine pool location and the 2022 adit discharge location below the mine at the road (EPA did not have access to sample the mine pool in 2022). The observed increase in copper concentrations at the mine pool/adit

⁴ Renner (2002) refers to the Mineralized Tributary as a spring

between 2021 to 2022 (**Figure 4**) is similar to the increase observed in Lincoln Creek below the Mineralized Tributary (location SW-3268) as shown on **Figure 2**.

Figure 5 shows available stream discharge and corresponding copper loading estimates for samples collected from the Ruby Mine area over time. These results confirm that increasing copper concentrations are contributing to increased loading at the mine. Even at lower discharges, loading in more recent samples is greater than seen in samples collected in September 2001. Although the 2022 copper loading is significantly greater than observed in 2001, the October 2016 loading measured by DRMS is similar to the loading observed in July 2022 signaling a high level of variability in the system (indicating that uncertainty associated with grab sample results must be recognized). There is also a significant difference in loading noted between July 2022 and September 2022, likely due to differences in higher flow rates during the July tail end of the spring runoff.

Other notable changes in the watershed are also observed. For example, it appears that pH measured in Ruby Mine adit water samples is decreasing since September 2001 (**Figure 6**). In September 2001 pH was near neutral (~7.00) but by 2022 is had declined to 4.22.

Mineralized Tributary Results

Figure 7 summarizes total and dissolved copper results for samples collected from the Mineralized Tributary. There's a clear increasing trend in copper concentrations since September 2001. It is also apparent that copper concentrations are an order of magnitude greater than those measured in Ruby Mine samples for each dataset/sampling event since 2001. Elevated concentrations are the primary driver for elevated copper loading, as discharge estimates for the Mineralized Tributary are generally low (0.05 to 0.06 cfs) (**Figure 8**) but still about double to triple of those measured at Ruby Mine (0.01 to 0.03 cfs) (**Figure 5**).

Copper loading from Ruby Mine was 0.30 versus 20.6 pounds/day (~65-fold difference) in the Mineralized Tributary in September 2022. These results suggest that copper loading from Ruby Mine may be negligible when compared to the Mineralized Tributary. It is also noteworthy that this may have also been the case over 20 years ago as copper loading from the Mineralized Tributary was 20-fold greater than loading from Ruby Mine (0.21 versus 0.01 pounds/ day, respectively).

Other than a onetime excursion in September 2021, the Mineralized Tributary pH has hovered around 2.5 standard units (SU) (**Figure 9**). In September 2021, pH was measured at 4 SU. These results suggest that the Mineralized Tributary pH is lower and more consistent than what occurs at Ruby Mine (currently 4.0-4.5 range).

Differences in Water Chemistry Between Ruby Mine and the Mineralized Tributary

As shown above, Ruby Mine has much lower copper concentrations than those measured in the Mineralized Tributary. Available data suggests that water chemistry is very different between these two sources to Lincoln Creek. **Figure 10** summarize proportions of seven common metals measured in Ruby Mine discharge and Mineralized Tributary samples collected in September 2001, 2021, and 2022. This figures clearly shows that proportions of total recoverable calcium, mangesium, and manganese are greater in Ruby Mine while aluminum, iron, and copper are greater in the Mineralized Tributary.

As shown in **Figures 11** through **13**, the same type of differences are apparent in dissolved metals concentrations from samples collected in July 2022 and September 2022. For example, dissolved aluminum, iron, sulfate, arsenic, and copper, are much lower in Ruby Mine samples when compared to the Mineralized Tributary. Conversely concentrations of dissolved calcium, manganese, cadmium, and

lead are greater in Ruby Mine samples. The large differences in calcium between the two sites (**Figure 13**) is responsible for Ruby Mine having double the hardness of what occurs in the Mineralized Tributary in September 2022 (853 mg/L versus 379 mg/L, respectively).

Note that proportions of the seven common metals measured in Ruby Mine and the Mineralized Tributary (**Figure 10**), have generally remained consistent since September 2001 to 2022. This provides evidence that metals are increasing together at the same proportions through time for each source.

Summary and Conclusions

In summary, there appears to be a substantial increasing trend in both total and dissolved copper concentrations in Lincoln Creek between 2001 and 2022. Results from samples collected between these years suggest that the increase has been consistent in the Mineralized Tributary and Ruby Mine source waters. The greatest increase in metals concentrations and loading occurred in Lincoln Creek just downstream of the Mineralized Tributary. While copper concentrations were more variable and lower downstream near the Grizzly Reservoir inlet area, a similar rate of increase was observed between 2001 and 2022 as seen at locations closer to the Mineralized Tributary.

Increasing copper concentrations were also observed in samples collected from Ruby Mine and the Mineralized Tributary. It appears that these metals concentrations are the contributing factor to increased loading from each of these source areas, as discharge rates have remained relatively steady over the 21-year study period. Of these source areas, it appears that the Mineralized Tributary contributes about 98.5% of the copper load to Lincoln Creek when compared with Ruby Mine.

The increasing trends in metals concentrations stemming from the mineralized tributary and Ruby Mine could be associated with climate change. Climate change has the potential to alter hydrologic cycles associated with mountain snowpacks, timing of snowmelt, declining stream baseflows, and general loss of rock glaciers and permafrost at higher elevations (Todd et al., 2012⁵; Manning et al., 2013⁶). These climate change driven responses have been documented in Colorado mountain watersheds like Lincoln Creek. They can increase metals concentrations by reducing dilution of metals from lower snowpack and stream flows. Additionally, warmer ground temperatures that can melt metals rich rock glaciers and permafrost that can increase weathering and air exposure in subsurface rock features rich in metal sulfides (subsequently increasing oxidation and metals concentrations in the vadose zone resulting in increases metals concentrations). Conceptually, these processes would affect all source areas within a given watershed. As shown in this attachment, increasing trends are consistent between the Mineralized Tributary and Ruby Mine.

It appears that Ruby Mine and the Mineralized Tributary have very different water chemistry. Proportions of calcium, manganese, manganese, aluminum, iron, and copper are dissimilar between the two water sources and appear to have been overtime despite increasing concentrations observed in 2022. Concentrations of dissolved metals such as aluminum, iron, sulfate, arsenic, and copper are much lower and calcium, manganese, cadmium, and lead are greater in Ruby Mine samples when compared to the Mineralized Tributary. The water chemistry of the Mineralized Tributary indicates that its source water originates from iron-sulfide rich rock. The oxidization of parent materials increases iron and sulfide concentrations and lowers pH. Other elements, such as copper and arsenic are also released in the process.

⁵ Todd, A.S., A.H. Manning, P.L. Verplanck, C. Crouch, D.M. McKnight, and R. Dunham. 2012. Climate-change-driven deterioration of water quality in a mineralized watershed. *Environmental Science & Technology*. 46, 9324–9332.

⁶ Manning, A.H., P.L. Verplanck, J.S. Caine, and A.S. Todd. 2013. Links between climate change, water-table depth, and water chemistry in a mineralized mountain watershed. *Applied Geochemistry*. 37, 64-78.

The Ruby Mine primarily produced copper, zinc, lead, silver, and manganese. Respective ore was composed of malachite (copper carbonate hydroxide mineral), anglesite (lead sulfate mineral), and chalcopyrite (copper-iron sulfide mineral) with waste material consisting primarily of quartz and limonite⁷. The Ruby Mine appears to have been advanced along an approximate 0.5-foot thick vein of quartz-sericite/pyrite (very fine grained iron rich quartz) with argillic minerals in a mostly diorite host rock. Argillic/clay minerals form when host wall rock is hydrothermally altered. Diorite is a coarse-grained, intrusive igneous rock that is intermediate in composition between granite and gabbro which is formed by the slow cooling of underground magma. It often has a moderate content of silica and a relatively low content of alkali metals (sodium, potassium). This corresponds to silica differences between Ruby Mine and the Mineralize Tributary (**Figure 11**). Ruby Mine water chemistry is generally consistent with these source minerals. For example, mine waters contain higher levels of calcium and lead which could be associated with carbonate hydroxide and lead containing minerals. Argillic minerals in the area are unique in that they contain elevated concentrations of manganese which is highly elevated in Ruby Mine waters when compared to the Mineralize Tributary (Neubert et al., 2011). While chalcopyrite can be a source of copper in Ruby Mine water, this unique mineral is refractory and relatively resistant to decomposition. This trait may also explain some of the differences in copper concentrations between the mine and the Mineralize Tributary.

Neubert et al. (2011⁸) reported that the Mineralized Tributary appears to originate on the border of a quartz-sericite alteration unit and a tertiary quartz latite porphyry stock unit with alloclastic breccia closer to the tributary source. The border is near a ring fracture that separates older, intracaldera collapse-breccias and lavas on the northwestern side of the fault from younger Grizzly Peak Tuft on the southeastern side of the fault. The low pH and metals concentrations measured in Mineralized Tributary water samples suggest that its origin stems from schwertmannite mineral species. Schwertmannite is an iron-oxyhydroxysulfate mineral that often occurs as brownish yellow encrustations. It forms via direct precipitation of iron in acid sulfate waters at a range of pH 2 to 4 when anoxic pyrite-bearing soil or rock is exposed to molecular oxygen. This mineral often undergoes complex iron and sulfur cycling, acidity dynamics, and redox activity interactions which in-turn influences the mobility of co-associated oxyanionic species and redox-sensitive metals. The sorption and desorption of metals from schwertmannites mineral structure can vary spatially and temporally under changing geochemical conditions from shifts in pH, oxyanion concentrations, and anion exchange kinetics. This phenomenon is visually observed in the surrounding areas at this site.

When iron-rich groundwater reaches the surface, it can be oxidized to immobile ferric iron (III) that can be very insoluble and over time form ferricrete deposits. Formation of natural ferricrete deposits requires a sustained and steady source of acid-sulfide groundwater to persist and accumulate. Ferricrete can occur as clastic deposits where sedimentary gravels, boulders, and other local materials are cemented together or in bogs and waterways that are characterized by stratified layers amorphous iron hydroxides with little to no clast materials. Age dating studies on organic materials cemented into ferricrete indicate that they can grow very slowly, ~1 millimeter per year (Verplanck et al., 2007⁹). As such, large deposits may take thousands of years to accumulate. During a site visit with DRMS, it appeared that the source of the Mineralized Tributary mostly originates from a possible ferricrete or schwertmannite monolith located in a narrow ravine (**Figure 14**). The active tributary channel below the monolith is lined with well-indurated

⁷ Ruby Mine, Twin Lakes, Colorado, The Diggings at: <https://thediggings.com/mines/22327>

⁸ Neubert, J.T., J.P. Kurtz, D.J. Bove, and M.A. Sares. 2011. Natural acid rock drainage associated with hydrothermally altered terrane in Colorado. Bulletin 54.

⁹ Verplanck, P.L., B. Douglas, S.E. Church, and M.R. Stanton. 2007. Ferricrete classification, morphology, distribution, and carbon-14 age constraints. U.S. Geological Survey Professional Paper 165.

ferricrete, ferrosinter, and weathered ferrosinter. Fractured clastic ferricrete boulders are also scattered in downgradient colluvium materials above the lower Ruby Mine adit area (personal observation, July 10, 2023). The extensive accumulation of ferricrete structures suggests that it has been actively accumulating iron oxides for many years. The processes that formed these structures could predate all mining and other anthropogenic activities that may have occurred in the watershed, indicating that the source of the mineralized tributary is of a natural origin.

Numerous ferricrete features are also present on the same side but slightly down valley from the Mineralized Tributary. Some of these features were wet and actively draining during a July 10, 2023, trip to the site. Respective flows appeared to terminate within colluvium material on their path down to the creek (**Figure 15**). The lateral extent of this area is approximately 600 feet down valley and ferricrete features appear to absent any further than this from the Mineralized Tributary. The reach of Lincoln Creek below these ferricrete features appears to have substantial copper loading as shown in the two loading figures presented in Attachment 5 of the Combined Assessment Report. Based on well-defined geology and evaluation of the historical water sampling results, it appears that the Mineralized Tributary and down valley ferricrete springs are significant and direct sources of copper and other metals to Lincoln Creek in this approximate 600-foot stream reach.

This attachment not only documents that increasing metals concentrations are occurring in Lincoln Creek and two sources of metals to the creek (Ruby Mine and the Mineralized Tributary), but it also shows that water chemistry and geologic conditions in these two sources are very different. These differences and observations of ferricrete deposits and nearby iron springs indicate that the Mineralized Tributary and its low pH and high concentrations of metals are natural and not of direct anthropogenic origin.

Table 1: Lincoln Creek Data Availability by Reach, River Mile (upstream from Roaring Fork), and Sample Collection Date																
Reach Description	River Mile	Sep-22	Jul-22	July- to April-22	Sep-21	Sep-21	Oct-18	Jun-18	Aug-15	May-04	Sep-01	Jul-97	Jul-97	Oct-94	Aug-94	Jul-94
Lincoln from Grizzly to Roaring Fk.	0.20	X	X								X	X		X		
	1.70	X	X		X		X	X								
	3.14										X					
	3.76	X	X		X		X	X								
	5.47	X	X		X		X	X								
	5.57								X		X					
	5.72	X	X		X											
Grizzly Res.	5.87	X	X			X										
Grizzly Inlet area	6.01									X	X					
	6.09	X	X	X		X										
Downstream of mineralized trib. to Grizzly	7.16	X	X		X		X									
	9.63										X					
	9.69	X	X			X	X									
	10.21											X	X	X	X	X
	10.43										X					
	10.47	X									X					
Lincoln at and below Ruby	10.53	X	X								X					
	10.57	X									X					
Lincoln above Ruby	10.62	X														
	10.83	X	X			X	X				X			X	X	X
	10.91										X					
Event Type =		EPA-led runoff inlet area, spring, and fall events			CPW post-fish kill events		CPW Riverwatch				Renner DNR	CPW Riverwatch				

EPA = U.S. Environmental Protection Agency; CPW = Colorado Parks and Wildlife; DNR = Department of Natural Resources

Table 2: Ruby Mine and Mineralized Tributary Data Availability by Sample Collection Date							
Sampling Area	Sample Description	Sep-22	Jul-22	Sep-21	Sep-01	Oct-16	Sep-16
Ruby Mine Area	At adit				X	X	X
	Pond above waste pile			X	X		
	Between pond and Lincoln	X	X		X		
Mineralized Trib. Area	Trib. at road	X	X	X			
	Trib. at source				X		
Event Type =		EPA spring and fall events		CPW post-fish kill	Renner DNR	DRMS	

EPA = U.S. Environmental Protection Agency; CPW = Colorado Parks and Wildlife; DNR = Department of Natural Resources; Department of Reclamation and Mining Safety

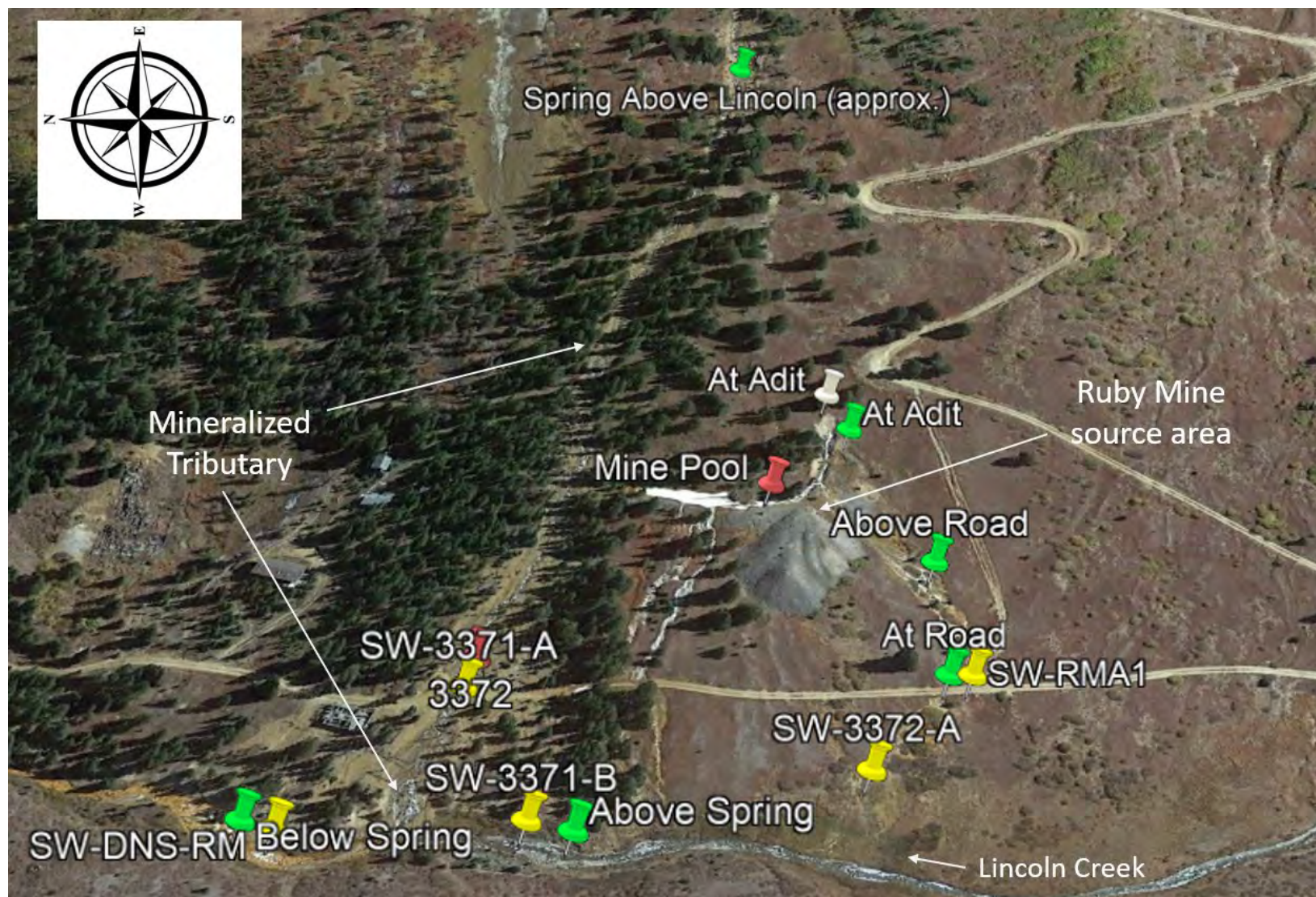
Map 1. Lincoln Creek at the Grizzly Reservoir Inlet Area Sampling Locations. Locations are referenced in Figure 1.



Map 2. Lincoln Creek Reach Between Ruby Mine, Mineralized Tributary and Grizzly Reservoir Inlet Area Sampling Locations. Locations are referenced in Figure 2.



Map 3. Ruby Mine and Mineralized Tributary Area Sampling Locations. Locations are referenced in Figures 3 through 9.



 = Renner, 2001;
  = DRMS, 2016;
  = CPW, 2021;
  = EPA, 2022

Figure 1: Copper Concentrations Measured in Lincoln Creek at the Grizzly Reservoir Inlet Area.
 Samples collected approximately 7 river miles downstream of Ruby Mine source area.

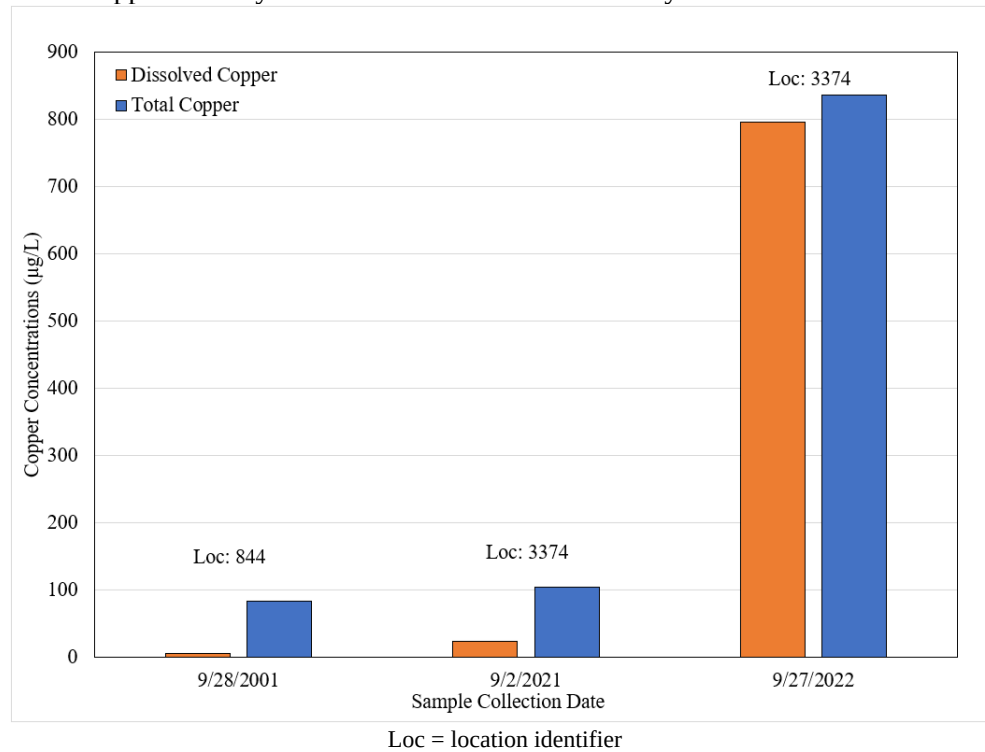


Figure 2: Copper Concentrations Measured in Lincoln Creek Approximately 1 River Mile Downstream from Mineralized Tributary/Ruby Mine Source Area.

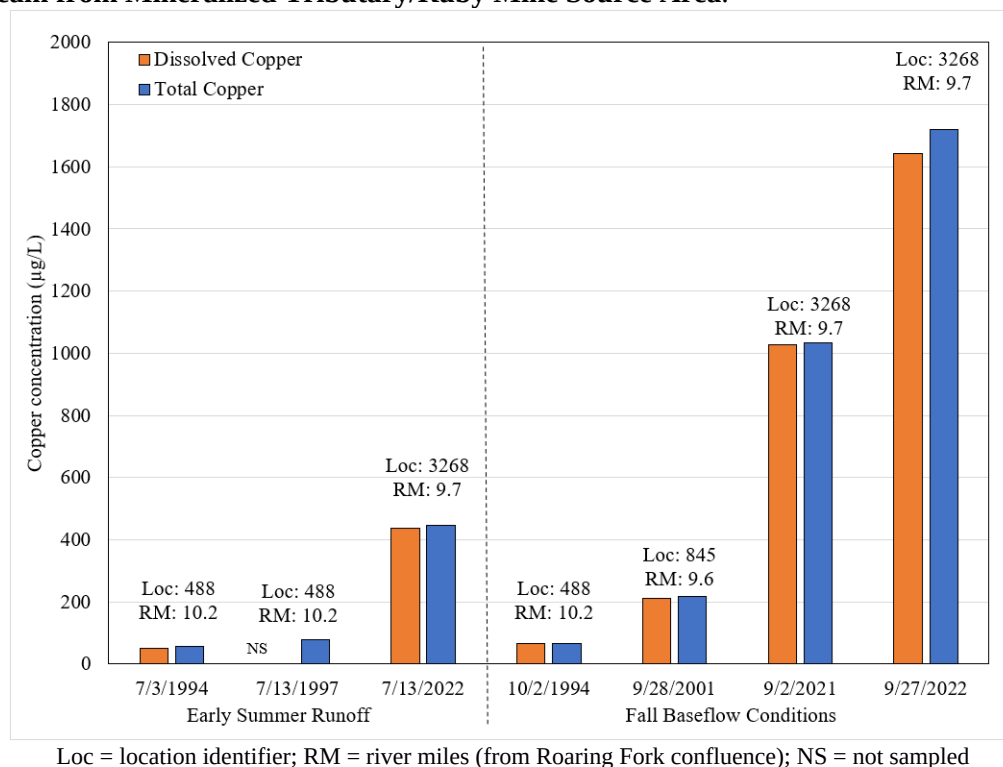


Figure 3: Estimated Discharge and Copper Loading for Samples Collected in Lincoln Creek Immediately Below the Mineralized Tributary and Ruby Mine Source Areas.

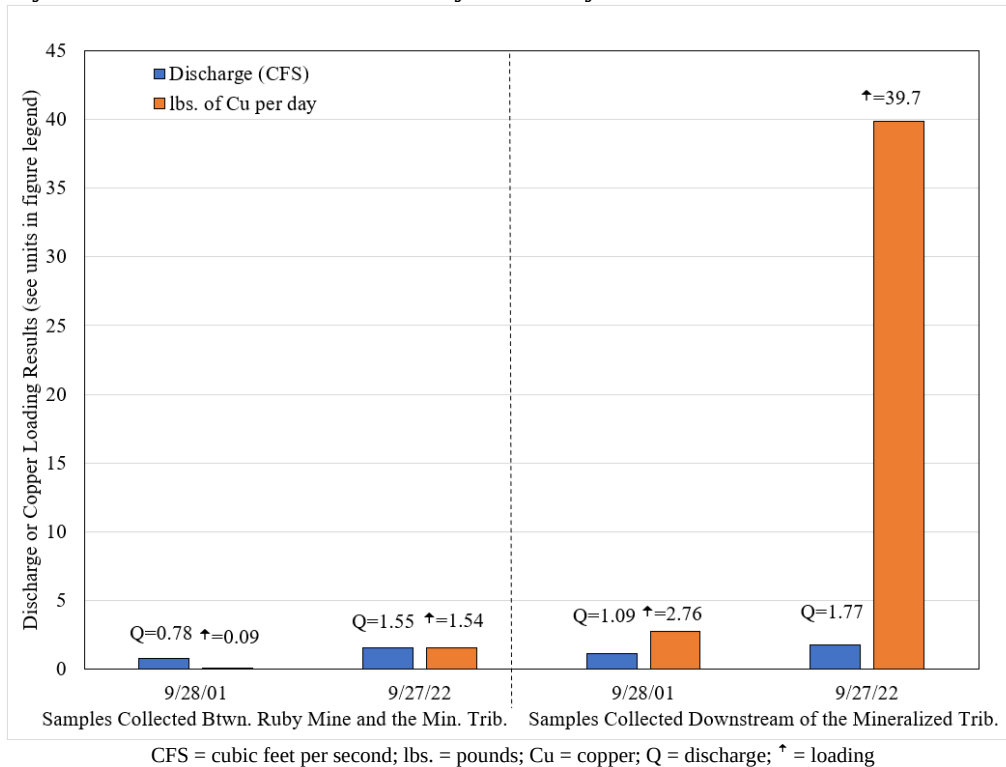
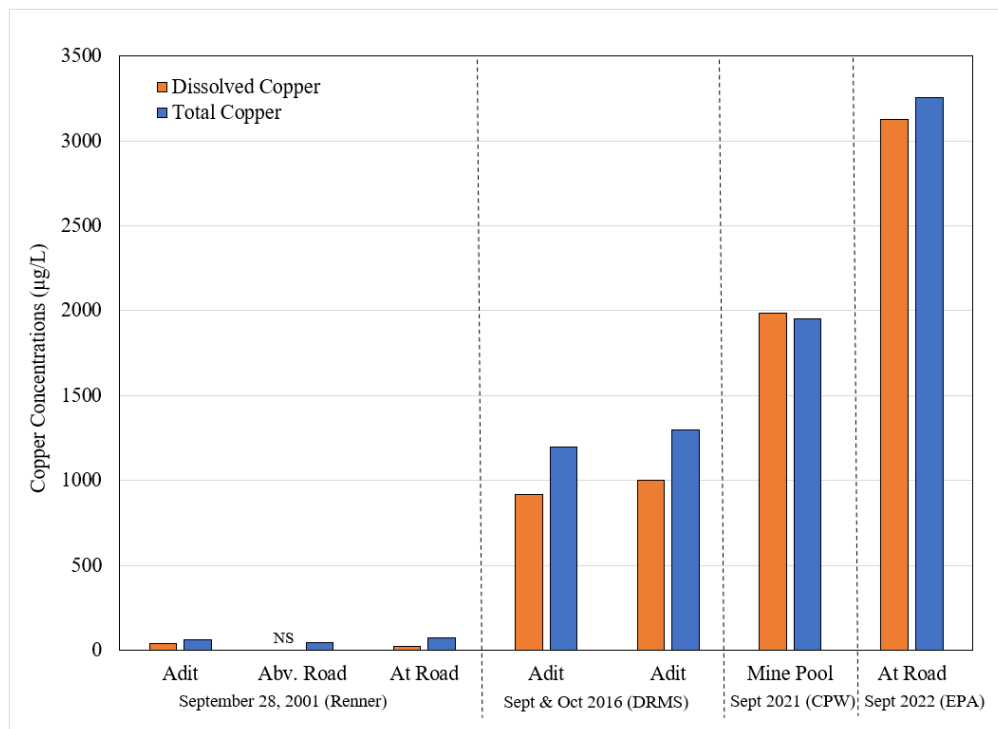


Figure 4: Copper Concentrations Measured in Samples Collected from the Ruby Mine Adit Flow Path.



NS = not sampled; DRMS = Division of Reclamation, Mining, and Safety; CPW = Colorado Parks and Wildlife; EPA = U.S. Environmental Protection Agency

Figure 5: Estimated Discharge and Copper Loading for Samples Collected from the Ruby Mine Adit Flow Path.

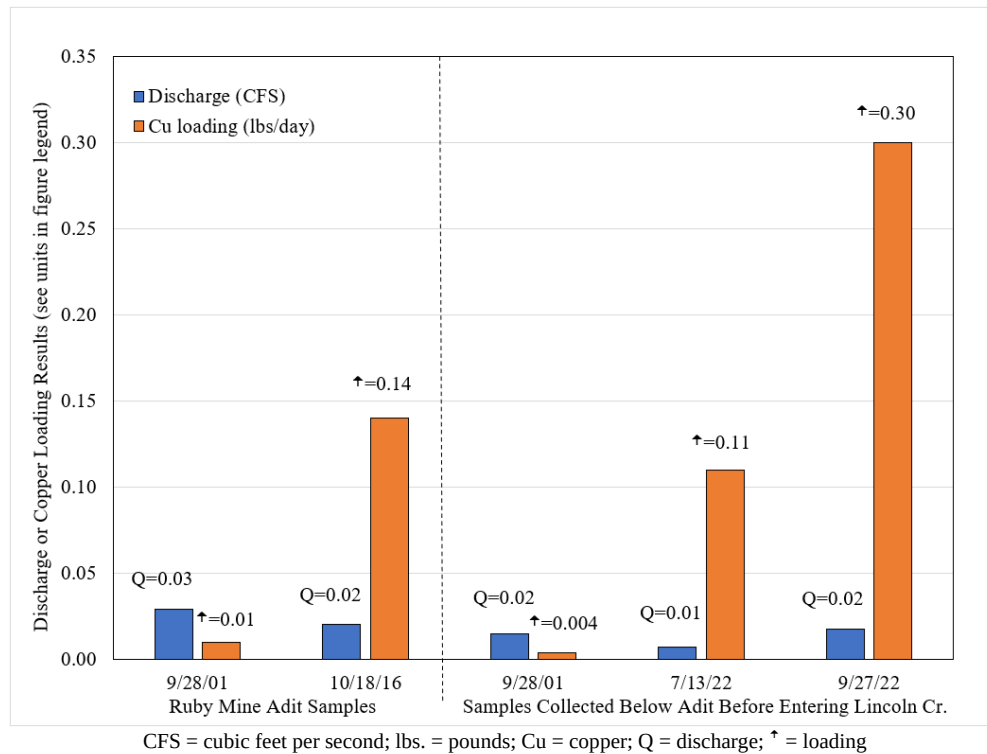
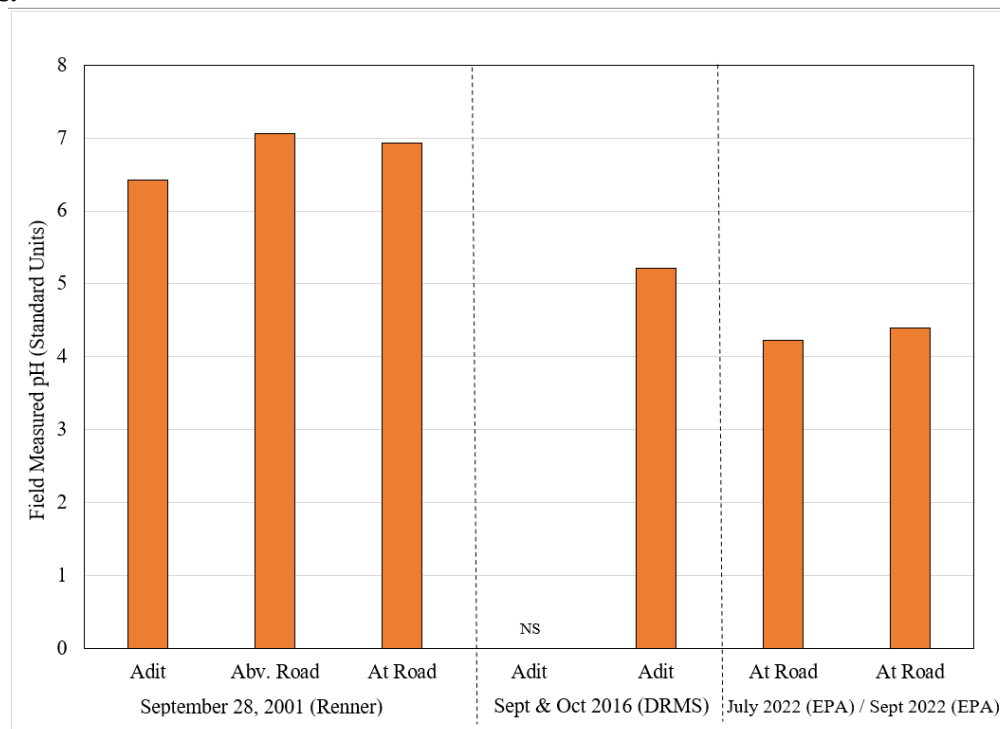


Figure 6: Apparent Decline of Field Measured pH at Ruby Mine Adit Flow Path Sampling Locations.



NS = not sampled; DRMS = Department of Reclamation, Mining, and Safety; CPW = Colorado Parks and Wildlife; EPA = U.S. Environmental Protection Agency

Figure 7: Copper Concentrations Measured in Samples Collected from the Mineralized Tributary.

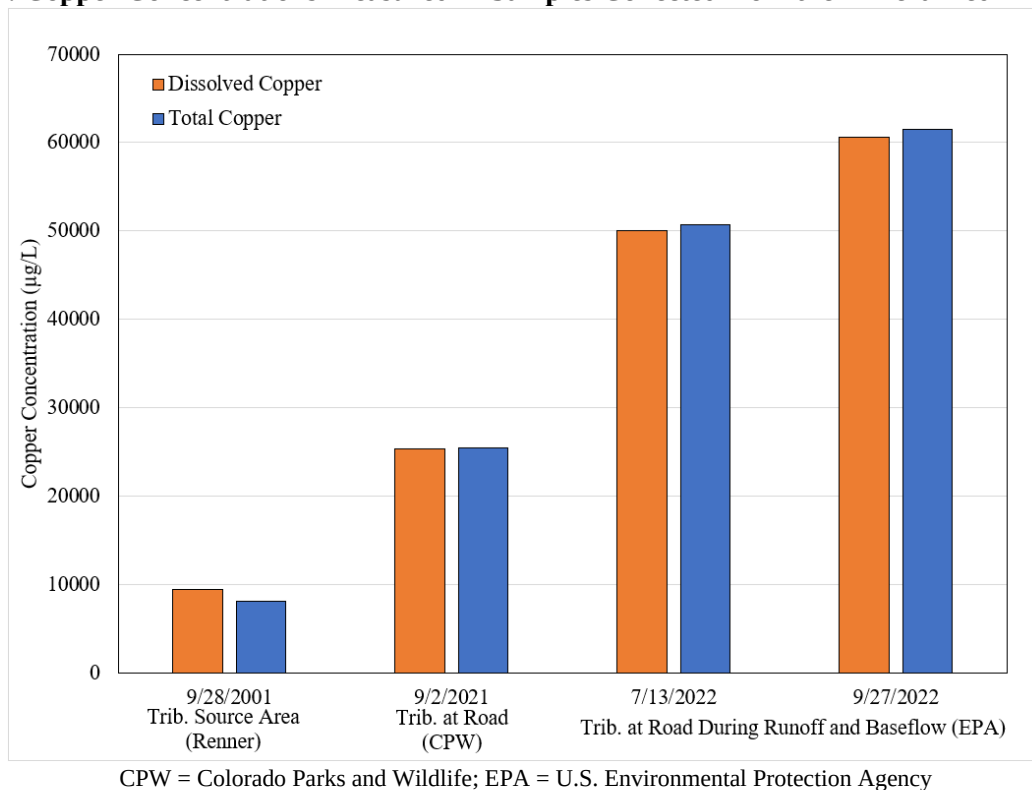


Figure 8: Estimated Discharge and Copper Loading for Samples Collected from the Mineralized Tributary.

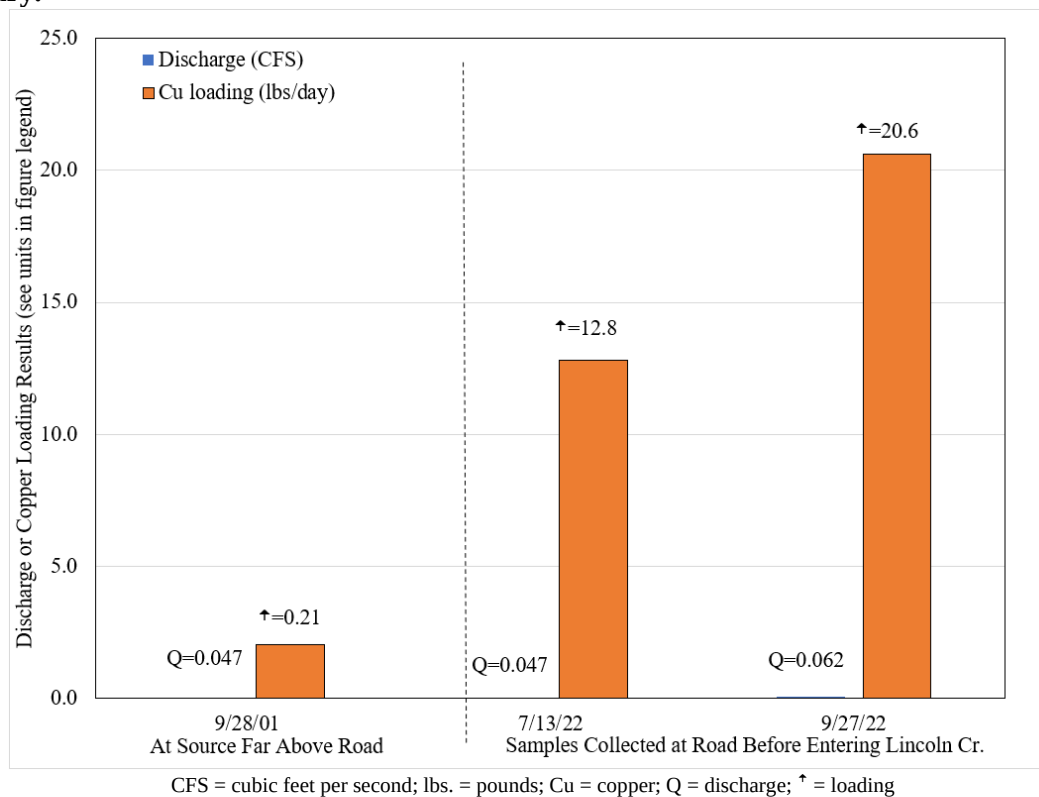


Figure 9: Field Measured pH at the Mineralized Tributary Sampling Locations Over Time.

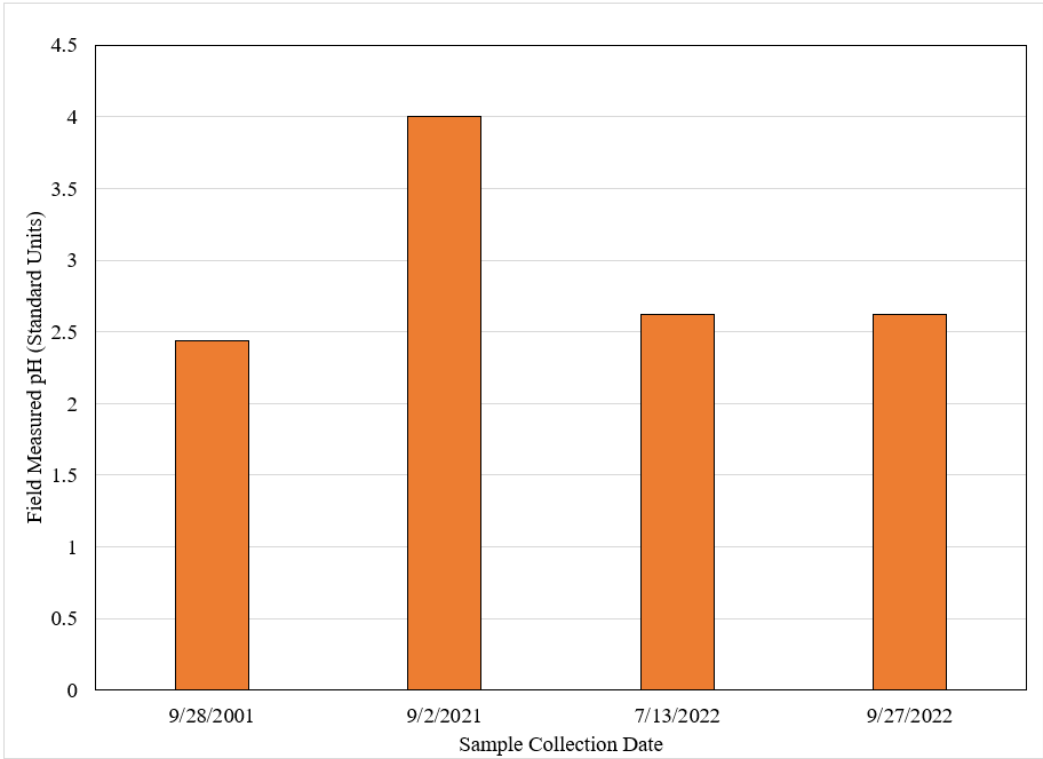


Figure 10: Proportions of Total Recoverable Metals Measured in Ruby Mine Adit and Mineralized Tributary Discharge.

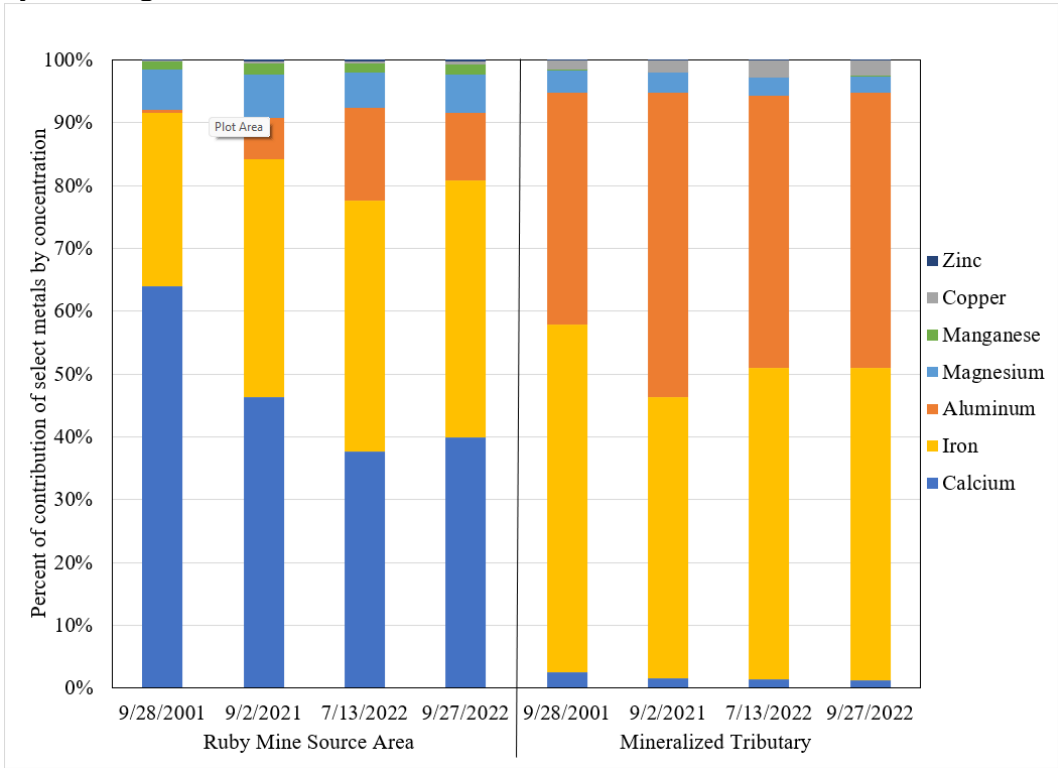


Figure 11: Concentrations of Major Dissolved Metals and Sulfate Measured in Samples Collected from Ruby Mine and the Mineralized Tributary During Runoff and Baseflow Conditions in 2022.

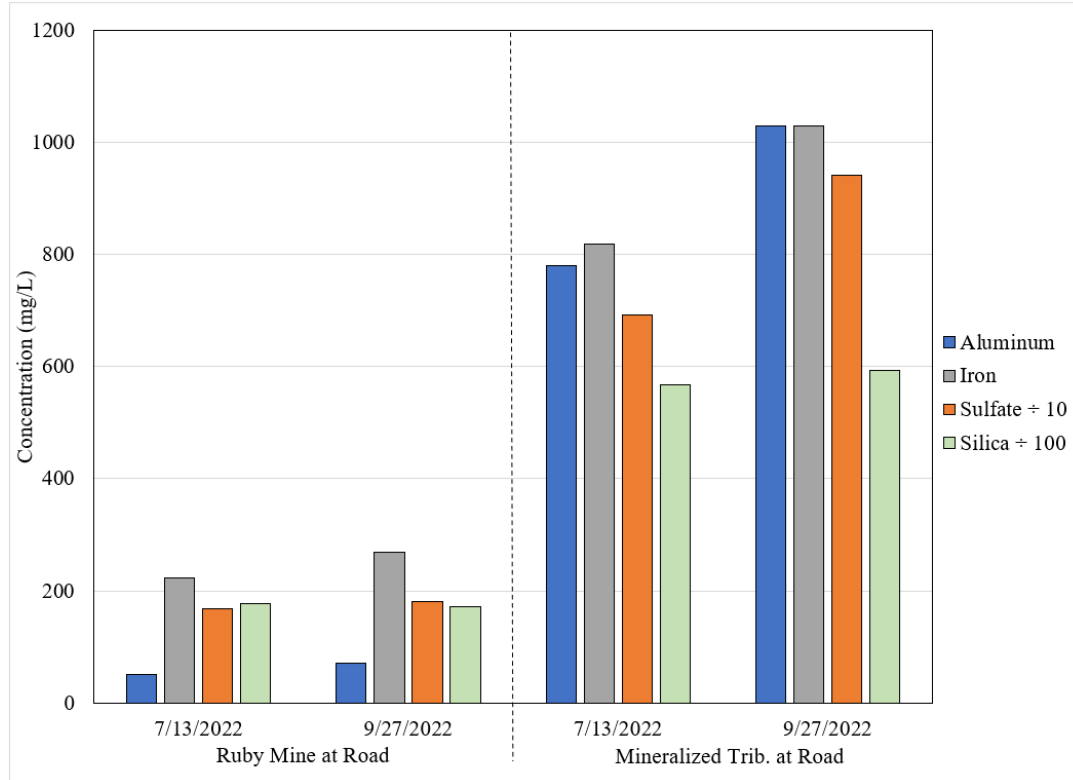


Figure 12: Concentrations of Dissolved Metals Measured in Samples Collected from Ruby Mine and the Mineralized Tributary During Runoff and Baseflow Conditions in 2022.

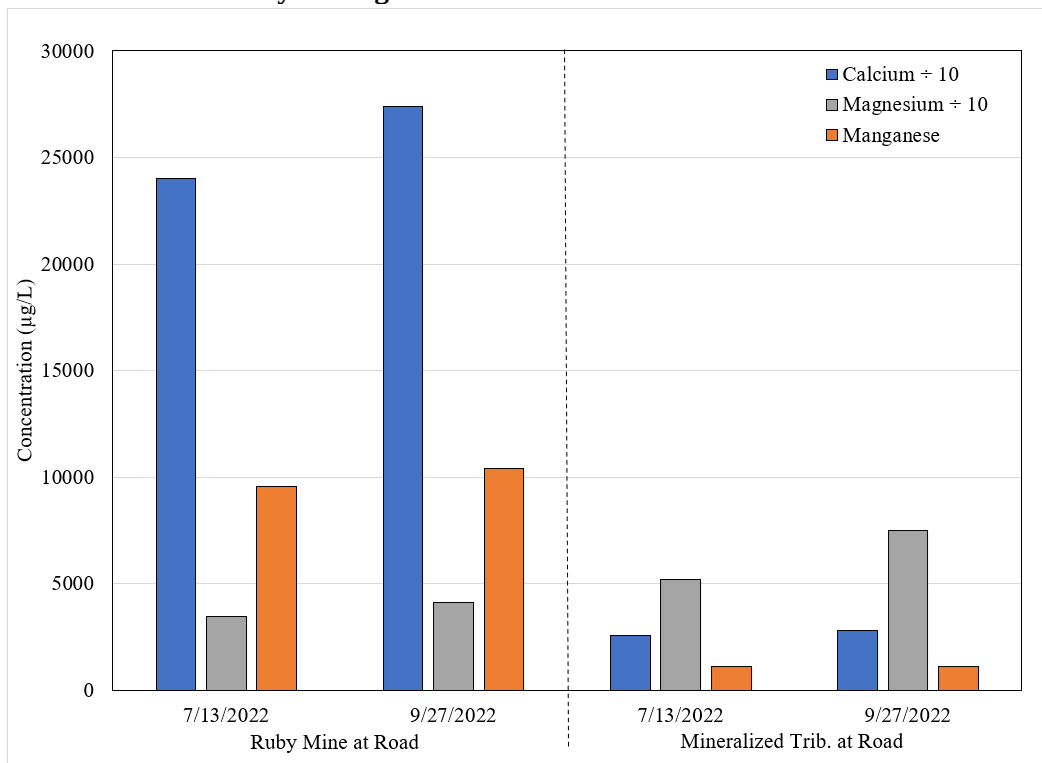


Figure 13: Concentrations of Dissolved Metals Measured in Samples Collected from Ruby Mine and the Mineralized Tributary During Runoff and Baseflow Conditions in 2022.

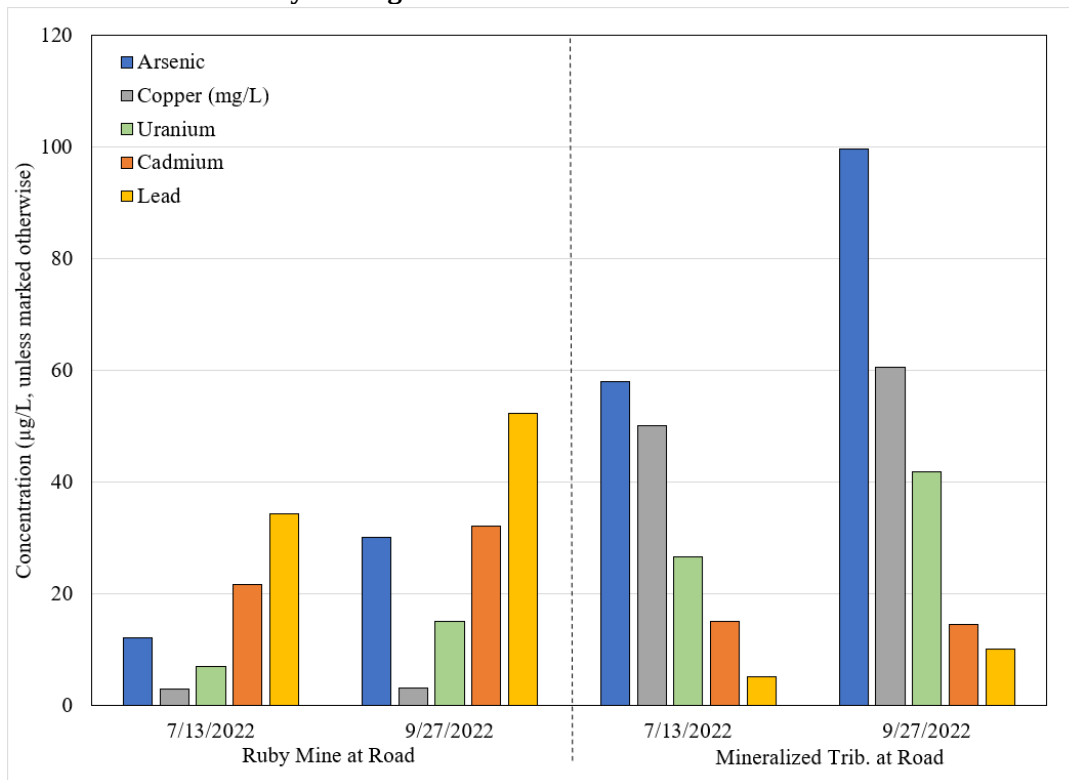


Figure 14: Photographs of the Potential Source of Metals Contaminated Water in the Upper Section of the Mineralized Tributary. Taken by Michael Carney on July 10, 2023.



Figure 15: Photographs of the Ferricrete Formations and Iron Seeps Located Just Down Valley of the Mineralized Tributary. Taken by Michael Carney on July 10, 2023.



ATTACHMENT 4
COLORADO DIVISION OF RECLAMATION AND MINING SAFETY LETTER
REGARDING MINERALIZED TRIBUTARY

May 16th, 2023

Re: Ruby Mine Combined Assessment Report (CAR)

Division of Reclamation, Mining and Safety personnel were involved in the collection of water quality data, and assisted with the field assessment of Ruby Mine prior to the Environmental Protection Agency (EPA) completing the Draft Combined Assessment Report (CAR). The CAR summarized all of the field data collected in an effort to assist multiple agencies in determining the potential cause of a fish kill noted by CPW in August 2021, and to further determine if historic mining was connected to that event and declining water quality in the basin.

DRMS has no specific comments or concerns related to data presented in the report, and is in general agreement with the conclusions presented. Based on the data detailed in the report and observations made during the site visits, we believe the majority of water quality impacts to Lincoln Creek originate from non-anthropogenic sources. The “Mineralized Tributary” accounts for the vast majority of metals loading to Lincoln Creek, and no identified mining source was observed within that tributary.

Maps of the Ruby Mine discovered by CDPHE show workings of the Lower, Middle and Upper Tunnels. These maps were georeferenced to determine if any of the workings extended to the Mineralized Tributary. It does not appear that any of the Ruby Mine workings depicted on the maps extend into the vicinity of the tributary, and thus likely have little to no impact on loading associated with the Mineralized Tributary. While it doesn’t appear that the Ruby Mine workings impact water quality within the Mineralized Tributary, there is some possibility that other previously unobserved mines could have an impact on the tributary. In an effort to rule out any mining sources as contributing to the tributary, we recommend conducting a field visit to walk the entire length of the Mineralized Tributary.

While historic mining does appear to play a role in some of the impacts to Lincoln Creek, all of the data and observations point to natural sources as being the major component.

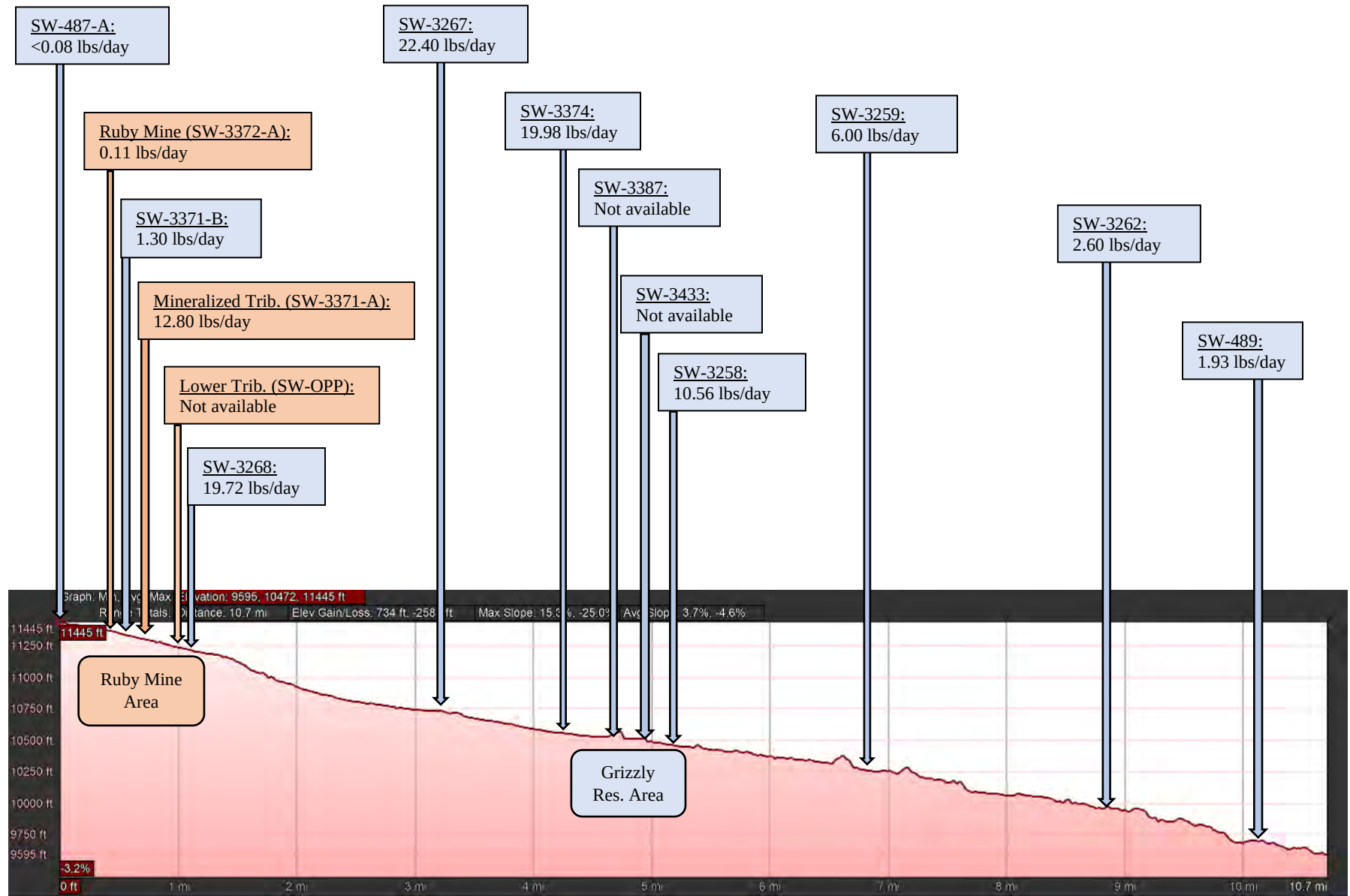
Respectfully,

Jeff Graves
Inactive Mine Reclamation Program, Director



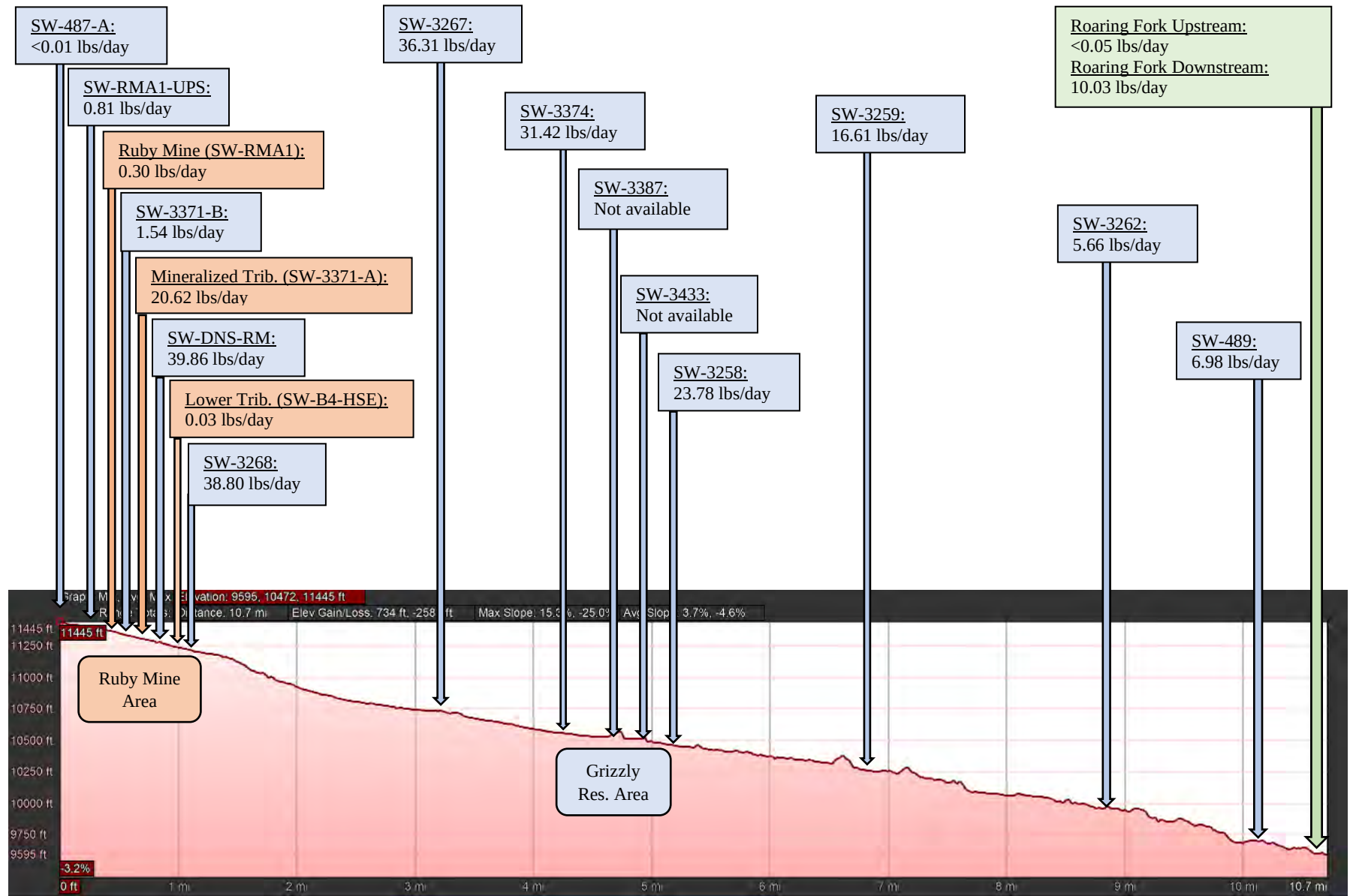
ATTACHMENT 5
EPA METALS LOADING ASSESSMENT

Spring 2022 Sampling Event – Total Recoverable Copper Results



Upstream to downstream elevation profile of Lincoln Creek study area

Fall 2022 Sampling Event – Total Recoverable Copper Results



Upstream to downstream elevation profile of Lincoln Creek study area

ATTACHMENT 6
ANALYTICAL DATA PACKAGES



U.S. Environmental Protection Agency
Region 8
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 08/15/23

Subject: Analytical Results--- **Ruby Mine_SW_JUL 2022_A046 / A-046**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Jean Wyatt
Superfund
8EPR-F

Received Sample Set(s), [Work Order : Date Received]:
[C220711 : 07/14/2022]

Attached are the analytical results for the samples received from the Ruby Mine_SW_JUL 2022_A046 sampling event, according to TDF A-046. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction (TD).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

Laboratory policy is to dispose of any remaining sample 60 days after data analysis packages are delivered to EPA. If you would like the laboratory to retain the samples for a period longer than 60 days, please contact Don Goodrich within the 60 day period at (303) 312-6687.

TDF #: A-046

Case Narrative**C220711**

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TD-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s).

Sample Receipt: Cooler temperature(s) were all within acceptable range less than or equal to 6 degrees celsius. Sample pH>3 recorded for preserved samples upon receiving. Additional preservation of nitric acid (Lot #: 0000271456) added to high pH samples on 07/15/2022 by AH.

1. Initial and Continuing calibration blanks (ICBs and CCBs).

Exceptions: In ICP-OE sequence 2208105, copper was detected in the CCB2. All copper detections were significantly above the level of contamination. No qualifiers were assigned.

2. Preparation (PB) / Method blanks (MB)

Exceptions: None.

3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.

Exceptions: In ICP-OE sequences 2208105 and 2209017, nickel was detected in the ICSA and copper showed negative bias. Nickel results were qualified "J" as estimated. The reporting limit for copper was raised to 12.0 ug/L.

4. Initial and Continuing calibration verification analyses (ICVs, SCVs and CCVs).

Exceptions: In ICP-OE sequence 2208105, nickel recovered high in the SCV. In ICP-OE sequence 2209017, nickel recovered high in the ICV and SCV. Nickel results were qualified "J" as estimated.

5. Laboratory Control Sample (LCS) or second source analysis or SRM.

Exceptions: None.

6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes.

PBS performed with analyses/methods requiring preparation or digestion prior to analysis.

Exceptions: None.

7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL, CRL, or MRL Check.

Exceptions: In ICP-OE batch 2208055, nickel recovered high in the MRL Check. Nickel results were qualified "J" as estimated.

8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.

Exceptions: None.

9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.

Exceptions: None.

10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory.

Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x it's PQL).

Exceptions: None.

11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.

Exceptions: None.

12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.

Exceptions: None.

Comments: In anions sequence 2207146 all combined nitrate/nitrite results are J-flagged because samples were not preserved to pH < 2 with sulfuric acid as indicated in EPA Method 300.0.

Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by > 4x.
NFGI	<i>USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review</i> , October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.
U	Analyte not detected at or above MDL qualifier
D	Diluted value qualifier.
E	Data estimated qualifier due to level above the upper linear reporting limit

TDF #: A-046**Method(s) Summary:**

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP-OE (ICP).
- Method 200.8 / 6020 using a Perkin-Elmer DRC IIe ICP-MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin-Elmer FIMS CVAA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg (milligram) equivalent CaCO₃ per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids.

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

From EPA's *In Vitro Bioaccessibility Assay for Lead in Soil*, Method 1340, Revision 1, February 2017, IVBA and RBA were calculated as follows:

$$\text{Arsenic \% IVBA} = \text{Arsenic by EPA 1340} / \text{Arsenic by EPA 200.8}$$

$$\text{Arsenic \% RBA} = (\text{Arsenic \% IVBA} * 0.79) + 3.0$$

$$\text{Lead \% IVBA} = \text{Lead by EPA 1340} / \text{Lead by EPA 200.8}$$

$$\text{Lead \% RBA} = (\text{Lead \% IVBA} * 0.878) - 2.8$$

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SO-RINSATE
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 19:05
Matrix: WaterWorkorder: C220711
Lab Number: C220711-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	< 350	U	ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	< 500	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	< 15.0	U	ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	< 1000	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	< 1000	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	< 10.0	U	ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	0.692	J	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	< 2		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3258

Date / Time Sampled: 07/13/22 12:16

Workorder: C220711

EPA Tag No.: No Tag Prefix-B

Matrix: Surface Water

Lab Number: C220711-05 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	10100		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1750		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	26.0		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	305	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4800		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1270		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	28.7		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	1.54		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	18.3		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	1.91		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	32		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: sw-3259
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 18:12
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-08 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	9680		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1670		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	17.0		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	381	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4990		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1320		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	25.8		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	0.964		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	10.2		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	1.56		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	31		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3262
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 11:49
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-11 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	59.6	J	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	9100		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1570		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	< 15.0	U	ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	338	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	5040		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1520		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	24.0		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	0.242		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	8.55		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	1.05		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	29		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 13:10
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-14 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	936		ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	11300		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	946		ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1670		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	48.3		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	276	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	5040		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1120		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	30.0		ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	08/29/2022	mjf	2208056
200.8	Barium	33.1	J	ug/L	25.0	5	08/29/2022	mjf	2208056
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Chromium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Cobalt	4.18		ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Copper	241		ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Lead	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Nickel	4.33	J	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Selenium	< 15.0	U	ug/L	7.50	5	08/29/2022	mjf	2208056
200.8	Silver	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Thallium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Uranium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	08/29/2022	mjf	2208056
2340B	Hardness	35		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 13:51
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-17 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	875		ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	11200		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	903		ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1650		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	44.4		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	277	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4680		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1090		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	08/29/2022	mjf	2208056
200.8	Barium	34.2	J	ug/L	25.0	5	08/29/2022	mjf	2208056
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Chromium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Cobalt	4.17		ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Copper	239		ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Lead	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Nickel	3.84	J	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Selenium	< 15.0	U	ug/L	7.50	5	08/29/2022	mjf	2208056
200.8	Silver	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Thallium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Uranium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	08/29/2022	mjf	2208056
2340B	Hardness	35		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3268

Date / Time Sampled: 07/13/22 15:13

Workorder: C220711

EPA Tag No.: No Tag Prefix-B

Matrix: Surface Water

Lab Number: C220711-20 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	6570		ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	10500		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	1210		ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1870		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	78.5		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	391	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	5190		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1020		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	38.3		ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 10.0	U	ug/L	5.00	10	08/29/2022	mjf	2208056
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	08/29/2022	mjf	2208056
200.8	Barium	< 100	U	ug/L	50.0	10	08/29/2022	mjf	2208056
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	08/29/2022	mjf	2208056
200.8	Chromium	< 20.0	U	ug/L	10.0	10	08/29/2022	mjf	2208056
200.8	Cobalt	7.55		ug/L	1.00	10	08/29/2022	mjf	2208056
200.8	Copper	438		ug/L	5.00	10	08/29/2022	mjf	2208056
200.8	Lead	< 2.00	U	ug/L	1.00	10	08/29/2022	mjf	2208056
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	08/29/2022	mjf	2208056
200.8	Nickel	6.03	J	ug/L	5.00	10	08/29/2022	mjf	2208056
200.8	Selenium	< 30.0	U	ug/L	15.0	10	08/29/2022	mjf	2208056
200.8	Silver	< 10.0	U	ug/L	5.00	10	08/29/2022	mjf	2208056
200.8	Thallium	< 20.0	U	ug/L	10.0	10	08/29/2022	mjf	2208056
200.8	Uranium	< 2.00	U	ug/L	1.00	10	08/29/2022	mjf	2208056
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	08/29/2022	mjf	2208056
2340B	Hardness	34		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3371-A
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 16:50
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-23 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	781000		ug/L	250	5	08/26/2022	mjf	2208055
200.7	Beryllium	16.7	J	ug/L	10.0	5	08/26/2022	mjf	2208055
200.7	Calcium	25700		ug/L	875	5	08/26/2022	mjf	2208055
200.7	Chromium	90.5		ug/L	12.5	5	08/26/2022	mjf	2208055
200.7	Cobalt	654		ug/L	12.5	5	08/26/2022	mjf	2208055
200.7	Copper	50000		ug/L	15.0	5	08/26/2022	mjf	2208055
200.7	Iron	819000		ug/L	500	5	08/26/2022	mjf	2208055
200.7	Magnesium	52000		ug/L	1250	5	08/26/2022	mjf	2208055
200.7	Manganese	1110		ug/L	37.5	5	08/26/2022	mjf	2208055
200.7	Nickel	571	J	ug/L	25.0	5	08/26/2022	mjf	2208055
200.7	Potassium	5860		ug/L	1250	5	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	62000		ug/L	1250	5	08/26/2022	mjf	2208055
200.7	Sodium	3060	J	ug/L	1250	5	08/26/2022	mjf	2208055
200.7	Zinc	2020		ug/L	150	5	08/26/2022	mjf	2208055
200.8	Antimony	< 50.0	U	ug/L	25.0	50	08/29/2022	mjf	2208056
200.8	Arsenic	58.0	J	ug/L	30.0	50	08/29/2022	mjf	2208056
200.8	Barium	< 500	U	ug/L	250	50	08/29/2022	mjf	2208056
200.8	Cadmium	15.0		ug/L	5.00	50	08/29/2022	mjf	2208056
200.8	Lead	< 10.0	U	ug/L	5.00	50	08/29/2022	mjf	2208056
200.8	Molybdenum	< 50.0	U	ug/L	50.0	50	08/29/2022	mjf	2208056
200.8	Selenium	< 150	U	ug/L	75.0	50	08/29/2022	mjf	2208056
200.8	Silver	< 50.0	U	ug/L	25.0	50	08/29/2022	mjf	2208056
200.8	Thallium	< 100	U	ug/L	50.0	50	08/29/2022	mjf	2208056
200.8	Uranium	26.6		ug/L	5.00	50	08/29/2022	mjf	2208056
200.8	Vanadium	< 150	U	ug/L	100	50	08/29/2022	mjf	2208056
2340B	Hardness	278		mg/L	8	5	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3371-B
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 15:50
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-26 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	8640		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	372		ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1250		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	58.8		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	308	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4640		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	901	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	10.1		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	0.188	J	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	1.13		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	28.7		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	2.14		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	27		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3372-A
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 15:47
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-29 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	50000		ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Barium	7.07		ug/L	5.00	1	08/26/2022	mjf	2208055
200.7	Beryllium	8.22		ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Cadmium	21.6		ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	240000		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Cobalt	124		ug/L	2.50	1	08/26/2022	mjf	2208055
200.7	Copper	2930		ug/L	3.00	1	08/26/2022	mjf	2208055
200.7	Iron	223000		ug/L	100	1	08/26/2022	mjf	2208055
200.7	Lead	34.2	J	ug/L	20.0	1	08/26/2022	mjf	2208055
200.7	Magnesium	34600		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	9550		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Nickel	107	J	ug/L	5.00	1	08/26/2022	mjf	2208055
200.7	Potassium	7740		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	17700		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	11800		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	1210		ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 20.0	U	ug/L	10.0	20	08/29/2022	mjf	2208056
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	08/29/2022	mjf	2208056
200.8	Chromium	< 40.0	U	ug/L	20.0	20	08/29/2022	mjf	2208056
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	08/29/2022	mjf	2208056
200.8	Selenium	< 60.0	U	ug/L	30.0	20	08/29/2022	mjf	2208056
200.8	Silver	< 20.0	U	ug/L	10.0	20	08/29/2022	mjf	2208056
200.8	Thallium	< 40.0	U	ug/L	20.0	20	08/29/2022	mjf	2208056
200.8	Uranium	6.89		ug/L	2.00	20	08/29/2022	mjf	2208056
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	08/29/2022	mjf	2208056
2340B	Hardness	743		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 14:20
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-32 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	333		ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	11800		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	889		ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1660		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	46.4		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	324	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	5220		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1190		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	31.1		ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	08/29/2022	mjf	2208056
200.8	Barium	33.8	J	ug/L	25.0	5	08/29/2022	mjf	2208056
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Chromium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Cobalt	3.87		ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Copper	221		ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Lead	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Nickel	3.67	J	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Selenium	< 15.0	U	ug/L	7.50	5	08/29/2022	mjf	2208056
200.8	Silver	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Thallium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Uranium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	08/29/2022	mjf	2208056
2340B	Hardness	36		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 14:25
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-35 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	336		ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	11200		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	827		ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1570		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	46.5		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	292	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	5260		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1110		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	08/29/2022	mjf	2208056
200.8	Barium	35.0	J	ug/L	25.0	5	08/29/2022	mjf	2208056
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Chromium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Cobalt	3.85		ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Copper	215		ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Lead	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Nickel	3.60	J	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Selenium	< 15.0	U	ug/L	7.50	5	08/29/2022	mjf	2208056
200.8	Silver	< 5.00	U	ug/L	2.50	5	08/29/2022	mjf	2208056
200.8	Thallium	< 10.0	U	ug/L	5.00	5	08/29/2022	mjf	2208056
200.8	Uranium	< 1.00	U	ug/L	0.500	5	08/29/2022	mjf	2208056
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	08/29/2022	mjf	2208056
2340B	Hardness	34		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3387

Date / Time Sampled: 07/13/22 13:32

Workorder: C220711

EPA Tag No.: No Tag Prefix-B

Matrix: Surface Water

Lab Number: C220711-38 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	8570		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1540		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	10.7	J	ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	339	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4340		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1270		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	22.3		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	0.649		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	13.6		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	1.20		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	28		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-3433

Date / Time Sampled: 07/13/22 12:17

Workorder: C220711

EPA Tag No.: No Tag Prefix-B

Matrix: Surface Water

Lab Number: C220711-41 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	7790		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1370		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	10.8	J	ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	308	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4710		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1250		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	18.6		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	0.611		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	13.1		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	1.20		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	25		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-487-A
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 15:39
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-44 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	5990		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	824		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	< 15.0	U	ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	273	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	3250		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	781	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	6.03	J	ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	18		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-489
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 11:19
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-47 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	8800		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	1540		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	< 15.0	U	ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	363	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4910		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1390		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	22.5		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	0.128	J	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	8.01		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	0.980	J	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	28		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-FB
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 19:08
Matrix: WaterWorkorder: C220711
Lab Number: C220711-50 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	< 350	U	ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	< 500	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	< 15.0	U	ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	< 1000	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	< 1000	U	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	< 30.0	U	ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	< 10.0	U	ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	< 2		mg/L	2	1	08/26/2022	mjf	2208055

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SW-OPP
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 07/13/22 17:00
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-53 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	95.2	J	ug/L	50.0	1	08/26/2022	mjf	2208055
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	08/26/2022	mjf	2208055
200.7	Calcium	27700		ug/L	175	1	08/26/2022	mjf	2208055
200.7	Iron	< 250	U	ug/L	100	1	08/26/2022	mjf	2208055
200.7	Magnesium	5770		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Manganese	28.9		ug/L	7.50	1	08/26/2022	mjf	2208055
200.7	Potassium	457	J	ug/L	250	1	08/26/2022	mjf	2208055
200.7	Silica (SiO2)	4710		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Sodium	1720		ug/L	250	1	08/26/2022	mjf	2208055
200.7	Zinc	32.3		ug/L	30.0	1	08/26/2022	mjf	2208055
200.8	Antimony	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	08/29/2022	mjf	2208056
200.8	Barium	46.3		ug/L	5.00	1	08/29/2022	mjf	2208056
200.8	Cadmium	0.176	J	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Chromium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Cobalt	0.728		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Copper	5.20		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Lead	< 0.200	U	ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Nickel	4.45		ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Selenium	< 3.00	U	ug/L	1.50	1	08/29/2022	mjf	2208056
200.8	Silver	< 1.00	U	ug/L	0.500	1	08/29/2022	mjf	2208056
200.8	Thallium	< 2.00	U	ug/L	1.00	1	08/29/2022	mjf	2208056
200.8	Uranium	0.247		ug/L	0.100	1	08/29/2022	mjf	2208056
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	08/29/2022	mjf	2208056
2340B	Hardness	93		mg/L	2	1	08/26/2022	mjf	2208055

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SO-RINSATE
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 19:05
Matrix: WaterWorkorder: C220711
Lab Number: C220711-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	< 350	U	ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	< 250	U	ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	< 500	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	< 15.0	U	ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.77	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	< 50.0	U	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3258

Date / Time Sampled: 07/13/22 12:16

Workorder: C220711

EPA Tag No.: No Tag Prefix-A

Matrix: Surface Water

Lab Number: C220711-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	951		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	10300		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	944		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1840		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	25.3		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4790		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1260		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.13	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	29.2	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	1.59		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	69.5		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: sw-3259
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 18:12
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-07 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	570		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	9740		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	510		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1720		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	16.8		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	267	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4830		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1300		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.45	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	27.2	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	1.02		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	37.3		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3262
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 11:49
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-10 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	286		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	9410		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	229	J	ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1640		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	8.69	J	ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	300	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4990		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1400		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	25.3	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	14.6		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 13:10
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-13 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3610		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	11700		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	3530		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1800		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	49.6		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	264	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	5120		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1130		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	33.5		ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.87	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	33.6	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	4.21		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	235		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	3.91	J	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 13:51
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-16 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3610		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	11800		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	3540		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1790		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	45.6		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4770		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1120		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	34.4		ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.78	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	33.8	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	4.18		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	233		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	4.15	J	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3268

Date / Time Sampled: 07/13/22 15:13

Workorder: C220711

EPA Tag No.: No Tag Prefix-A

Matrix: Surface Water

Lab Number: C220711-19 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	7750		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	10700		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	6710		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1950		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	82.3		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	275	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	5290		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1010		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	42.4		ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 10.0	U	ug/L	5.00	10	09/07/2022	mjf	2208117
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	09/07/2022	mjf	2208117
200.8	Barium	< 100	U	ug/L	50.0	10	09/07/2022	mjf	2208117
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	09/07/2022	mjf	2208117
200.8	Chromium	< 20.0	U	ug/L	10.0	10	09/07/2022	mjf	2208117
200.8	Cobalt	7.72		ug/L	1.00	10	09/07/2022	mjf	2208117
200.8	Copper	445		ug/L	5.00	10	09/07/2022	mjf	2208117
200.8	Lead	< 2.00	U	ug/L	1.00	10	09/07/2022	mjf	2208117
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	09/07/2022	mjf	2208117
200.8	Nickel	6.30	J	ug/L	5.00	10	09/07/2022	mjf	2208117
200.8	Selenium	< 30.0	U	ug/L	15.0	10	09/07/2022	mjf	2208117
200.8	Silver	< 10.0	U	ug/L	5.00	10	09/07/2022	mjf	2208117
200.8	Thallium	< 20.0	U	ug/L	10.0	10	09/07/2022	mjf	2208117
200.8	Uranium	< 2.00	U	ug/L	1.00	10	09/07/2022	mjf	2208117
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3371-A
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 16:50
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-22 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	823000		ug/L	500	10	09/06/2022	mjf	2208117
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	09/06/2022	mjf	2208117
200.7	Cadmium	24.8	J	ug/L	20.0	10	09/06/2022	mjf	2208117
200.7	Calcium	26200		ug/L	1750	10	09/06/2022	mjf	2208117
200.7	Chromium	115		ug/L	25.0	10	09/06/2022	mjf	2208117
200.7	Cobalt	767		ug/L	25.0	10	09/06/2022	mjf	2208117
200.7	Copper	50700		ug/L	30.0	10	09/06/2022	mjf	2208117
200.7	Iron	940000		ug/L	1000	10	09/06/2022	mjf	2208117
200.7	Magnesium	54300		ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Manganese	1050		ug/L	75.0	10	09/06/2022	mjf	2208117
200.7	Nickel	672		ug/L	50.0	10	09/06/2022	mjf	2208117
200.7	Potassium	5070	J	ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	56700		ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Sodium	3200	J	ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Vanadium	156	J	ug/L	125	10	09/06/2022	mjf	2208117
200.7	Zinc	2220		ug/L	300	10	09/06/2022	mjf	2208117
200.8	Antimony	< 100	U	ug/L	50.0	100	09/07/2022	mjf	2208117
200.8	Arsenic	71.4	J	ug/L	60.0	100	09/07/2022	mjf	2208117
200.8	Barium	< 1000	U	ug/L	500	100	09/07/2022	mjf	2208117
200.8	Lead	< 20.0	U	ug/L	10.0	100	09/07/2022	mjf	2208117
200.8	Molybdenum	< 100	U	ug/L	100	100	09/07/2022	mjf	2208117
200.8	Selenium	< 300	U	ug/L	150	100	09/07/2022	mjf	2208117
200.8	Silver	< 100	U	ug/L	50.0	100	09/07/2022	mjf	2208117
200.8	Thallium	< 200	U	ug/L	100	100	09/07/2022	mjf	2208117
200.8	Uranium	28.2		ug/L	10.0	100	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3371-B
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 15:50
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-25 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1080		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	9150		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	638		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1390		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	62.1		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	346	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4710		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	998	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	5.23	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	< 50.0	U	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	5.26	J	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	1.17		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	83.0		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3372-A
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 15:47
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-28 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	104000		ug/L	500	10	09/06/2022	mjf	2208117
200.7	Beryllium	< 50.0	U	ug/L	20.0	10	09/06/2022	mjf	2208117
200.7	Calcium	265000		ug/L	1750	10	09/06/2022	mjf	2208117
200.7	Cobalt	139		ug/L	25.0	10	09/06/2022	mjf	2208117
200.7	Copper	2710		ug/L	30.0	10	09/06/2022	mjf	2208117
200.7	Iron	282000		ug/L	1000	10	09/06/2022	mjf	2208117
200.7	Magnesium	39800		ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Manganese	9590		ug/L	75.0	10	09/06/2022	mjf	2208117
200.7	Nickel	125		ug/L	50.0	10	09/06/2022	mjf	2208117
200.7	Potassium	7800	J	ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	20700		ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Sodium	12400		ug/L	2500	10	09/06/2022	mjf	2208117
200.7	Zinc	1290		ug/L	300	10	09/06/2022	mjf	2208117
200.8	Antimony	< 20.0	U	ug/L	10.0	20	09/07/2022	mjf	2208117
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	09/07/2022	mjf	2208117
200.8	Barium	< 200	U	ug/L	100	20	09/07/2022	mjf	2208117
200.8	Cadmium	19.9		ug/L	2.00	20	09/07/2022	mjf	2208117
200.8	Chromium	< 40.0	U	ug/L	20.0	20	09/07/2022	mjf	2208117
200.8	Lead	46.7		ug/L	2.00	20	09/07/2022	mjf	2208117
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	09/07/2022	mjf	2208117
200.8	Selenium	< 60.0	U	ug/L	30.0	20	09/07/2022	mjf	2208117
200.8	Silver	< 20.0	U	ug/L	10.0	20	09/07/2022	mjf	2208117
200.8	Thallium	< 40.0	U	ug/L	20.0	20	09/07/2022	mjf	2208117
200.8	Uranium	8.32		ug/L	2.00	20	09/07/2022	mjf	2208117
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 14:20
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-31 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3200		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	11400		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	3150		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1670		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	44.2		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4990		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1130		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	30.1		ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	4.29	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	33.1	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	3.71		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	215		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	3.55	J	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 14:25
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-34 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3230		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	11800		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	3280		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1720		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	44.6		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	257	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4990		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1190		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	31.5		ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.09	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	34.4	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	3.90		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	219		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	3.72	J	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3387
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 13:32
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-37 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1030		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	8840		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	1020		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1710		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	33.1		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	398	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	6180		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1320		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.90	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	33.3	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	0.986	J	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	40.7		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	1.41		ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-3433
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 12:17
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-40 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	328		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	8230		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	353		ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1500		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	11.8	J	ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	315	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4490		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1290		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.58	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	< 50.0	U	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	0.736	J	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	24.8		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-487-A
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 15:39
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-43 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	6110		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	< 250	U	ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	871		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	< 15.0	U	ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	3250		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	765	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.50	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	< 50.0	U	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-489

Date / Time Sampled: 07/13/22 11:19

Workorder: C220711

EPA Tag No.: No Tag Prefix-A

Matrix: Surface Water

Lab Number: C220711-46 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	184		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	8860		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	148	J	ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	1580		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	< 15.0	U	ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	324	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4820		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1390		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	3.22	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	< 50.0	U	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	10.8		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-FB

Date / Time Sampled: 07/13/22 19:08

Workorder: C220711

EPA Tag No.: No Tag Prefix-A

Matrix: Water

Lab Number: C220711-49 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	< 350	U	ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	< 250	U	ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	< 500	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	< 15.0	U	ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	< 1000	U	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	4.87	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	< 50.0	U	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: SW-OPP
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 07/13/22 17:00
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-52 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	320		ug/L	50.0	1	09/06/2022	mjf	2208117
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	09/06/2022	mjf	2208117
200.7	Calcium	29000		ug/L	175	1	09/06/2022	mjf	2208117
200.7	Iron	< 250	U	ug/L	100	1	09/06/2022	mjf	2208117
200.7	Magnesium	6240		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Manganese	29.0		ug/L	7.50	1	09/06/2022	mjf	2208117
200.7	Potassium	372	J	ug/L	250	1	09/06/2022	mjf	2208117
200.7	Silica (SiO2)	4820		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Sodium	1770		ug/L	250	1	09/06/2022	mjf	2208117
200.7	Zinc	< 30.0	U	ug/L	30.0	1	09/06/2022	mjf	2208117
200.8	Antimony	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Arsenic	4.59	J	ug/L	3.00	5	09/07/2022	mjf	2208117
200.8	Barium	47.8	J	ug/L	25.0	5	09/07/2022	mjf	2208117
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Chromium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Cobalt	0.735	J	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Copper	9.99		ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Lead	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Nickel	4.22	J	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Selenium	< 15.0	U	ug/L	7.50	5	09/07/2022	mjf	2208117
200.8	Silver	< 5.00	U	ug/L	2.50	5	09/07/2022	mjf	2208117
200.8	Thallium	< 10.0	U	ug/L	5.00	5	09/07/2022	mjf	2208117
200.8	Uranium	< 1.00	U	ug/L	0.500	5	09/07/2022	mjf	2208117
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	09/07/2022	mjf	2208117

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SO-RINSATE
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 19:05
Matrix: Water

Workorder: C220711
Lab Number: C220711-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3258
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 12:16
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-05 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: sw-3259
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 18:12
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-08 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3262
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 11:49
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-11 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 13:10
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-14 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 13:51
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-17 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3268
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 15:13
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-20 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3371-A
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 16:50
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-23 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3371-B
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 15:50
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-26 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3372-A
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 15:47
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-29 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 14:20
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-32 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 14:25
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-35 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3387
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 13:32
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-38 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-3433
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 12:17
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-41 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-487-A
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 15:39
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-44 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-489
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 11:19
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-47 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-FB
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 19:08
Matrix: Water

Workorder: C220711
Lab Number: C220711-50 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Station ID: SW-OPP
EPA Tag No.: No Tag Prefix-B

Date / Time Sampled: 07/13/22 17:00
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-53 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	SV	2208016

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SO-RINSATE
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 19:05
Matrix: Water

Workorder: C220711
Lab Number: C220711-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3258
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 12:16
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: sw-3259
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 18:12
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-07 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3262
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 11:49
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-10 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 13:10
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-13 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 13:51
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-16 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3268
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 15:13
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-19 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3371-A
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 16:50
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-22 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

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Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3371-B
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 15:50
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-25 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/26/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3372-A
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 15:47
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-28 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 14:20
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-31 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 14:25
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-34 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

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Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3387
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 13:32
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-37 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-3433
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 12:17
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-40 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-487-A
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 15:39
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-43 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-489
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 11:19
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-46 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

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Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-FB
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 19:08
Matrix: Water

Workorder: C220711
Lab Number: C220711-49 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: SW-OPP
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 07/13/22 17:00
Matrix: Surface Water

Workorder: C220711
Lab Number: C220711-52 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	07/27/2022	mjf	2207107

"J" Qualifier indicates an estimated value

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Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SO-RINSATE
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 19:05
Matrix: WaterWorkorder: C220711
Lab Number: C220711-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	< 5.0	U	mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3258
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 12:16
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-06 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	27.4		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	11.1		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

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Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: sw-3259
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 18:12
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-09 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	23.9		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	13.6		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3262
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 11:49
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-12 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	20.2		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	15.7		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

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Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 13:10
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-15 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	20		mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	46.2		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3267
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 13:51
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-18 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	19		mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.2		mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	46.4		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

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Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3268
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 15:13
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-21 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	19		mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.3		mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	79.3		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3371-A
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 16:50
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-24 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 10.0	U	mg/L	5.0	20	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 40.0	U	mg/L	20.0	20	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	15.7		mg/L	2.0	20	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 20.0	J, U	mg/L	10.0	20	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	6930		mg/L	50.0	20	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

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Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3371-B
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 15:50
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-27 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	18.9		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	17.6		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3372-A
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 15:47
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-30 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	206		mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 5.0	U	mg/L	2.5	10	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 20.0	U	mg/L	10.0	10	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	5.0		mg/L	1.0	10	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 10.0	J, U	mg/L	5.0	10	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	1680		mg/L	25.0	10	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

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Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 14:20
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-33 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	18		mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	43.0		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3374
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 14:25
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-36 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	18		mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.2		mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	43.1		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

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TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3387
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 13:32
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-39 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	17		mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	17.4		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	18.4		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-3433
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 12:17
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-42 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	15.4		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	16.2		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

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Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-487-A
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 15:39
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-45 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	2.7	J	mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	23.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-489
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 11:19
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-48 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	17.1		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	18.4		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-FB
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 19:08
Matrix: WaterWorkorder: C220711
Lab Number: C220711-51 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	< 5.0	U	mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: SW-OPP
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 07/13/22 17:00
Matrix: Surface WaterWorkorder: C220711
Lab Number: C220711-54 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	07/19/2022	DKK	2207113
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	07/27/2022	DKK	2207138
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	07/27/2022	DKK	2207138
EPA 300.0	Fluoride	0.2		mg/L	0.1	1	07/27/2022	DKK	2207138
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	07/27/2022	DKK	2207138
EPA 300.0	Sulfate as SO4	82.1		mg/L	2.5	1	07/27/2022	DKK	2207138
EPA 310.1	Total Alkalinity	26.8		mg CaCO3 / L	5.00	1	07/25/2022	mjf	2207127

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

ICPMS-PE NEXION350

Batch 2208056 - No Lab Prep Req'd

Water

ICPMS-PE NEXION350D

Method Blank (2208056-BLK1)

Dilution Factor: 1

Prepared: 08/17/22 Analyzed: 08/29/22

Vanadium	< 2.00	3.00	ug/L
Chromium	< 1.00	2.00	"
Cobalt	< 0.100	0.200	"
Nickel	< 0.500	1.00	"
Copper	< 0.500	1.00	"
Arsenic	< 0.600	2.00	"
Selenium	< 1.50	3.00	"
Molybdenum	< 1.00	1.00	"
Silver	< 0.500	1.00	"
Cadmium	< 0.100	0.200	"
Antimony	< 0.500	1.00	"
Barium	< 5.00	10.0	"
Thallium	< 1.00	2.00	"
Lead	< 0.100	0.200	"
Uranium	< 0.100	0.200	"

Method Blank Spike (2208056-BS1)

Dilution Factor: 1

Prepared: 08/17/22 Analyzed: 08/29/22

Vanadium	95.1	3.00	ug/L	100	95	85-115
Chromium	98.0	2.00	"	100	98	85-115
Cobalt	98.7	0.200	"	100	99	85-115
Nickel	99.6	1.00	"	100	100	85-115
Copper	98.4	1.00	"	100	98	85-115
Arsenic	103	2.00	"	100	103	85-115
Selenium	543	3.00	"	500	109	85-115
Molybdenum	102	1.00	"	100	102	85-115
Silver	96.5	1.00	"	100	96	85-115
Cadmium	99.3	0.200	"	100	99	85-115
Antimony	98.1	1.00	"	100	98	85-115
Barium	94.2	10.0	"	100	94	85-115
Thallium	95.5	2.00	"	100	95	85-115
Lead	95.8	0.200	"	100	96	85-115
Uranium	94.5	0.200	"	100	95	85-115

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2208056 - No Lab Prep Req'd			<i>Water</i>			ICPMS-PE NEXION350D			
Duplicate (2208056-DUP1)		Dilution Factor: 1		Source: C220711-05		Prepared: 08/17/22 Analyzed: 08/29/22			
Vanadium	< 2.00	3.00	ug/L		< 2.00				20
Chromium	< 1.00	2.00	"		< 1.00				20
Cobalt	1.56	0.200	"		1.54			1	20
Nickel	1.99	1.00	"		1.91			4	20
Copper	18.1	1.00	"		18.3			1	20
Arsenic	< 0.600	2.00	"		< 0.600				20
Selenium	< 1.50	3.00	"		< 1.50				20
Molybdenum	< 1.00	1.00	"		< 1.00				20
Silver	< 0.500	1.00	"		< 0.500				20
Cadmium	< 0.100	0.200	"		< 0.100				20
Antimony	< 0.500	1.00	"		< 0.500				20
Barium	28.5	10.0	"		28.7			0.8	20
Thallium	< 1.00	2.00	"		< 1.00				20
Lead	< 0.100	0.200	"		< 0.100				20
Uranium	< 0.100	0.200	"		< 0.100				20
Matrix Spike (2208056-MS1)		Dilution Factor: 1		Source: C220711-05		Prepared: 08/17/22 Analyzed: 08/29/22			
Vanadium	91.3	3.00	ug/L	100	< 2.00	91	70-130		
Chromium	93.1	2.00	"	100	< 1.00	93	70-130		
Cobalt	96.4	0.200	"	100	1.54	95	70-130		
Nickel	98.1	1.00	"	100	1.91	96	70-130		
Copper	111	1.00	"	100	18.3	93	70-130		
Arsenic	112	2.00	"	100	< 0.600	112	70-130		
Selenium	593	3.00	"	500	< 1.50	119	70-130		
Molybdenum	102	1.00	"	100	< 1.00	102	70-130		
Silver	95.2	1.00	"	100	< 0.500	95	70-130		
Cadmium	103	0.200	"	100	< 0.100	103	70-130		
Antimony	101	1.00	"	100	< 0.500	101	70-130		
Barium	122	10.0	"	100	28.7	93	70-130		
Thallium	97.5	2.00	"	100	< 1.00	98	70-130		
Lead	97.3	0.200	"	100	< 0.100	97	70-130		
Uranium	97.6	0.200	"	100	< 0.100	98	70-130		

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2208056 - No Lab Prep Req'd

Water

ICPMS-PE NEXION350D

Matrix Spike (2208056-MS2)

Dilution Factor: 1

Source: C220711-08

Prepared: 08/17/22 Analyzed: 08/29/22

Vanadium	93.5	3.00	ug/L	100	< 2.00	93	70-130		
Chromium	94.2	2.00	"	100	< 1.00	94	70-130		
Cobalt	93.4	0.200	"	100	0.964	92	70-130		
Nickel	97.3	1.00	"	100	1.56	96	70-130		
Copper	103	1.00	"	100	10.2	93	70-130		
Arsenic	112	2.00	"	100	< 0.600	112	70-130		
Selenium	595	3.00	"	500	< 1.50	119	70-130		
Molybdenum	102	1.00	"	100	< 1.00	102	70-130		
Silver	94.5	1.00	"	100	< 0.500	95	70-130		
Cadmium	103	0.200	"	100	< 0.100	103	70-130		
Antimony	102	1.00	"	100	< 0.500	102	70-130		
Barium	121	10.0	"	100	25.8	95	70-130		
Thallium	96.5	2.00	"	100	< 1.00	96	70-130		
Lead	97.4	0.200	"	100	< 0.100	97	70-130		
Uranium	97.9	0.200	"	100	< 0.100	98	70-130		

Batch 2208111 - 2208056

Water

ICPMS-PE NEXION350D

Serial Dilution (2208111-SRD1)

Dilution Factor: 5

Source: C220711-05

Prepared: 08/17/22 Analyzed: 08/29/22

Vanadium	< 2.50	5.00	ug/L	< 0.50				10
Chromium	< 2.50	5.00	"	< 0.50				10
Cobalt	< 2.50	5.00	"	< 0.50				10
Nickel	< 2.50	5.00	"	< 0.50				10
Copper	18.4	5.00	"	18.3			0.5	10
Arsenic	< 2.50	5.00	"	< 0.50				10
Selenium	< 2.50	5.00	"	< 0.50				10
Molybdenum	< 2.50	5.00	"	< 0.50				10
Silver	< 2.50	5.00	"	< 0.50				10
Cadmium	< 2.50	5.00	"	< 0.50				10
Antimony	< 2.50	5.00	"	< 0.50				10
Barium	26.8	5.00	"	28.7			7	10
Thallium	< 2.50	5.00	"	< 0.50				10
Lead	< 2.50	5.00	"	< 0.50				10
Uranium	< 2.50	5.00	"	< 0.50				10

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

ICPOE - PE Optima

Batch 2208055 - No Lab Prep Reqd

Water

ICPOE - PE Optima

Method Blank (2208055-BLK1)	Dilution Factor: 1	Prepared: 08/17/22	Analyzed: 08/26/22

Aluminum	< 50.0	100	ug/L
Barium	< 5.00	5.00	"
Beryllium	< 2.00	5.00	"
Calcium	< 175	350	"
Cadmium	< 2.00	5.00	"
Cobalt	< 2.50	5.00	"
Chromium	< 2.50	5.00	"
Copper	< 3.00	12.0	"
Iron	< 100	250	"
Potassium	< 250	1000	"
Magnesium	< 250	500	"
Manganese	< 7.50	15.0	"
Sodium	< 250	1000	"
Nickel	< 5.00	10.0	"
Lead	< 20.0	40.0	"
Zinc	< 30.0	30.0	"
Silica (SiO2)	< 250	1000	"

Method Blank Spike (2208055-BS1)	Dilution Factor: 1	Prepared: 08/17/22	Analyzed: 08/26/22

Aluminum	9736	100	ug/L	10100	96	85-115
Barium	103.4	5.00	"	100	103	85-115
Beryllium	103.7	5.00	"	100	104	85-115
Calcium	9270	350	"	10100	92	85-115
Cadmium	94.02	5.00	"	100	94	85-115
Cobalt	92.73	5.00	"	100	93	85-115
Chromium	107.9	5.00	"	100	108	85-115
Copper	98.13	12.0	"	100	98	85-115
Iron	9347	250	"	10100	93	85-115
Potassium	9874	1000	"	10100	98	85-115
Magnesium	9507	500	"	10100	94	85-115
Manganese	100.0	15.0	"	100	100	85-115
Sodium	9754	1000	"	10100	97	85-115
Nickel	112.9	10.0	"	100	113	85-115
Lead	97.55	40.0	"	100	98	85-115
Zinc	107.6	30.0	"	100	108	85-115
Silica (SiO2)	< 250	1000	"			85-115

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2208055 - No Lab Prep Req'd			Water				ICPOE - PE Optima		
Duplicate (2208055-DUP1)		Dilution Factor: 1	Source: C220711-05		Prepared: 08/17/22 Analyzed: 08/26/22				
Aluminum	< 50.0	100	ug/L		< 50.0				20
Beryllium	< 2.00	5.00	"		< 2.00				20
Calcium	10010	350	"		10110			0.9	20
Iron	< 100	250	"		< 100				20
Potassium	254.9	1000	"		305.4			18	20
Magnesium	1700	500	"		1749			3	20
Manganese	25.77	15.0	"		26.01			0.9	20
Sodium	1217	1000	"		1266			4	20
Zinc	< 30.0	30.0	"		< 30.0				20
Silica (SiO2)	4674	1000	"		4795			3	20
Matrix Spike (2208055-MS1)		Dilution Factor: 1	Source: C220711-05		Prepared: 08/17/22 Analyzed: 08/26/22				
Aluminum	10150	100	ug/L	10100	< 50.0	101	70-130		
Beryllium	108.1	5.00	"	100	< 2.00	108	70-130		
Calcium	18900	350	"	10100	10110	87	70-130		
Iron	9441	250	"	10100	< 100	93	70-130		
Potassium	9904	1000	"	10100	305.4	95	70-130		
Magnesium	10900	500	"	10100	1749	91	70-130		
Manganese	126.7	15.0	"	100	26.01	101	70-130		
Sodium	10710	1000	"	10100	1266	93	70-130		
Zinc	109.0	30.0	"	100	< 30.0	109	70-130		
Silica (SiO2)	4632	1000	"		4795		70-130		
Matrix Spike (2208055-MS2)		Dilution Factor: 1	Source: C220711-08		Prepared: 08/17/22 Analyzed: 08/26/22				
Aluminum	10270	100	ug/L	10100	< 50.0	102	70-130		
Beryllium	109.4	5.00	"	100	< 2.00	109	70-130		
Calcium	19070	350	"	10100	9681	93	70-130		
Iron	9761	250	"	10100	< 100	97	70-130		
Potassium	10430	1000	"	10100	381.3	100	70-130		
Magnesium	11360	500	"	10100	1665	96	70-130		
Manganese	119.4	15.0	"	100	16.99	102	70-130		
Sodium	11290	1000	"	10100	1321	99	70-130		
Zinc	114.1	30.0	"	100	< 30.0	114	70-130		
Silica (SiO2)	4822	1000	"		4993		70-130		

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2208105 - 2208055			Water				ICPOE - PE Optima		
Serial Dilution (2208105-SRD1)		Dilution Factor: 5		Source: C220711-05		Prepared: 08/17/22		Analyzed: 08/26/22	
Aluminum	< 150	150	ug/L		< 30.00				10
Beryllium	< 150	150	"		< 30.00				10
Calcium	11020	150	"		10110			9	10
Iron	< 150	150	"		< 30.00				10
Potassium	574.3	150	"		305.4			61	10
Magnesium	1876	150	"		1749			7	10
Manganese	< 150	150	"		< 30.00				10
Sodium	1235	150	"		1266			3	10
Zinc	< 150	150	"		< 30.00				10
Silica (SiO2)	4640	150	"		4795			3	10

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

ICPMS-PE NEXION350

Batch 2208117 - 200.2 - TR Metals

Water

ICPMS-PE NEXION350D

Method Blank (2208117-BLK2)

Dilution Factor: 5

Prepared: 08/30/22 Analyzed: 09/07/22

Vanadium	< 10.0	15.0	ug/L
Chromium	< 5.00	10.0	"
Cobalt	< 0.500	1.00	"
Nickel	< 2.50	5.00	"
Copper	< 2.50	5.00	"
Arsenic	3.957	10.0	"
Selenium	< 7.50	15.0	"
Molybdenum	< 5.00	5.00	"
Silver	< 2.50	5.00	"
Cadmium	< 0.500	1.00	"
Antimony	< 2.50	5.00	"
Barium	< 25.0	50.0	"
Thallium	< 5.00	10.0	"
Lead	< 0.500	1.00	"
Uranium	< 0.500	1.00	"

Duplicate (2208117-DUP2)

Dilution Factor: 5

Source: C220711-04

Prepared: 08/30/22 Analyzed: 09/07/22

Vanadium	< 10.0	15.0	ug/L	< 10.0		20
Chromium	< 5.00	10.0	"	< 5.00		20
Cobalt	1.549	1.00	"	1.594	3	20
Nickel	< 2.50	5.00	"	< 2.50		20
Copper	68.02	5.00	"	69.53	2	20
Arsenic	3.244	10.0	"	3.134	3	20
Selenium	< 7.50	15.0	"	< 7.50		20
Molybdenum	< 5.00	5.00	"	< 5.00		20
Silver	< 2.50	5.00	"	< 2.50		20
Cadmium	< 0.500	1.00	"	< 0.500		20
Antimony	< 2.50	5.00	"	< 2.50		20
Barium	29.22	50.0	"	29.18	0.1	20
Thallium	< 5.00	10.0	"	< 5.00		20
Lead	< 0.500	1.00	"	< 0.500		20
Uranium	< 0.500	1.00	"	< 0.500		20

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2208117 - 200.2 - TR Metals			<i>Water</i>			ICPMS-PE NEXION350D			
Matrix Spike (2208117-MS2)		Dilution Factor: 5	Source: C220711-04			Prepared: 08/30/22 Analyzed: 09/07/22			
Vanadium	87.68	15.0	ug/L	100	< 10.0	88	70-130		
Chromium	101.7	10.0	"	100	< 5.00	102	70-130		
Cobalt	100.5	1.00	"	100	1.594	99	70-130		
Nickel	99.30	5.00	"	100	< 2.50	99	70-130		
Copper	164.5	5.00	"	100	69.53	95	70-130		
Arsenic	107.3	10.0	"	100	3.134	104	70-130		
Selenium	536.0	15.0	"	500	< 7.50	107	70-130		
Molybdenum	99.54	5.00	"	100	< 5.00	100	70-130		
Silver	92.01	5.00	"	100	< 2.50	92	70-130		
Cadmium	101.3	1.00	"	100	< 0.500	101	70-130		
Antimony	99.78	5.00	"	100	< 2.50	100	70-130		
Barium	129.9	50.0	"	100	29.18	101	70-130		
Thallium	92.20	10.0	"	100	< 5.00	92	70-130		
Lead	99.52	1.00	"	100	< 0.500	100	70-130		
Uranium	98.02	1.00	"	100	< 0.500	98	70-130		
Matrix Spike (2208117-MS4)		Dilution Factor: 5	Source: C220711-07			Prepared: 08/30/22 Analyzed: 09/07/22			
Vanadium	92.43	15.0	ug/L	100	< 10.0	92	70-130		
Chromium	101.5	10.0	"	100	< 5.00	102	70-130		
Cobalt	100.6	1.00	"	100	1.025	100	70-130		
Nickel	98.57	5.00	"	100	< 2.50	99	70-130		
Copper	133.1	5.00	"	100	37.27	96	70-130		
Arsenic	101.3	10.0	"	100	3.447	98	70-130		
Selenium	532.4	15.0	"	500	< 7.50	106	70-130		
Molybdenum	100.4	5.00	"	100	< 5.00	100	70-130		
Silver	93.89	5.00	"	100	< 2.50	94	70-130		
Cadmium	103.2	1.00	"	100	< 0.500	103	70-130		
Antimony	101.8	5.00	"	100	< 2.50	102	70-130		
Barium	124.6	50.0	"	100	27.23	97	70-130		
Thallium	91.79	10.0	"	100	< 5.00	92	70-130		
Lead	98.15	1.00	"	100	< 0.500	98	70-130		
Uranium	98.01	1.00	"	100	< 0.500	98	70-130		

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2208117 - 200.2 - TR Metals

Water

ICPMS-PE NEXION350D

Reference (2208117-SRM2)

Dilution Factor: 5

Prepared: 08/30/22 Analyzed: 09/07/22

Vanadium	95.48	15.0	ug/L	100		95	85-115		
Chromium	103.1	10.0	"	100		103	85-115		
Cobalt	102.0	1.00	"	100		102	85-115		
Nickel	100.7	5.00	"	100		101	85-115		
Copper	97.55	5.00	"	100		98	85-115		
Arsenic	107.5	10.0	"	100		108	85-115		
Selenium	546.3	15.0	"	500		109	85-115		
Molybdenum	97.11	5.00	"	100		97	85-115		
Silver	91.62	5.00	"	100		92	85-115		
Cadmium	103.4	1.00	"	100		103	85-115		
Antimony	101.3	5.00	"	100		101	85-115		
Barium	100.2	50.0	"	100		100	85-115		
Thallium	92.35	10.0	"	100		92	85-115		
Lead	99.69	1.00	"	100		100	85-115		
Uranium	99.58	1.00	"	100		100	85-115		

Batch 2209026 - 2208117

Water

ICPMS-PE NEXION350D

Serial Dilution (2209026-SRD1)

Dilution Factor: 25

Source: C220711-04

Prepared: 08/30/22 Analyzed: 09/07/22

Vanadium	< 12.5	25.0	ug/L	< 2.50					10
Chromium	< 12.5	25.0	"	< 2.50					10
Cobalt	< 12.5	25.0	"	< 2.50					10
Nickel	< 12.5	25.0	"	< 2.50					10
Copper	62.67	25.0	"	69.53				10	10
Arsenic	< 12.5	25.0	"	< 2.50					10
Selenium	< 12.5	25.0	"	< 2.50					10
Molybdenum	< 12.5	25.0	"	< 2.50					10
Silver	< 12.5	25.0	"	< 2.50					10
Cadmium	< 12.5	25.0	"	< 2.50					10
Antimony	< 12.5	25.0	"	< 2.50					10
Barium	29.90	25.0	"	29.18				2	10
Thallium	< 12.5	25.0	"	< 2.50					10
Lead	< 12.5	25.0	"	< 2.50					10
Uranium	< 12.5	25.0	"	< 2.50					10

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

ICPOE - PE Optima

Batch 2208117 - 200.2 - TR Metals

Water

ICPOE - PE Optima

Method Blank (2208117-BLK1)	Dilution Factor: 1	Prepared: 08/30/22	Analyzed: 09/06/22

Aluminum	< 50.0	100	ug/L
Beryllium	< 2.00	5.00	"
Calcium	< 175	350	"
Cadmium	< 2.00	5.00	"
Cobalt	< 2.50	5.00	"
Chromium	< 2.50	6.00	"
Copper	< 3.00	12.0	"
Iron	< 100	250	"
Potassium	< 250	1000	"
Magnesium	< 250	500	"
Manganese	< 7.50	15.0	"
Sodium	< 250	1000	"
Nickel	< 5.00	10.0	"
Silica (SiO2)	< 250	1000	"
Vanadium	< 12.5	50.0	"
Zinc	< 30.0	30.0	"

Duplicate (2208117-DUP1)	Dilution Factor: 1	Source: C220711-04	Prepared: 08/30/22	Analyzed: 09/06/22

Aluminum	934.2	100	ug/L	951.1	2	20
Beryllium	< 2.00	5.00	"	< 2.00		20
Calcium	10280	350	"	10330	0.5	20
Iron	946.3	250	"	943.8	0.3	20
Potassium	< 250	1000	"	< 250		20
Magnesium	1841	500	"	1839	0.07	20
Manganese	25.01	15.0	"	25.27	1	20
Sodium	1249	1000	"	1259	0.8	20
Silica (SiO2)	4750	1000	"	4795	0.9	20
Zinc	< 30.0	30.0	"	< 30.0		20

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2208117 - 200.2 - TR Metals			Water			ICPOE - PE Optima			
Matrix Spike (2208117-MS1)		Dilution Factor: 1	Source: C220711-04			Prepared: 08/30/22 Analyzed: 09/06/22			
Aluminum	10980	100	ug/L	10100	951.1	99	70-130		
Beryllium	110.2	5.00	"	100	< 2.00	110	70-130		
Calcium	19890	350	"	10100	10330	95	70-130		
Iron	11270	250	"	10100	943.8	102	70-130		
Potassium	10020	1000	"	10100	< 250	99	70-130		
Magnesium	11970	500	"	10100	1839	100	70-130		
Manganese	127.7	15.0	"	100	25.27	102	70-130		
Sodium	11460	1000	"	10100	1259	101	70-130		
Silica (SiO2)	4889	1000	"		4795		70-130		
Zinc	120.7	30.0	"	100	< 30.0	121	70-130		
Matrix Spike (2208117-MS3)		Dilution Factor: 1	Source: C220711-07			Prepared: 08/30/22 Analyzed: 09/06/22			
Aluminum	10480	100	ug/L	10100	570.2	98	70-130		
Beryllium	109.6	5.00	"	100	< 2.00	110	70-130		
Calcium	20200	350	"	10100	9737	104	70-130		
Iron	11260	250	"	10100	510.4	106	70-130		
Potassium	10290	1000	"	10100	266.7	99	70-130		
Magnesium	12300	500	"	10100	1721	105	70-130		
Manganese	119.4	15.0	"	100	16.81	103	70-130		
Sodium	11860	1000	"	10100	1299	105	70-130		
Silica (SiO2)	4996	1000	"		4832		70-130		
Zinc	114.8	30.0	"	100	< 30.0	115	70-130		
Reference (2208117-SRM1)		Dilution Factor: 1				Prepared: 08/30/22 Analyzed: 09/06/22			
Aluminum	9864	100	ug/L	10100		98	85-115		
Beryllium	106.3	5.00	"	100		106	85-115		
Calcium	9544	350	"	10100		94	85-115		
Cadmium	99.81	5.00	"	100		100	85-115		
Cobalt	102.4	5.00	"	100		102	85-115		
Chromium	110.2	6.00	"	100		110	85-115		
Copper	104.9	12.0	"	100		105	85-115		
Iron	10320	250	"	10100		102	85-115		
Potassium	9680	1000	"	10100		96	85-115		
Magnesium	10050	500	"	10100		99	85-115		
Manganese	99.80	15.0	"	100		100	85-115		
Sodium	10150	1000	"	10100		101	85-115		
Nickel	111.6	10.0	"	100		112	85-115		
Vanadium	102.1	50.0	"	100		102	85-115		
Zinc	100.5	30.0	"	100		101	85-115		

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2209017 - 2208117			Water				ICPOE - PE Optima		
Serial Dilution (2209017-SRD1)		Dilution Factor: 5		Source: C220711-04		Prepared: 08/30/22		Analyzed: 09/06/22	
Aluminum	884.9	1750	ug/L		951.1			7	10
Beryllium	< 875	1750	"		< 175.00				10
Calcium	10760	1750	"		10330			4	10
Iron	913.8	1750	"		943.8			3	10
Potassium	< 875	1750	"		< 175.00				10
Magnesium	1896	1750	"		1839			3	10
Manganese	< 875	1750	"		< 175.00				10
Sodium	1294	1750	"		1259			3	10
Silica (SiO2)	4612	1750	"		4795			4	10
Zinc	< 875	1750	"		< 175.00				10

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Dissolved) by EPA 245.1 / 7470A Method - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
NIC RA-4500									
Batch 2208016 - EPA 245.1/245.2 Prep			Water				NIC RA-4500		
Method Blank (2208016-BLK1)		Dilution Factor: 1				Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	< 0.0380	0.0500	ug/L						
Method Blank Spike (2208016-BS1)		Dilution Factor: 1				Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	4.13	0.0500	ug/L	4.00		103	85-115		
Duplicate (2208016-DUP1)		Dilution Factor: 1		Source: C220711-05		Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	< 0.0380	0.0500	ug/L		< 0.0380				20
Matrix Spike (2208016-MS1)		Dilution Factor: 1		Source: C220711-05		Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	4.23	0.0500	ug/L	4.00	< 0.0380	106	70-130		
Matrix Spike (2208016-MS2)		Dilution Factor: 1		Source: C220711-08		Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	4.12	0.0500	ug/L	4.00	< 0.0380	103	70-130		

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
NIC RA-4500									
Batch 2207107 - EPA 245.1/245.2 Prep			Water				NIC RA-4500		
Method Blank (2207107-BLK1)		Dilution Factor: 1				Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	< 0.0380	0.0500	ug/L						
Method Blank (2207107-BLK2)		Dilution Factor: 1				Prepared: 07/18/22 Analyzed: 07/27/22			
Mercury	< 0.0380	0.0500	ug/L						
Method Blank Spike (2207107-BS1)		Dilution Factor: 1				Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	4.13	0.0500	ug/L	4.00		103	85-115		
Method Blank Spike (2207107-BS2)		Dilution Factor: 1				Prepared: 07/18/22 Analyzed: 07/27/22			
Mercury	4.14	0.0500	ug/L	4.00		103	85-115		
Duplicate (2207107-DUP1)		Dilution Factor: 1		Source: C220711-04		Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	< 0.0380	0.0500	ug/L		< 0.0380				20
Matrix Spike (2207107-MS3)		Dilution Factor: 1		Source: C220711-07		Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	4.20	0.0500	ug/L	4.00	< 0.0380	105	70-130		
Matrix Spike (2207107-MS4)		Dilution Factor: 1		Source: C220711-08		Prepared: 07/18/22 Analyzed: 07/26/22			
Mercury	4.12	0.0500	ug/L	4.00		103	70-130		

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
ESAT Dionex IC									
Batch 2207138 - No Prep Req			Water				ESAT Dionex IC		
Method Blank (2207138-BLK1)		Dilution Factor: 1			Prepared: 07/26/22 Analyzed: 07/27/22				
Fluoride	< 0.1	0.2	mg/L						
Chloride	< 1.0	2.0	"						
Bromide	< 0.2	0.5	"						
Sulfate as SO4	< 2.5	5.0	"						
Nitrate/Nitrite as N	< 0.5	1.0	"						
Method Blank Spike (2207138-BS1)		Dilution Factor: 1			Prepared: 07/26/22 Analyzed: 07/27/22				
Fluoride	4.7	0.2	mg/L	5.00		95	90-110		
Chloride	25.1	2.0	"	25.0		100	90-110		
Bromide	5.2	0.5	"	5.00		105	90-110		
Sulfate as SO4	23.9	5.0	"	25.0		96	90-110		
Nitrate/Nitrite as N	10.0	1.0	"	10.0		100	90-110		
Duplicate (2207138-DUP1)		Dilution Factor: 10		Source: C220711-30		Prepared: 07/26/22 Analyzed: 07/27/22			
Fluoride	5.6	2.0	mg/L		5.0			11	20
Chloride	< 10.0	20.0	"		< 10.0				20
Bromide	< 2.5	5.0	"		< 2.5				20
Sulfate as SO4	1690	50.0	"		1680			0.3	20
Nitrate/Nitrite as N	< 5.0	10.0	"		< 5.0				20
Matrix Spike (2207138-MS1)		Dilution Factor: 1		Source: C220711-15		Prepared: 07/26/22 Analyzed: 07/27/22			
Fluoride	5.2	0.2	mg/L	5.00	0.1	101	80-120		
Chloride	25.6	2.0	"	25.0	< 1.0	102	80-120		
Bromide	5.3	0.5	"	5.00	< 0.2	106	80-120		
Sulfate as SO4	72.7	5.0	"	25.0	46.2	106	80-120		
Nitrate/Nitrite as N	10.1	1.0	"	10.0	< 0.5	101	80-120		
Matrix Spike (2207138-MS2)		Dilution Factor: 10		Source: C220711-30		Prepared: 07/26/22 Analyzed: 07/27/22			
Fluoride	51.6	2.0	mg/L	50.0	5.0	93	80-120		
Chloride	253	20.0	"	250	< 10.0	101	80-120		
Bromide	52.6	5.0	"	50.0	< 2.5	105	80-120		
Sulfate as SO4	1930	50.0	"	250	1680	100	80-120		
Nitrate/Nitrite as N	100	10.0	"	100	< 5.0	100	80-120		

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

InstBatch 2207113 - No Prep Req *Water* **Inst**

Method Blank (2207113-BLK1)	Dilution Factor: 1	Prepared & Analyzed: 07/19/22

Total Suspended Solids	< 10	10	mg/L						

Duplicate (2207113-DUP1)	Dilution Factor: 1	Source: C220711-15	Prepared & Analyzed: 07/19/22

Total Suspended Solids	18	10	mg/L	20		11	20

Duplicate (2207113-DUP2)	Dilution Factor: 1	Source: C220711-30	Prepared & Analyzed: 07/19/22

Total Suspended Solids	248	10	mg/L	206		19	20

Reference (2207113-SRM1)	Dilution Factor: 1	Prepared & Analyzed: 07/19/22

Total Suspended Solids	157	10	mg/L	150	105	85-115

Mettler T5Batch 2207127 - No Prep Req *Water* **Mettler T5**

Method Blank (2207127-BLK1)	Dilution Factor: 1	Prepared & Analyzed: 07/25/22

Total Alkalinity	< 5.00	10.0	mg CaCO3 / L				

Duplicate (2207127-DUP1)	Dilution Factor: 1	Source: C220711-03	Prepared & Analyzed: 07/25/22

Total Alkalinity	< 5.00	10.0	mg CaCO3 / L	< 5.00		20

Duplicate (2207127-DUP2)	Dilution Factor: 1	Source: C220711-06	Prepared & Analyzed: 07/25/22

Total Alkalinity	11.9	10.0	mg CaCO3 / L	11.1		7	20

Reference (2207127-SRM1)	Dilution Factor: 1	Prepared & Analyzed: 07/25/22

Total Alkalinity	74.9	10.0	mg CaCO3 / L	75.8	99	85-115

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 245.1

Analysis Name: TM Mercury 245.1

Instrument:

Work Order: C220711

Analytical Sequence: **Total**

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Mercury		1	2	3	4	NA	2207107-BLK2	0.05
						NA	-0.01	
		5	6	7	8			
		1	2	3	4	2207107-BLK1	NA	0.05
						0.00	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: EPA 310.1

Analysis Name: WC - Alkalinity

Instrument: Mettler T5

Work Order: C220711

Analytical Sequence: **Total**

Concentration Units: mg CaCO₃ / L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
		1	2	3	4	2207127-BLK1	NA	
Total Alkalinity		1.12	1.70	2.21		1.11	NA	10.00
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 245.1

Analysis Name: TM_Mercury 245.1

Instrument: NIC RA-4500

Work Order: C220711

Analytical Sequence: 2207141 **Total**

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Mercury	0.00	1	2	3	4	2207107-BLK1	NA	0.05
		0.00	0.00	-0.01	0.00	0.00	NA	
		5	6	7	8			
		0.00						
	0.00	1	2	3	4	NA	2207107-BLK2	0.05
		0.00	0.00	-0.01	0.00	NA	-0.01	
		5	6	7	8			
		0.00						

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: EPA 300.0

Analysis Name: WC - Anions by Ion Chromatography

Instrument: ESAT Dionex IC

Work Order: C220711

Analytical Sequence: 2207146 Dissolved

Concentration Units: mg/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Fluoride	0.00	1	2	3	4	2207138-BLK1	NA	0.20
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Chloride	0.00	1	2	3	4	2207138-BLK1	NA	2.00
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Bromide	0.00	1	2	3	4	2207138-BLK1	NA	0.50
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Sulfate as SO4	0.00	1	2	3	4	2207138-BLK1	NA	5.00
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Nitrate/Nitrite as N	0.00	1	2	3	4	2207138-BLK1	NA	1.00
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 245.1

Analysis Name: DM_Mercury 245.1

Instrument: NIC RA-4500

Work Order: C220711

Analytical Sequence: 2208017 **Dissolved**

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Mercury	0.00	1	2	3	4	2208016-BLK1	NA	0.05
		0.00	0.00	-0.01	0.00	0.00	NA	
		5	6	7	8			
		0.00						

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima

Work Order: C220711

Analytical Sequence: 2208105 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Aluminum	-0.60	1	2	3	4	2208055-BLK1	NA	100.00
		2.06	2.18	1.54		1.07	NA	
		5	6	7	8			
Barium	-0.16	1	2	3	4	2208055-BLK1	NA	5.00
		-0.41	0.09	-0.09		0.27	NA	
		5	6	7	8			
Beryllium	-0.05	1	2	3	4	2208055-BLK1	NA	5.00
		-0.17	-0.41	-0.22		-0.30	NA	
		5	6	7	8			
Calcium	-2.58	1	2	3	4	2208055-BLK1	NA	350.00
		-0.31	-3.72	-0.51		-6.80	NA	
		5	6	7	8			
Cadmium	-0.21	1	2	3	4	2208055-BLK1	NA	5.00
		-0.14	-0.53	-0.27		-0.55	NA	
		5	6	7	8			
Cobalt	-0.52	1	2	3	4	2208055-BLK1	NA	5.00
		-0.11	-0.86	-0.12		-0.40	NA	
		5	6	7	8			
Chromium	-0.05	1	2	3	4	2208055-BLK1	NA	5.00
		0.04	-0.27	-0.01		-0.20	NA	
		5	6	7	8			
Copper	0.41	1	2	3	4	2208055-BLK1	NA	12.00
		1.30	3.25	1.98		2.26	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima

Work Order: C220711

Analytical Sequence: 2208105 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Iron	0.32	1	2	3	4	2208055-BLK1	NA	250.00
		1.12	0.81	0.31		1.17	NA	
		5	6	7	8			
Potassium	16.98	1	2	3	4	2208055-BLK1	NA	1,000.00
		79.61	70.28	17.19		88.51	NA	
		5	6	7	8			
Magnesium	2.37	1	2	3	4	2208055-BLK1	NA	500.00
		0.94	0.19	1.27		1.58	NA	
		5	6	7	8			
Manganese	0.04	1	2	3	4	2208055-BLK1	NA	15.00
		-0.05	-0.01	-0.09		-0.02	NA	
		5	6	7	8			
Sodium	-7.14	1	2	3	4	2208055-BLK1	NA	1,000.00
		7.17	8.43	9.00		0.90	NA	
		5	6	7	8			
Nickel	2.96	1	2	3	4	2208055-BLK1	NA	10.00
		4.03	6.51	3.73		2.20	NA	
		5	6	7	8			
Lead	4.00	1	2	3	4	2208055-BLK1	NA	40.00
		6.08	-0.94	1.10		-4.04	NA	
		5	6	7	8			
Zinc	-1.63	1	2	3	4	2208055-BLK1	NA	30.00
		0.59	-1.12	-2.38		-2.34	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima

Work Order: C220711

Analytical Sequence: 2208105 **Dissolved**

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Silica (SiO2)	2.30	1	2	3	4	2208055-BLK1	NA	1,000.00
		3.53	4.10	5.40		14.85	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C220711

Analytical Sequence: 2208111 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Vanadium	-0.23	1	2	3	4	2208056-BLK1	NA	3.00
		-0.21	-0.25	-0.24		-0.17	NA	
		5	6	7	8			
Chromium	-0.40	1	2	3	4	2208056-BLK1	NA	2.00
		-0.43	-0.48	-0.51		-0.40	NA	
		5	6	7	8			
Cobalt	0.00	1	2	3	4	2208056-BLK1	NA	0.20
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Nickel	-0.01	1	2	3	4	2208056-BLK1	NA	1.00
		-0.01	0.00	-0.02		-0.05	NA	
		5	6	7	8			
Copper	0.02	1	2	3	4	2208056-BLK1	NA	1.00
		0.01	0.03	0.02		-0.05	NA	
		5	6	7	8			
Arsenic	-0.13	1	2	3	4	2208056-BLK1	NA	2.00
		-0.13	-0.22	-0.22		-0.12	NA	
		5	6	7	8			
Selenium	0.22	1	2	3	4	2208056-BLK1	NA	3.00
		-0.04	0.05	-0.04		-0.07	NA	
		5	6	7	8			
Molybdenum	0.11	1	2	3	4	2208056-BLK1	NA	1.00
		0.14	0.11	0.12		0.23	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C220711

Analytical Sequence: 2208111 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Silver	0.15	1	2	3	4	2208056-BLK1	NA	1.00
		0.26	0.14	0.14		0.18	NA	
		5	6	7	8			
Cadmium	0.02	1	2	3	4	2208056-BLK1	NA	0.20
		0.00	-0.01	0.00		-0.02	NA	
		5	6	7	8			
Antimony	0.34	1	2	3	4	2208056-BLK1	NA	1.00
		0.38	0.37	0.39		0.11	NA	
		5	6	7	8			
Barium	0.00	1	2	3	4	2208056-BLK1	NA	10.00
		-0.01	-0.01	0.00		-0.02	NA	
		5	6	7	8			
Thallium	0.01	1	2	3	4	2208056-BLK1	NA	2.00
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Lead	-0.02	1	2	3	4	2208056-BLK1	NA	0.20
		-0.02	-0.02	-0.02		-0.03	NA	
		5	6	7	8			
Uranium	0.00	1	2	3	4	2208056-BLK1	NA	0.20
		0.00	0.00	0.01		0.00	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima

Work Order: C220711

Analytical Sequence: 2209017 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Aluminum	0.25	1	2	3	4	2208117-BLK1	NA	100.00
		2.24	2.13	2.00		0.14	NA	
		5	6	7	8			
Beryllium	0.02	1	2	3	4	2208117-BLK1	NA	5.00
		0.01	0.04	0.02		0.02	NA	
		5	6	7	8			
Calcium	3.39	1	2	3	4	2208117-BLK1	NA	350.00
		1.52	5.61	8.41		-7.03	NA	
		5	6	7	8			
Cadmium	0.25	1	2	3	4	2208117-BLK1	NA	5.00
		-0.09	-0.22	-0.50		-0.58	NA	
		5	6	7	8			
Cobalt	0.12	1	2	3	4	2208117-BLK1	NA	5.00
		0.04	0.23	0.22		0.68	NA	
		5	6	7	8			
Chromium	0.77	1	2	3	4	2208117-BLK1	NA	6.00
		1.15	1.14	0.93		0.91	NA	
		5	6	7	8			
Copper	-0.24	1	2	3	4	2208117-BLK1	NA	12.00
		0.56	-0.19	0.44		0.62	NA	
		5	6	7	8			
Iron	0.29	1	2	3	4	2208117-BLK1	NA	250.00
		0.12	1.34	0.97		3.33	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima

Work Order: C220711

Analytical Sequence: 2209017 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Potassium	-6.32	1	2	3	4	2208117-BLK1	NA	1,000.00
		-38.79	-3.00	-3.54		28.53	NA	
		5	6	7	8			
Magnesium	0.51	1	2	3	4	2208117-BLK1	NA	500.00
		1.44	0.91	2.27		2.04	NA	
		5	6	7	8			
Manganese	0.03	1	2	3	4	2208117-BLK1	NA	15.00
		0.06	0.01	0.07		0.15	NA	
		5	6	7	8			
Sodium	9.61	1	2	3	4	2208117-BLK1	NA	1,000.00
		17.69	9.98	1.75		22.78	NA	
		5	6	7	8			
Nickel	-2.96	1	2	3	4	2208117-BLK1	NA	10.00
		-1.14	0.62	0.44		0.11	NA	
		5	6	7	8			
Silica (SiO2)	4.27	1	2	3	4	2208117-BLK1	NA	1,000.00
		2.00	6.19	4.72		23.28	NA	
		5	6	7	8			
Vanadium	-0.84	1	2	3	4	2208117-BLK1	NA	50.00
		-0.69	-1.34	-0.19		1.67	NA	
		5	6	7	8			
Zinc	0.93	1	2	3	4	2208117-BLK1	NA	30.00
		1.92	0.94	-1.48		0.41	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C220711

Analytical Sequence: 2209026 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Vanadium	-0.06	1	2	3	4	NA	2208117-BLK2	3.00
		-0.04	-0.02	-0.06		NA	-0.74	
		5	6	7	8			
Chromium	-0.21	1	2	3	4	NA	2208117-BLK2	2.00
		-0.17	-0.17	-0.16		NA	0.78	
		5	6	7	8			
Cobalt	0.00	1	2	3	4	NA	2208117-BLK2	0.20
		0.01	0.00	0.00		NA	0.00	
		5	6	7	8			
Nickel	-0.01	1	2	3	4	NA	2208117-BLK2	1.00
		-0.01	0.00	-0.01		NA	0.01	
		5	6	7	8			
Copper	-0.43	1	2	3	4	NA	2208117-BLK2	1.00
		-0.45	-0.44	-0.45		NA	-0.47	
		5	6	7	8			
Arsenic	-0.08	1	2	3	4	NA	2208117-BLK2	2.00
		-0.12	-0.08	-0.12		NA	0.79	
		5	6	7	8			
Selenium	0.18	1	2	3	4	NA	2208117-BLK2	3.00
		0.18	0.29	0.28		NA	0.27	
		5	6	7	8			
Molybdenum	0.13	1	2	3	4	NA	2208117-BLK2	1.00
		0.15	0.12	0.13		NA	0.28	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C220711

Analytical Sequence: 2209026 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Silver	0.09	1	2	3	4	NA	2208117-BLK2	1.00
		0.15	0.12	0.12		NA	0.03	
		5	6	7	8			
Cadmium	0.00	1	2	3	4	NA	2208117-BLK2	0.20
		0.01	-0.02	-0.01		NA	-0.05	
		5	6	7	8			
Antimony	0.39	1	2	3	4	NA	2208117-BLK2	1.00
		0.36	0.35	0.38		NA	0.08	
		5	6	7	8			
Barium	0.00	1	2	3	4	NA	2208117-BLK2	10.00
		0.01	0.00	0.00		NA	0.00	
		5	6	7	8			
Thallium	0.01	1	2	3	4	NA	2208117-BLK2	2.00
		0.07	0.02	0.02		NA	-0.02	
		5	6	7	8			
Lead	-0.02	1	2	3	4	NA	2208117-BLK2	0.20
		-0.01	-0.01	-0.02		NA	-0.02	
		5	6	7	8			
Uranium	0.00	1	2	3	4	NA	2208117-BLK2	0.20
		0.02	0.00	0.00		NA	0.00	
		5	6	7	8			

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT Region 8												
Initial and Continuing Calibration Verification Results												
Method: 245.1				Analysis Name: TM_Mercury 245.1								
Sequence:		Work Order: C220711				Units: ug/L						
Total Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Mercury				1			2			3		
				4			5			6		
				7			8			9		

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT Region 8												
Initial and Continuing Calibration Verification Results												
Mettler T5			Method: EPA 310.1				Analysis Name: WC - Alkalinity					
Sequence: 2207129			Work Order: C220711				Units: mg CaCO3 / L					
Total Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Total Alkalinity				1			2			3		
				100 108 108.0			100 109 109.0			100 108 108.0		
				4			5			6		
				7			8			9		

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT Region 8												
Initial and Continuing Calibration Verification Results												
NIC RA-4500			Method: 245.1			Analysis Name: TM_Mercury 245.1						
Sequence: 2207141			Work Order: C220711			Units: ug/L						
Total Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Mercury	5.00	5.11	102.2	1			2			3		
				5.00	5.09	101.8	5.00	5.04	100.8	5.00	5.09	101.8
				4			5			6		
				5.00	5.11	102.2	5.00	5.11	102.2			
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ESAT Dionex IC

Method: EPA 300.0

Analysis Name: WC - Anions by Ion Chromatography

Sequence: 2207146

Work Order: C220711

Units: mg/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Bromide	10.0	9.9	99.0		1			2			3	
				10.0	10.3	103.0	10.0	10.3	103.0	10.0	10.3	103.0
					4			5			6	
					7			8			9	
Chloride	40.0	40.0	100.0		1			2			3	
				40.0	40.4	101.0	40.0	40.4	101.0	40.0	40.3	100.8
					4			5			6	
					7			8			9	
Fluoride	4.00	3.7	92.5		1			2			3	
				4.00	4.2	105.0	4.00	4.3	107.5	4.00	4.2	105.0
					4			5			6	
					7			8			9	
Nitrate/Nitrite as N	20.0	20.0	100.0		1			2			3	
				20.0	20.2	101.0	20.0	20.3	101.5	20.0	20.2	101.0
					4			5			6	
					7			8			9	
Sulfate as SO4	100	101	101.0		1			2			3	
				100	101	101.0	100	101	101.0	100	101	101.0
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

NIC RA-4500

Method: 245.1

Analysis Name: DM_Mercury 245.1

Sequence: 2208017

Work Order: C220711

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Mercury	5.00	5.11	102.2	1			2			3		
				5.00	5.09	101.8	5.00	5.04	100.8	5.00	5.09	101.8
				4			5			6		
				5.00	5.11	102.2	5.00	5.11	102.2			
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2208105

Work Order: C220711

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	12500	12140	97.1	1			2			3		
				12500	12190	97.5	12500	12390	99.1	12500	12540	100.3
				4			5			6		
				7			8			9		
Barium	500	492.4	98.5	1			2			3		
				500	499.6	99.9	500	515.2	103.0	500	494.9	99.0
				4			5			6		
				7			8			9		
Beryllium	500	491.6	98.3	1			2			3		
				500	500.4	100.1	500	507.8	101.6	500	511.5	102.3
				4			5			6		
				7			8			9		
Cadmium	500	503.7	100.7	1			2			3		
				500	454.6	90.9	500	491.6	98.3	500	481.4	96.3
				4			5			6		
				7			8			9		
Calcium	12500	12310	98.5	1			2			3		
				12500	12360	98.9	12500	12770	102.2	12500	12210	97.7
				4			5			6		
				7			8			9		
Chromium	2500	2579	103.2	1			2			3		
				2500	2615	104.6	2500	2611	104.4	2500	2512	100.5
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2208105

Work Order: C220711

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Cobalt	500	510.0	102.0		1			2			3	
				500	452.9	90.6	500	484.5	96.9	500	476.4	95.3
					4			5			6	
					7			8			9	
Copper	1000	1034	103.4		1			2			3	
				1000	1038	103.8	1000	1046	104.6	1000	1012	101.2
					4			5			6	
					7			8			9	
Iron	12500	12040	96.3		1			2			3	
				12500	11920	95.4	12500	12090	96.7	12500	11870	95.0
					4			5			6	
					7			8			9	
Lead	2500	2563	102.5		1			2			3	
				2500	2293	91.7	2500	2460	98.4	2500	2405	96.2
					4			5			6	
					7			8			9	
Magnesium	12500	12070	96.6		1			2			3	
				12500	12000	96.0	12500	12140	97.1	12500	11870	95.0
					4			5			6	
					7			8			9	
Manganese	1000	976.5	97.7		1			2			3	
				1000	988.8	98.9	1000	999.4	99.9	1000	1013	101.3
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2208105

Work Order: C220711

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Nickel	2500	2607	104.3	1	2			3				
				2500	2592	103.7	2500	2606	104.2	2500	2496	99.8
				4	5			6				
		7	8			9						
Potassium	25000	24220	96.9	1	2			3				
				25000	24550	98.2	25000	24750	99.0	25000	24540	98.2
				4	5			6				
		7	8			9						
Silica (SiO2)	10000	10410	104.1	1	2			3				
				10000	10740	107.4	10000	10760	107.6	10000	10460	104.6
				4	5			6				
		7	8			9						
Sodium	12500	12020	96.2	1	2			3				
				12500	12040	96.3	12500	12040	96.3	12500	11980	95.8
				4	5			6				
		7	8			9						
Zinc	2500	2510	100.4	1	2			3				
				2500	2563	102.5	2500	2663	106.5	2500	2545	101.8
				4	5			6				
		7	8			9						

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2208111

Work Order: C220711

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	49.2	98.4		1			2			3	
				50.0	48.1	96.2	50.0	47.5	95.0	50.0	47.8	95.6
					4			5			6	
					7			8			9	
Arsenic	50.0	49.1	98.2		1			2			3	
				50.0	48.2	96.4	50.0	49.6	99.2	50.0	48.5	97.0
					4			5			6	
					7			8			9	
Barium	50.0	49.5	99.0		1			2			3	
				50.0	48.6	97.2	50.0	48.1	96.2	50.0	47.5	95.0
					4			5			6	
					7			8			9	
Cadmium	50.0	48.1	96.2		1			2			3	
				50.0	47.5	95.0	50.0	46.6	93.2	50.0	46.9	93.8
					4			5			6	
					7			8			9	
Chromium	50.0	49.4	98.8		1			2			3	
				50.0	49.8	99.6	50.0	48.0	96.0	50.0	49.1	98.2
					4			5			6	
					7			8			9	
Cobalt	50.0	49.9	99.8		1			2			3	
				50.0	48.7	97.4	50.0	48.3	96.6	50.0	48.2	96.4
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2208111

Work Order: C220711

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	50.0	49.1	98.2		1			2			3	
				50.0	49.2	98.4	50.0	47.9	95.8	50.0	48.4	96.8
					4			5			6	
					7			8			9	
Lead	50.0	49.6	99.2		1			2			3	
				50.0	48.8	97.6	50.0	49.0	98.0	50.0	49.0	98.0
					4			5			6	
					7			8			9	
Molybdenum	50.0	48.8	97.6		1			2			3	
				50.0	49.9	99.8	50.0	52.2	104.4	50.0	52.3	104.6
					4			5			6	
					7			8			9	
Nickel	50.0	50.0	100.0		1			2			3	
				50.0	49.7	99.4	50.0	48.9	97.8	50.0	49.0	98.0
					4			5			6	
					7			8			9	
Selenium	50.0	49.2	98.4		1			2			3	
				50.0	48.5	97.0	50.0	50.5	101.0	50.0	51.1	102.2
					4			5			6	
					7			8			9	
Silver	50.0	50.7	101.4		1			2			3	
				50.0	51.0	102.0	50.0	51.4	102.8	50.0	51.5	103.0
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2208111

Work Order: C220711

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Thallium	50.0	49.6	99.2	1			2			3		
				50.0	49.2	98.4	50.0	49.0	98.0	50.0	48.4	96.8
				4			5			6		
		7			8			9				
Uranium	50.0	48.5	97.0	1			2			3		
				50.0	48.0	96.0	50.0	48.5	97.0	50.0	48.6	97.2
				4			5			6		
		7			8			9				
Vanadium	50.0	48.3	96.6	1			2			3		
				50.0	48.7	97.4	50.0	46.5	93.0	50.0	47.8	95.6
				4			5			6		
		7			8			9				

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2209017

Work Order: C220711

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	12500	12270	98.2	1			2			3		
				12500	12140	97.1	12500	12150	97.2	12500	12160	97.3
				4			5			6		
		7			8			9				
Beryllium	500	507.9	101.6	1			2			3		
				500	506.5	101.3	500	507.6	101.5	500	509.1	101.8
				4			5			6		
		7			8			9				
Cadmium	500	513.2	102.6	1			2			3		
				500	493.6	98.7	500	479.8	96.0	500	510.5	102.1
				4			5			6		
		7			8			9				
Calcium	12500	12580	100.6	1			2			3		
				12500	11630	93.0	12500	11840	94.7	12500	12490	99.9
				4			5			6		
		7			8			9				
Chromium	2500	2616	104.6	1			2			3		
				2500	2573	102.9	2500	2647	105.9	2500	2518	100.7
				4			5			6		
		7			8			9				
Cobalt	500	513.0	102.6	1			2			3		
				500	497.2	99.4	500	483.7	96.7	500	512.0	102.4
				4			5			6		
		7			8			9				

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2209017

Work Order: C220711

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	1000	1036	103.6		1			2			3	
				1000	1023	102.3	1000	1045	104.5	1000	992.3	99.2
					4			5			6	
					7			8			9	
Iron	12500	12960	103.7		1			2			3	
				12500	12270	98.2	12500	12000	96.0	12500	12120	97.0
					4			5			6	
					7			8			9	
Magnesium	12500	12850	102.8		1			2			3	
				12500	12060	96.5	12500	11930	95.4	12500	11960	95.7
					4			5			6	
					7			8			9	
Manganese	1000	984.4	98.4		1			2			3	
				1000	973.9	97.4	1000	981.5	98.2	1000	981.2	98.1
					4			5			6	
					7			8			9	
Nickel	2500	2653	106.1		1			2			3	
				2500	2597	103.9	2500	2682	107.3	2500	2558	102.3
					4			5			6	
					7			8			9	
Potassium	25000	24250	97.0		1			2			3	
				25000	22860	91.4	25000	22740	91.0	25000	22850	91.4
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2209017

Work Order: C220711

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Silica (SiO ₂)	10000	10400	104.0	1			2			3		
				10000	10290	102.9	10000	10530	105.3	10000	9966	99.7
				4			5			6		
				7			8			9		
Sodium	12500	12680	101.4	1			2			3		
				12500	12020	96.2	12500	11840	94.7	12500	12000	96.0
				4			5			6		
				7			8			9		
Vanadium	1000	1043	104.3	1			2			3		
				1000	1038	103.8	1000	1058	105.8	1000	1001	100.1
				4			5			6		
				7			8			9		
Zinc	2500	2541	101.6	1			2			3		
				2500	2365	94.6	2500	2401	96.0	2500	2531	101.2
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2209026

Work Order: C220711

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	48.57	97.1		1			2			3	
				50.0	47.25	94.5	50.0	47.71	95.4	50.0	47.99	96.0
					4			5			6	
					7			8			9	
Arsenic	50.0	47.76	95.5		1			2			3	
				50.0	47.61	95.2	50.0	47.80	95.6	50.0	47.88	95.8
					4			5			6	
					7			8			9	
Barium	50.0	49.22	98.4		1			2			3	
				50.0	48.40	96.8	50.0	48.40	96.8	50.0	48.50	97.0
					4			5			6	
					7			8			9	
Cadmium	50.0	48.06	96.1		1			2			3	
				50.0	47.16	94.3	50.0	46.79	93.6	50.0	47.40	94.8
					4			5			6	
					7			8			9	
Chromium	50.0	49.97	99.9		1			2			3	
				50.0	46.93	93.9	50.0	48.32	96.6	50.0	48.32	96.6
					4			5			6	
					7			8			9	
Cobalt	50.0	48.69	97.4		1			2			3	
				50.0	47.60	95.2	50.0	48.90	97.8	50.0	48.32	96.6
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2209026

Work Order: C220711

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	50.0	47.27	94.5		1			2			3	
				50.0	45.48	91.0	50.0	45.63	91.3	50.0	45.94	91.9
					4			5			6	
					7			8			9	
Lead	50.0	48.88	97.8		1			2			3	
				50.0	47.63	95.3	50.0	47.98	96.0	50.0	47.74	95.5
					4			5			6	
					7			8			9	
Molybdenum	50.0	48.30	96.6		1			2			3	
				50.0	48.16	96.3	50.0	49.38	98.8	50.0	50.21	100.4
					4			5			6	
					7			8			9	
Nickel	50.0	48.33	96.7		1			2			3	
				50.0	47.17	94.3	50.0	47.54	95.1	50.0	47.30	94.6
					4			5			6	
					7			8			9	
Selenium	50.0	49.05	98.1		1			2			3	
				50.0	49.46	98.9	50.0	50.17	100.3	50.0	49.47	98.9
					4			5			6	
					7			8			9	
Silver	50.0	49.24	98.5		1			2			3	
				50.0	48.53	97.1	50.0	49.00	98.0	50.0	49.84	99.7
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2209026

Work Order: C220711

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Thallium	50.0	48.71	97.4	1			2			3		
				50.0	47.23	94.5	50.0	47.79	95.6	50.0	47.46	94.9
				4			5			6		
				7			8			9		
Uranium	50.0	48.04	96.1	1			2			3		
				50.0	46.64	93.3	50.0	46.86	93.7	50.0	46.97	93.9
				4			5			6		
				7			8			9		
Vanadium	50.0	47.60	95.2	1			2			3		
				50.0	45.42	90.8	50.0	46.91	93.8	50.0	46.97	93.9
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPMS-PE NEXION350D

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2208111	Analysis: ICPMS Diss. Metals					
Antimony	IFA1	0.3	ug/L			1.00
	IFB1	0.2	ug/L			1.00
Arsenic	IFA1	0.0	ug/L			2.00
	IFB1	18.7	ug/L	20	93	2.00
Barium	IFA1	0.1	ug/L			10.0
	IFB1	4.0	ug/L			10.0
Cadmium	IFA1	0.1	ug/L			0.200
	IFB1	19.0	ug/L	20	95	0.200
Chromium	IFA1	0.0	ug/L			2.00
	IFB1	19.4	ug/L	20	97	2.00
Cobalt	IFA1	0.0	ug/L			0.200
	IFB1	19.6	ug/L	20	98	0.200
Copper	IFA1	0.6	ug/L			1.00
	IFB1	20.1	ug/L	20	100	1.00
Lead	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Molybdenum	IFA1	197.8	ug/L	200	99	1.00
	IFB1	202.0	ug/L	200	101	1.00
Nickel	IFA1	0.7	ug/L			1.00
	IFB1	20.7	ug/L	20	104	1.00
Selenium	IFA1	-0.2	ug/L			3.00
	IFB1	-0.2	ug/L			3.00
Silver	IFA1	0.0	ug/L			1.00
	IFB1	17.9	ug/L	20	89	1.00
Thallium	IFA1	0.0	ug/L			2.00
	IFB1	0.0	ug/L			2.00
Uranium	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Vanadium	IFA1	-0.1	ug/L			3.00
	IFB1	-0.2	ug/L			3.00

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPMS-PE NEXION350D

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2209026	Analysis: ICPMS Tot. Rec. Metals					
Antimony	IFA1	0.3	ug/L			1.00
	IFB1	0.2	ug/L			1.00
Arsenic	IFA1	-0.1	ug/L			2.00
	IFB1	17.7	ug/L	20	88	2.00
Barium	IFA1	0.2	ug/L			10.0
	IFB1	3.9	ug/L			10.0
Cadmium	IFA1	0.1	ug/L			0.200
	IFB1	19.0	ug/L	20	95	0.200
Chromium	IFA1	0.3	ug/L			2.00
	IFB1	19.7	ug/L	20	99	2.00
Cobalt	IFA1	0.0	ug/L			0.200
	IFB1	19.4	ug/L	20	97	0.200
Copper	IFA1	0.2	ug/L			1.00
	IFB1	18.7	ug/L	20	94	1.00
Lead	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Molybdenum	IFA1	199.1	ug/L	200	100	1.00
	IFB1	198.2	ug/L	200	99	1.00
Nickel	IFA1	0.6	ug/L			1.00
	IFB1	19.4	ug/L	20	97	1.00
Selenium	IFA1	0.2	ug/L			3.00
	IFB1	0.0	ug/L			3.00
Silver	IFA1	0.0	ug/L			1.00
	IFB1	17.9	ug/L	20	90	1.00
Thallium	IFA1	0.0	ug/L			2.00
	IFB1	0.0	ug/L			2.00
Uranium	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Vanadium	IFA1	-0.1	ug/L			3.00
	IFB1	-0.1	ug/L			3.00

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT Region 8 ICP Interference Check Sample ICPOE - PE Optima

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2208105	Analysis: ICPOE Diss. Metals					
Aluminum	IFA1	65,988.0	ug/L	60,000	110	100
	IFB1	67,537.3	ug/L	60,000	113	100
Barium	IFA1	-3.5	ug/L			5.00
	IFB1	326.2	ug/L	300	109	5.00
Beryllium	IFA1	-0.4	ug/L			5.00
	IFB1	100.5	ug/L	100	101	5.00
Cadmium	IFA1	1.6	ug/L			5.00
	IFB1	270.3	ug/L	300	90	5.00
Calcium	IFA1	286,485.3	ug/L	300,000	95	350
	IFB1	292,871.5	ug/L	300,000	98	350
Chromium	IFA1	3.3	ug/L			5.00
	IFB1	325.8	ug/L	300	109	5.00
Cobalt	IFA1	-1.3	ug/L			5.00
	IFB1	261.2	ug/L	300	87	5.00
Copper	IFA1	-11.7	ug/L			3.00
	IFB1	295.9	ug/L	300	99	3.00
Iron	IFA1	240,270.3	ug/L	250,000	96	250
	IFB1	244,351.2	ug/L	250,000	98	250
Lead	IFA1	25.7	ug/L			40.0
	IFB1	936.3	ug/L	1,000	94	40.0
Magnesium	IFA1	136,619.6	ug/L	150,000	91	500
	IFB1	138,701.2	ug/L	150,000	92	500
Manganese	IFA1	-4.0	ug/L			15.0
	IFB1	186.4	ug/L	200	93	15.0
Nickel	IFA1	17.7	ug/L			10.0
	IFB1	316.3	ug/L	300	105	10.0
Potassium	IFA1	185.6	ug/L			1000
	IFB1	20,657.4	ug/L	20,000	103	1000
Silica (SiO2)	IFA1	-14.5	ug/L			1000
	IFB1	552.3	ug/L	500	110	1000
Sodium	IFA1	51,051.4	ug/L	50,000	102	1000
	IFB1	51,159.4	ug/L	50,000	102	1000
Zinc	IFA1	15.7	ug/L			30.0
	IFB1	326.2	ug/L	300	109	30.0

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPOE - PE Optima

Analyte

Check Sample

Result*

Units

True

%R

PQL

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2209017	Analysis: ICPOE Tot. Rec. Metals					
Aluminum	IFA1	64,631.6	ug/L	60,000	108	100
	IFB1	66,342.9	ug/L	60,000	111	100
Beryllium	IFA1	-0.2	ug/L			5.00
	IFB1	107.4	ug/L	100	107	5.00
Cadmium	IFA1	2.8	ug/L			5.00
	IFB1	315.2	ug/L	300	105	5.00
Calcium	IFA1	268,993.2	ug/L	300,000	90	350
	IFB1	278,106.0	ug/L	300,000	93	350
Chromium	IFA1	5.3	ug/L			5.00
	IFB1	349.3	ug/L	300	116	5.00
Cobalt	IFA1	0.3	ug/L			5.00
	IFB1	303.7	ug/L	300	101	5.00
Copper	IFA1	-10.1	ug/L			3.00
	IFB1	310.4	ug/L	300	103	3.00
Iron	IFA1	242,359.7	ug/L	250,000	97	250
	IFB1	248,052.7	ug/L	250,000	99	250
Magnesium	IFA1	136,022.3	ug/L	150,000	91	500
	IFB1	138,342.2	ug/L	150,000	92	500
Manganese	IFA1	-4.9	ug/L			15.0
	IFB1	193.8	ug/L	200	97	15.0
Nickel	IFA1	16.8	ug/L			10.0
	IFB1	336.5	ug/L	300	112	10.0
Potassium	IFA1	120.9	ug/L			1000
	IFB1	19,830.8	ug/L	20,000	99	1000
Silica (SiO2)	IFA1	2.8	ug/L			1000
	IFB1	545.7	ug/L	500	109	1000
Sodium	IFA1	50,565.8	ug/L	50,000	101	1000
	IFB1	50,895.5	ug/L	50,000	102	1000
Vanadium	IFA1	29.5	ug/L			50.0
	IFB1	358.6	ug/L	300	120	50.0
Zinc	IFA1	18.2	ug/L			30.0
	IFB1	295.8	ug/L	300	99	30.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT

Region 8

MRL Check

NIC RA-4500

Method Mercury only (Total) by EPA 245.1 / 7470A Method

Batch 2207107

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Mercury	0.0500	0.0522	104	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT

Region 8

MRL Check

Mettler T5

Method Classical Chemistry by EPA/ASTM/APHA Methods

Batch 2207127

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Total Alkalinity	5.00	5.57	111	mg CaCO3 / L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

TechLaw, Inc. - ESAT

Region 8

MRL Check

ESAT Dionex IC

Method Classical Chemistry by EPA/ASTM/APHA Methods**Batch** 2207138

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Bromide	1.00	0.9	89	mg/L
Chloride	5.00	4.8	96	mg/L
Fluoride	1.00	1.0	98	mg/L
Nitrate/Nitrite as N	2.00	2.0	100	mg/L
Sulfate as SO4	5.00	5.0	99	mg/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT

Region 8

MRL Check

NIC RA-4500

Method Mercury only (Dissolved) by EPA 245.1 / 7470A Method

Batch 2208016

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Mercury	0.0500	0.0522	104	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima****Method** Metals (Dissolved) by EPA 200/7000 Series Methods**Batch** 2208055

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Manganese	20.0	22.97	115	ug/L
Nickel	20.0	27.36	137	ug/L
Potassium	2000	1880	94	ug/L
Silica (SiO2)	500	585.2	117	ug/L
Lead	60.0	62.90	105	ug/L
Zinc	100	108.5	109	ug/L
Iron	200	185.8	93	ug/L
Sodium	2000	1848	92	ug/L
Aluminum	200	189.7	95	ug/L
Copper	20.0	22.00	110	ug/L
Cobalt	20.0	19.07	95	ug/L
Chromium	20.0	22.89	114	ug/L
Calcium	500	456.7	91	ug/L
Cadmium	20.0	18.97	95	ug/L

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT

Region 8

MRL Check

ICPOE - PE Optima

Method Metals (Dissolved) by EPA 200/7000 Series Methods

Batch 2208055

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Beryllium	10.0	9.777	98	ug/L
Barium	20.0	18.44	92	ug/L
Magnesium	2000	1830	92	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****CPMS-PE NEXION350I****Method** Metals (Dissolved) by EPA 200/7000 Series Methods**Batch** 2208056

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Molybdenum	2.00	1.95	97	ug/L
Lead	0.400	0.378	95	ug/L
Copper	2.00	2.08	104	ug/L
Cobalt	0.400	0.386	97	ug/L
Chromium	4.00	3.45	86	ug/L
Cadmium	0.400	0.412	103	ug/L
Barium	20.0	19.7	99	ug/L
Antimony	2.00	2.19	109	ug/L
Silver	2.00	2.02	101	ug/L
Arsenic	4.00	3.89	97	ug/L
Thallium	2.00	2.02	101	ug/L
Uranium	0.400	0.393	98	ug/L
Vanadium	4.00	3.70	93	ug/L
Selenium	4.00	4.44	111	ug/L

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8**

MRL Check

CPMS-PE NEXION350I

Method Metals (Dissolved) by EPA 200/7000 Series Methods

Batch 2208056

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Nickel	2.00	1.95	98	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima****Method** Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2208117

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Manganese	20.0	20.37	102	ug/L
Beryllium	10.0	9.659	97	ug/L
Cadmium	20.0	18.42	92	ug/L
Calcium	500	491.5	98	ug/L
Chromium	20.0	21.49	107	ug/L
Cobalt	20.0	19.66	98	ug/L
Copper	20.0	20.34	102	ug/L
Magnesium	2000	2019	101	ug/L
Thallium	2.00	2.014	101	ug/L
Nickel	20.0	22.29	111	ug/L
Potassium	2000	1917	96	ug/L
Silica (SiO2)	500	538.2	108	ug/L
Sodium	2000	2053	103	ug/L
Vanadium	100	94.92	95	ug/L

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima****Method** Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2208117

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Iron	200	214.9	107	ug/L
Copper	2.00	1.577	79	ug/L
Zinc	100	114.7	115	ug/L
Antimony	2.00	2.314	116	ug/L
Arsenic	4.00	3.655	91	ug/L
Barium	20.0	19.97	100	ug/L
Cadmium	0.400	0.3456	86	ug/L
Vanadium	4.00	3.693	92	ug/L
Cobalt	0.400	0.3992	100	ug/L
Aluminum	200	177.1	89	ug/L
Lead	0.400	0.3791	95	ug/L
Molybdenum	2.00	2.012	101	ug/L
Nickel	2.00	1.973	99	ug/L
Selenium	4.00	3.931	98	ug/L

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8**

MRL Check

CPMS-PE NEXION350I

Method Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2208117

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Silver	2.00	1.976	99	ug/L
Uranium	0.400	0.3870	97	ug/L
Chromium	4.00	3.716	93	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

Project Name: Ruby Mine_SW_JUL 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 245.1

Total

Sequence ID#:

Instrument ID #:

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2207107-MS4	Matrix Spike	07/26/22	22:52

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 310.1

Total

Sequence ID#: 2207129

Instrument ID #: Mettler T5

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2207127-SRM1	Reference	07/25/22	10:44
2207127-BLK1	Blank	07/25/22	10:46
2207127-MRL1	MRL Check	07/25/22	10:47
C220711-03	SO-RINSATE	07/25/22	10:48
2207127-DUP1	Duplicate	07/25/22	10:49
C220711-06	SW-3258	07/25/22	10:50
2207127-DUP2	Duplicate	07/25/22	10:52
C220711-09	sw-3259	07/25/22	10:53
C220711-12	SW-3262	07/25/22	10:54
2207129-CCV1	Calibration Check	07/25/22	10:56
2207129-CCB1	Calibration Blank	07/25/22	10:58
C220711-15	SW-3267	07/25/22	10:59
C220711-18	SW-3267	07/25/22	11:00
C220711-21	SW-3268	07/25/22	11:02
C220711-24	SW-3371-A	07/25/22	11:02
C220711-27	SW-3371-B	07/25/22	11:03
C220711-30	SW-3372-A	07/25/22	11:05
C220711-33	SW-3374	07/25/22	11:05
C220711-36	SW-3374	07/25/22	11:07
C220711-39	SW-3387	07/25/22	11:08
C220711-42	SW-3433	07/25/22	11:09
2207129-CCV2	Calibration Check	07/25/22	11:11
2207129-CCB2	Calibration Blank	07/25/22	11:14
C220711-45	SW-487-A	07/25/22	11:15
C220711-48	SW-489	07/25/22	11:16
C220711-51	SW-FB	07/25/22	11:18
C220711-54	SW-OPP	07/25/22	11:19
2207129-CCV3	Calibration Check	07/25/22	11:20
2207129-CCB3	Calibration Blank	07/25/22	11:23

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 245.1

Total

Sequence ID#: 2207141

Instrument ID #: NIC RA-4500

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2207141-ICV1	Initial Cal Check	07/26/22	21:41
2207141-ICB1	Initial Cal Blank	07/26/22	21:45
2207141-SCV1	Secondary Cal Check	07/26/22	21:49
2207107-MRL1	MRL Check	07/26/22	21:53
2207107-BLK1	Blank	07/26/22	21:57
2207107-BS1		07/26/22	22:01
C220711-04	SW-3258	07/26/22	22:05
2207107-DUP1	Duplicate	07/26/22	22:09
2207141-CCV1	Calibration Check	07/26/22	22:21
2207141-CCB1	Calibration Blank	07/26/22	22:25
C220711-07	sw-3259	07/26/22	22:40
2207107-MS3	Matrix Spike	07/26/22	22:44
C220711-01	SO-RINSATE	07/26/22	22:56
C220711-10	SW-3262	07/26/22	23:04
2207141-CCV2	Calibration Check	07/26/22	23:08
2207141-CCB2	Calibration Blank	07/26/22	23:12
C220711-13	SW-3267	07/26/22	23:20
C220711-16	SW-3267	07/26/22	23:28
C220711-19	SW-3268	07/26/22	23:35
C220711-22	SW-3371-A	07/26/22	23:43
C220711-25	SW-3371-B	07/26/22	23:51
2207141-CCV3	Calibration Check	07/26/22	23:55
2207141-CCB3	Calibration Blank	07/26/22	23:59
2207107-BLK2	Blank	07/27/22	00:03
2207107-BS2		07/27/22	00:07
C220711-28	SW-3372-A	07/27/22	00:15
C220711-31	SW-3374	07/27/22	00:22
C220711-34	SW-3374	07/27/22	00:30
C220711-37	SW-3387	07/27/22	00:38
2207141-CCV4	Calibration Check	07/27/22	00:42
2207141-CCB4	Calibration Blank	07/27/22	00:46
C220711-40	SW-3433	07/27/22	00:54
C220711-43	SW-487-A	07/27/22	01:02
C220711-46	SW-489	07/27/22	01:10
C220711-49	SW-FB	07/27/22	01:17
C220711-52	SW-OPP	07/27/22	01:25
2207141-CCB5	Calibration Blank	07/27/22	01:29
2207141-CCV5	Calibration Check	07/27/22	01:31

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 300.0

Dissolved

Sequence ID#: 2207146

Instrument ID #: ESAT Dionex IC

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2207146-ICV1	Initial Cal Check	07/26/22	23:44
2207146-ICB1	Initial Cal Blank	07/26/22	23:58
2207146-SCV1	Secondary Cal Check	07/27/22	00:13
2207138-BS1		07/27/22	00:27
2207138-BLK1	Blank	07/27/22	00:41
C220711-03	SO-RINSATE	07/27/22	00:55
C220711-06	SW-3258	07/27/22	01:09
C220711-09	sw-3259	07/27/22	01:24
C220711-12	SW-3262	07/27/22	01:38
C220711-15	SW-3267	07/27/22	01:52
2207138-MS1	Matrix Spike	07/27/22	02:06
C220711-18	SW-3267	07/27/22	02:20
2207146-CCV1	Calibration Check	07/27/22	02:35
2207146-CCB1	Calibration Blank	07/27/22	02:49
C220711-21	SW-3268	07/27/22	03:03
C220711-24	SW-3371-A	07/27/22	03:17
C220711-27	SW-3371-B	07/27/22	03:32
C220711-30	SW-3372-A	07/27/22	03:46
2207138-DUP1	Duplicate	07/27/22	04:00
2207138-MS2	Matrix Spike	07/27/22	04:14
C220711-33	SW-3374	07/27/22	04:28
C220711-36	SW-3374	07/27/22	04:43
C220711-39	SW-3387	07/27/22	04:57
C220711-42	SW-3433	07/27/22	05:11
2207146-CCV2	Calibration Check	07/27/22	05:25
2207146-CCB2	Calibration Blank	07/27/22	05:39
C220711-45	SW-487-A	07/27/22	05:54
C220711-48	SW-489	07/27/22	06:08
C220711-51	SW-FB	07/27/22	06:22
C220711-54	SW-OPP	07/27/22	06:36
2207138-MRL1	MRL Check	07/27/22	06:50
2207146-CCV3	Calibration Check	07/27/22	07:05
2207146-CCB3	Calibration Blank	07/27/22	07:19

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 245.1

Dissolved

Sequence ID#: 2208017

Instrument ID #: NIC RA-4500

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2208017-ICV1	Initial Cal Check	07/26/22	09:20
2208017-ICB1	Initial Cal Blank	07/26/22	09:20
2208017-SCV1	Secondary Cal Check	07/26/22	09:20
2208016-MRL1	MRL Check	07/26/22	09:20
2208016-BLK1	Blank	07/26/22	09:20
2208016-BS1		07/26/22	09:20
C220711-53	SW-OPP	07/26/22	09:20
2208017-CCV1	Calibration Check	07/26/22	09:20
2208017-CCB1	Calibration Blank	07/26/22	09:20
C220711-05	SW-3258	07/26/22	09:20
2208016-DUP1	Duplicate	07/26/22	09:20
2208016-MS1	Matrix Spike	07/26/22	09:20
C220711-08	sw-3259	07/26/22	09:20
2208016-MS2	Matrix Spike	07/26/22	09:20
C220711-02	SO-RINSATE	07/26/22	09:20
2208017-CCV2	Calibration Check	07/26/22	09:20
2208017-CCB2	Calibration Blank	07/26/22	09:20
C220711-11	SW-3262	07/26/22	09:20
C220711-14	SW-3267	07/26/22	09:20
C220711-17	SW-3267	07/26/22	09:20
C220711-20	SW-3268	07/26/22	09:20
C220711-23	SW-3371-A	07/26/22	09:20
2208017-CCV3	Calibration Check	07/26/22	09:20
2208017-CCB3	Calibration Blank	07/26/22	09:20
C220711-26	SW-3371-B	07/26/22	09:20
C220711-29	SW-3372-A	07/26/22	09:20
C220711-32	SW-3374	07/26/22	09:20
C220711-35	SW-3374	07/26/22	09:20
2208017-CCV4	Calibration Check	07/26/22	09:20
2208017-CCB4	Calibration Blank	07/26/22	09:20
C220711-38	SW-3387	07/26/22	09:20
C220711-41	SW-3433	07/26/22	09:20
C220711-44	SW-487-A	07/26/22	09:20
C220711-47	SW-489	07/26/22	09:20
C220711-50	SW-FB	07/26/22	09:20
2208017-CCV5	Calibration Check	07/26/22	09:20
2208017-CCB5	Calibration Blank	07/26/22	09:20

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.7

Dissolved

Sequence ID#: 2208105

Instrument ID #: ICPOE - PE Optima

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2208105-ICV1	Initial Cal Check	08/26/22	11:02
2208105-SCV1	Secondary Cal Check	08/26/22	11:07
2208105-ICB1	Initial Cal Blank	08/26/22	11:11
2208055-MRL1	MRL Check	08/26/22	11:15
2208105-IFA1	Interference Check A	08/26/22	11:21
2208105-IFB1	Interference Check B	08/26/22	11:26
2208055-BLK1	Blank	08/26/22	11:30
2208055-BS1		08/26/22	11:34
C220711-05	SW-3258	08/26/22	11:37
2208055-DUP1	Duplicate	08/26/22	11:40
2208105-SRD1	Serial Dilution	08/26/22	11:44
2208055-MS1	Matrix Spike	08/26/22	11:47
C220711-08	sw-3259	08/26/22	11:50
2208055-MS2	Matrix Spike	08/26/22	11:54
C220711-02	SO-RINSATE	08/26/22	11:57
2208105-CCV1	Calibration Check	08/26/22	12:04
2208105-CCB1	Calibration Blank	08/26/22	12:08
C220711-11	SW-3262	08/26/22	12:12
C220711-14	SW-3267	08/26/22	12:16
C220711-17	SW-3267	08/26/22	12:21
C220711-20	SW-3268	08/26/22	12:24
C220711-23	SW-3371-A	08/26/22	12:29
C220711-26	SW-3371-B	08/26/22	12:33
C220711-29	SW-3372-A	08/26/22	12:37
C220711-32	SW-3374	08/26/22	12:42
C220711-35	SW-3374	08/26/22	12:46
2208105-CCV2	Calibration Check	08/26/22	12:54
2208105-CCB2	Calibration Blank	08/26/22	12:59
C220711-38	SW-3387	08/26/22	13:02
C220711-41	SW-3433	08/26/22	13:05
C220711-44	SW-487-A	08/26/22	13:09
C220711-47	SW-489	08/26/22	13:12
C220711-50	SW-FB	08/26/22	13:16
C220711-53	SW-OPP	08/26/22	13:19
2208105-CCV3	Calibration Check	08/26/22	13:29
2208105-CCB3	Calibration Blank	08/26/22	13:34

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.8

Dissolved

Sequence ID#: 2208111

Instrument ID #: ICPMS-PE NEXION350D

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2208111-ICV1	Initial Cal Check	08/29/22	10:19
2208111-SCV1	Secondary Cal Check	08/29/22	10:24
2208111-ICB1	Initial Cal Blank	08/29/22	10:28
2208056-MRL1	MRL Check	08/29/22	10:32
2208111-IFA1	Interference Check A	08/29/22	10:35
2208111-IFB1	Interference Check B	08/29/22	10:39
2208056-BLK1	Blank	08/29/22	10:44
2208056-BS1		08/29/22	10:47
C220711-05	SW-3258	08/29/22	10:51
2208056-DUP1	Duplicate	08/29/22	10:55
2208111-SRD1	Serial Dilution	08/29/22	10:59
2208056-MS1	Matrix Spike	08/29/22	11:03
C220711-08	sw-3259	08/29/22	11:07
2208056-MS2	Matrix Spike	08/29/22	11:10
C220711-02	SO-RINSATE	08/29/22	11:14
2208111-CCV1	Calibration Check	08/29/22	11:22
2208111-CCB1	Calibration Blank	08/29/22	11:25
C220711-11	SW-3262	08/29/22	11:29
C220711-14	SW-3267	08/29/22	11:33
C220711-17	SW-3267	08/29/22	11:36
C220711-20	SW-3268	08/29/22	11:40
C220711-23	SW-3371-A	08/29/22	11:44
C220711-26	SW-3371-B	08/29/22	11:48
C220711-29	SW-3372-A	08/29/22	11:51
C220711-32	SW-3374	08/29/22	11:55
C220711-35	SW-3374	08/29/22	11:59
2208111-CCV2	Calibration Check	08/29/22	12:06
2208111-CCB2	Calibration Blank	08/29/22	12:10
C220711-38	SW-3387	08/29/22	12:14
C220711-41	SW-3433	08/29/22	12:17
C220711-44	SW-487-A	08/29/22	12:21
C220711-47	SW-489	08/29/22	12:25
C220711-50	SW-FB	08/29/22	12:29
C220711-53	SW-OPP	08/29/22	12:32
2208111-CCV3	Calibration Check	08/29/22	12:40
2208111-CCB3	Calibration Blank	08/29/22	12:44

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.7

Total Recoverable

Sequence ID#: 2209017

Instrument ID #: ICPOE - PE Optima

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2209017-ICV1	Initial Cal Check	09/06/22	10:47
2209017-SCV1	Secondary Cal Check	09/06/22	10:52
2209017-ICB1	Initial Cal Blank	09/06/22	10:56
2208117-MRL1	MRL Check	09/06/22	11:00
2209017-IFA1	Interference Check A	09/06/22	11:03
2209017-IFB1	Interference Check B	09/06/22	11:08
2208117-BLK1	Blank	09/06/22	11:13
2208117-SRM1	Reference	09/06/22	11:16
C220711-04	SW-3258	09/06/22	11:19
2208117-DUP1	Duplicate	09/06/22	11:23
2209017-SRD1	Serial Dilution	09/06/22	11:26
2208117-MS1	Matrix Spike	09/06/22	11:29
C220711-07	sw-3259	09/06/22	11:33
2208117-MS3	Matrix Spike	09/06/22	11:36
C220711-01	SO-RINSATE	09/06/22	11:39
2209017-CCV1	Calibration Check	09/06/22	11:46
2209017-CCB1	Calibration Blank	09/06/22	11:51
C220711-10	SW-3262	09/06/22	11:54
C220711-13	SW-3267	09/06/22	11:57
C220711-16	SW-3267	09/06/22	12:02
C220711-19	SW-3268	09/06/22	12:05
C220711-22	SW-3371-A	09/06/22	12:10
C220711-25	SW-3371-B	09/06/22	12:14
C220711-28	SW-3372-A	09/06/22	12:18
C220711-31	SW-3374	09/06/22	12:21
C220711-34	SW-3374	09/06/22	12:24
2209017-CCV2	Calibration Check	09/06/22	12:31
2209017-CCB2	Calibration Blank	09/06/22	12:36
C220711-37	SW-3387	09/06/22	12:39
C220711-40	SW-3433	09/06/22	12:44
C220711-43	SW-487-A	09/06/22	12:47
C220711-46	SW-489	09/06/22	12:50
C220711-49	SW-FB	09/06/22	12:54
C220711-52	SW-OPP	09/06/22	12:57
2209017-CCV3	Calibration Check	09/06/22	13:04
2209017-CCB3	Calibration Blank	09/06/22	13:08

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.8

Total Recoverable

Sequence ID#: 2209026

Instrument ID #: ICPMS-PE NEXION350D

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2209026-ICV1	Initial Cal Check	09/07/22	10:51
2209026-SCV1	Secondary Cal Check	09/07/22	10:55
2209026-ICB1	Initial Cal Blank	09/07/22	11:00
2208117-MRL2	MRL Check	09/07/22	11:04
2209026-IFA1	Interference Check A	09/07/22	11:07
2209026-IFB1	Interference Check B	09/07/22	11:11
2208117-BLK2	Blank	09/07/22	11:15
2208117-SRM2	Reference	09/07/22	11:19
C220711-04	SW-3258	09/07/22	11:23
2208117-DUP2	Duplicate	09/07/22	11:27
2209026-SRD1	Serial Dilution	09/07/22	11:31
2208117-MS2	Matrix Spike	09/07/22	11:35
C220711-07	sw-3259	09/07/22	11:39
2208117-MS4	Matrix Spike	09/07/22	11:42
C220711-01	SO-RINSATE	09/07/22	11:46
2209026-CCV1	Calibration Check	09/07/22	11:54
2209026-CCB1	Calibration Blank	09/07/22	11:57
C220711-10	SW-3262	09/07/22	12:01
C220711-13	SW-3267	09/07/22	12:05
C220711-16	SW-3267	09/07/22	12:09
C220711-19	SW-3268	09/07/22	12:12
C220711-22	SW-3371-A	09/07/22	12:16
C220711-25	SW-3371-B	09/07/22	12:20
C220711-28	SW-3372-A	09/07/22	12:24
C220711-31	SW-3374	09/07/22	12:27
C220711-34	SW-3374	09/07/22	12:31
2209026-CCV2	Calibration Check	09/07/22	12:39
2209026-CCB2	Calibration Blank	09/07/22	12:42
C220711-37	SW-3387	09/07/22	12:46
C220711-40	SW-3433	09/07/22	12:49
C220711-43	SW-487-A	09/07/22	12:53
C220711-46	SW-489	09/07/22	12:57
C220711-49	SW-FB	09/07/22	13:01
C220711-52	SW-OPP	09/07/22	13:05
2209026-CCV3	Calibration Check	09/07/22	13:12
2209026-CCB3	Calibration Blank	09/07/22	13:16



U.S. Environmental Protection Agency
Region 8
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 08/28/23

Subject: Analytical Results--- **Ruby Mine_SW_SEP 2022_A046 / A-046**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Jean Wyatt
Superfund
8EPR-F

Received Sample Set(s), [Work Order : Date Received]:
[C221001 : 09/28/2022]

Attached are the analytical results for the samples received from the Ruby Mine_SW_SEP 2022_A046 sampling event, according to TDF A-046. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction (TD).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

Laboratory policy is to dispose of any remaining sample 60 days after data analysis packages are delivered to EPA. If you would like the laboratory to retain the samples for a period longer than 60 days, please contact Don Goodrich within the 60 day period at (303) 312-6687.

TDF #: A-046

Case Narrative

C221001

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TD-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s).

Sample Receipt: Cooler temperature(s) were all within acceptable range less than or equal to 6 degrees celsius. The pH for all preserved samples >2; additional HNO₃ (Lot # 0000271456) was added at lab to all preserved samples on 09/29/2022 by LL. Two sample ID's were updated; details are in the included e-mail thread "Ruby Mine Analytical Services Request."

1. Initial and Continuing calibration blanks (ICBs and CCBs).

Exceptions: None.

2. Preparation (PB) / Method blanks (MB)

Exceptions: In ICP-MS sequence 2212077, BLK2 recovered less than 2PQL for Pb; no qualifiers assigned. The reporting limit for lead was raised from 0.20 ug/L to 0.30 ug/L.

3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.

Exceptions: In ICP-MS sequences 2212077 and 2212078, IFA1 recovered less than 2PQL for Pb; no qualifiers assigned. The reporting limit for lead was raised from 0.20 ug/L to 0.30 ug/L. In ICP-OE sequence 2212075, 2212076, 2212070, and 2212073, copper exhibited negative bias in the ICSA. Reported copper values were significantly above the level of bias. In ICP-OE sequences 2212075, 2212076, and 2212073, nickel was detected in the ICSA. The reporting limit for nickel was raised to 20 ug/L.

4. Initial and Continuing calibration verification analyses (ICVs, SCVs and CCVs).

Exceptions: In ICP-OE sequence 2212073, copper recovered high in the SCV. Reported copper detections were qualified "J" as estimated. In ICP-OE sequences 2212076, 2212070, and 2212073, nickel recovered high in the SCV. Nickel results were qualified "J" as estimated.

5. Laboratory Control Sample (LCS) or second source analysis or SRM.

Exceptions: None.

6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes.

PBS performed with analyses/methods requiring preparation or digestion prior to analysis.

Exceptions: None.

7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL, CRL, or MRL Check.

Exceptions: None.

8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.

Exceptions: None.

9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.

Exceptions: None.

10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory. Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x it's PQL).

Exceptions: None.

11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.

Exceptions: None.

12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.

Exceptions: None.

Comments: In anions sequence 2210122 all combined nitrate/nitrite results are J-flagged because samples were not preserved to pH < 2 with sulfuric acid as indicated in EPA Method 300.0.

In anions sequence 2210122 the sulfate result for sample C221001-33 is E-flagged for exceeding the high calibration standard.

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by > 4x.
NFGI	<i>USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review</i> , October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.
U	Analyte not detected at or above MDL qualifier
D	Diluted value qualifier.
E	Data estimated qualifier due to level above the upper linear reporting limit

TDF #: A-046**Method(s) Summary:**

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP-OE (ICP).
- Method 200.8 / 6020 using a Perkin-Elmer DRC IIe ICP-MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin-Elmer FIMS CVAA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18th Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg (milligram) equivalent CaCO₃ per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids.

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

From EPA's *In Vitro Bioaccessibility Assay for Lead in Soil*, Method 1340, Revision 1, February 2017, IVBA and RBA were calculated as follows:

$$\text{Arsenic \% IVBA} = \text{Arsenic by EPA 1340} / \text{Arsenic by EPA 200.8}$$

$$\text{Arsenic \% RBA} = (\text{Arsenic \% IVBA} * 0.79) + 3.0$$

$$\text{Lead \% IVBA} = \text{Lead by EPA 1340} / \text{Lead by EPA 200.8}$$

$$\text{Lead \% RBA} = (\text{Lead \% IVBA} * 0.878) - 2.8$$

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW_FB01
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 18:38
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-02 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	< 350	U	ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	< 500	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2211031
200.8	Barium	< 10.0	U	ug/L	5.00	1	12/27/2022	mjf	2211031
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Copper	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Nickel	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2211031
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2211031
2340B	Hardness	< 2		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW_FB02
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 18:39
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-05 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	< 350	U	ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	< 500	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2211031
200.8	Barium	< 10.0	U	ug/L	5.00	1	12/27/2022	mjf	2211031
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Copper	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Nickel	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2211031
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2211031
2340B	Hardness	< 2		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW_FB03
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 19:02
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-08 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	< 350	U	ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	< 500	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	< 1000	U	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2211031
200.8	Barium	< 10.0	U	ug/L	5.00	1	12/27/2022	mjf	2211031
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Copper	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Nickel	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2211031
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2211031
2340B	Hardness	< 2		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3258
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 11:08
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-11 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	2510		ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	15400		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	2800		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	45.9		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	409	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	5850		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1810		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	33.6		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2211031
200.8	Barium	42.0		ug/L	5.00	1	12/27/2022	mjf	2211031
200.8	Cadmium	0.239		ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Cobalt	5.23		ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Copper	246		ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Lead	0.263		ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Nickel	4.98		ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2211031
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Uranium	0.171	J	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2211031
2340B	Hardness	50		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3259
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 10:15
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-14 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	55.4	J	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	15600		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	2830		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	35.6		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	414	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	5870		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1910		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	31.5		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2211031
200.8	Barium	41.0		ug/L	5.00	1	12/27/2022	mjf	2211031
200.8	Cadmium	0.173	J	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Cobalt	3.83		ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Copper	147		ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Nickel	3.85		ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2211031
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2211031
2340B	Hardness	51		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 09:22
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-17 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	13800		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	2460		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	26.6		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	365	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	5650		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1910		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2211031
200.8	Barium	40.0		ug/L	5.00	1	12/27/2022	mjf	2211031
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Cobalt	1.90		ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Copper	18.7		ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Nickel	2.68		ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2211031
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2211031
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2211031
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2211031
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2211031
2340B	Hardness	45		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 09:22
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-20 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	14100		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	2490		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	26.9		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	400	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	5700		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1940		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/27/2022	mjf	2211031
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/27/2022	mjf	2211031
200.8	Barium	39.8	J	ug/L	25.0	5	12/27/2022	mjf	2211031
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2211031
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/27/2022	mjf	2211031
200.8	Cobalt	1.96		ug/L	0.500	5	12/27/2022	mjf	2211031
200.8	Copper	18.9		ug/L	2.50	5	12/27/2022	mjf	2211031
200.8	Lead	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2211031
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/27/2022	mjf	2211031
200.8	Nickel	2.75	J	ug/L	2.50	5	12/27/2022	mjf	2211031
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/27/2022	mjf	2211031
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/27/2022	mjf	2211031
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/27/2022	mjf	2211031
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2211031
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/27/2022	mjf	2211031
2340B	Hardness	45		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3267
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 12:17
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-23 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	15200		ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Barium	47.8		ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	18800		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Cobalt	14.9		ug/L	2.50	1	12/26/2022	mjf	2211030
200.7	Copper	837		ug/L	3.00	1	12/26/2022	mjf	2211030
200.7	Iron	434		ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	3340		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	104		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Nickel	8.68	J	ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Potassium	475	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	6820		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1750		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	92.6		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	12/27/2022	mjf	2211031
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Lead	1.26	J	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Selenium	< 30.0	U	ug/L	15.0	10	12/27/2022	mjf	2211031
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Thallium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/27/2022	mjf	2211031
2340B	Hardness	61		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 13:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-26 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	28500		ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Barium	37.4		ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	19800		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Cobalt	28.3		ug/L	2.50	1	12/26/2022	mjf	2211030
200.7	Copper	1640		ug/L	3.00	1	12/26/2022	mjf	2211030
200.7	Iron	9430		ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	4640		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	174		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Nickel	16.7	J	ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Potassium	515	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	7840		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1630		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	113		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 20.0	U	ug/L	10.0	20	12/27/2022	mjf	2211031
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	12/27/2022	mjf	2211031
200.8	Cadmium	< 4.00	U	ug/L	2.00	20	12/27/2022	mjf	2211031
200.8	Chromium	< 40.0	U	ug/L	20.0	20	12/27/2022	mjf	2211031
200.8	Lead	< 4.00	U	ug/L	2.00	20	12/27/2022	mjf	2211031
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	12/27/2022	mjf	2211031
200.8	Selenium	< 60.0	U	ug/L	30.0	20	12/27/2022	mjf	2211031
200.8	Silver	< 20.0	U	ug/L	10.0	20	12/27/2022	mjf	2211031
200.8	Thallium	< 40.0	U	ug/L	20.0	20	12/27/2022	mjf	2211031
200.8	Uranium	< 4.00	U	ug/L	2.00	20	12/27/2022	mjf	2211031
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	12/27/2022	mjf	2211031
2340B	Hardness	68		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 13:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-29 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	28600		ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Barium	37.1		ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	19800		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Cobalt	27.4		ug/L	2.50	1	12/26/2022	mjf	2211030
200.7	Copper	1610		ug/L	3.00	1	12/26/2022	mjf	2211030
200.7	Iron	9640		ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	4650		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	171		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Nickel	16.9	J	ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Potassium	556	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	7720		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1620		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	109		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 20.0	U	ug/L	10.0	20	12/27/2022	mjf	2211031
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	12/27/2022	mjf	2211031
200.8	Cadmium	< 4.00	U	ug/L	2.00	20	12/27/2022	mjf	2211031
200.8	Chromium	< 40.0	U	ug/L	20.0	20	12/27/2022	mjf	2211031
200.8	Lead	< 4.00	U	ug/L	2.00	20	12/27/2022	mjf	2211031
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	12/27/2022	mjf	2211031
200.8	Selenium	< 60.0	U	ug/L	30.0	20	12/27/2022	mjf	2211031
200.8	Silver	< 20.0	U	ug/L	10.0	20	12/27/2022	mjf	2211031
200.8	Thallium	< 40.0	U	ug/L	20.0	20	12/27/2022	mjf	2211031
200.8	Uranium	< 4.00	U	ug/L	2.00	20	12/27/2022	mjf	2211031
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	12/27/2022	mjf	2211031
2340B	Hardness	69		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3371A
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 13:50
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-32 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1030000		ug/L	2500	50	12/26/2022	mjf	2211030
200.7	Beryllium	< 250	U	ug/L	100	50	12/26/2022	mjf	2211030
200.7	Calcium	27800		ug/L	8750	50	12/26/2022	mjf	2211030
200.7	Cobalt	992		ug/L	25.0	10	12/26/2022	mjf	2211030
200.7	Copper	60600		ug/L	30.0	10	12/26/2022	mjf	2211030
200.7	Iron	1030000		ug/L	5000	50	12/26/2022	mjf	2211030
200.7	Magnesium	75100		ug/L	12500	50	12/26/2022	mjf	2211030
200.7	Manganese	1130		ug/L	375	50	12/26/2022	mjf	2211030
200.7	Nickel	569		ug/L	50.0	10	12/26/2022	mjf	2211030
200.7	Potassium	< 50000	U	ug/L	12500	50	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	59400		ug/L	12500	50	12/26/2022	mjf	2211030
200.7	Sodium	< 50000	U	ug/L	12500	50	12/26/2022	mjf	2211030
200.7	Zinc	1840		ug/L	1500	50	12/26/2022	mjf	2211030
200.8	Antimony	< 100	U	ug/L	50.0	100	12/27/2022	mjf	2211031
200.8	Arsenic	99.7	J	ug/L	60.0	100	12/27/2022	mjf	2211031
200.8	Barium	< 1000	U	ug/L	500	100	12/27/2022	mjf	2211031
200.8	Cadmium	14.4	J	ug/L	10.0	100	12/27/2022	mjf	2211031
200.8	Chromium	121	J	ug/L	100	100	12/27/2022	mjf	2211031
200.8	Lead	< 20.0	U	ug/L	10.0	100	12/27/2022	mjf	2211031
200.8	Molybdenum	< 100	U	ug/L	100	100	12/27/2022	mjf	2211031
200.8	Selenium	< 300	U	ug/L	150	100	12/27/2022	mjf	2211031
200.8	Silver	< 100	U	ug/L	50.0	100	12/27/2022	mjf	2211031
200.8	Thallium	< 200	U	ug/L	100	100	12/27/2022	mjf	2211031
200.8	Uranium	41.8		ug/L	10.0	100	12/27/2022	mjf	2211031
200.8	Vanadium	< 300	U	ug/L	200	100	12/27/2022	mjf	2211031
2340B	Hardness	379		mg/L	75	50	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3371B
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 15:19
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-35 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	50.2	J	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	15500		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	1030		ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	2360		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	207		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	544	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	6120		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1390		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	65.0		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	12/27/2022	mjf	2211031
200.8	Barium	< 100	U	ug/L	50.0	10	12/27/2022	mjf	2211031
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Cobalt	4.05		ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Copper	78.1		ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Nickel	5.17	J	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Selenium	< 30.0	U	ug/L	15.0	10	12/27/2022	mjf	2211031
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Thallium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/27/2022	mjf	2211031
2340B	Hardness	48		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3372A
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 14:28
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-38 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	11700		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	1770		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	40.8		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Potassium	438	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	5490		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1230		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	49.8		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	12/27/2022	mjf	2211031
200.8	Barium	< 100	U	ug/L	50.0	10	12/27/2022	mjf	2211031
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Cobalt	1.54	J	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Copper	40.0		ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Selenium	< 30.0	U	ug/L	15.0	10	12/27/2022	mjf	2211031
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Thallium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/27/2022	mjf	2211031
2340B	Hardness	36		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3374
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 11:45
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-41 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	14200		ug/L	50.0	1	12/26/2022	mjf	2211030
200.7	Barium	49.5		ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2211030
200.7	Calcium	18800		ug/L	175	1	12/26/2022	mjf	2211030
200.7	Cobalt	14.6		ug/L	2.50	1	12/26/2022	mjf	2211030
200.7	Copper	796		ug/L	3.00	1	12/26/2022	mjf	2211030
200.7	Iron	293		ug/L	100	1	12/26/2022	mjf	2211030
200.7	Magnesium	3260		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Manganese	101		ug/L	7.50	1	12/26/2022	mjf	2211030
200.7	Nickel	9.82	J	ug/L	5.00	1	12/26/2022	mjf	2211030
200.7	Potassium	461	J	ug/L	250	1	12/26/2022	mjf	2211030
200.7	Silica (SiO2)	6870		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Sodium	1630		ug/L	250	1	12/26/2022	mjf	2211030
200.7	Zinc	75.7		ug/L	30.0	1	12/26/2022	mjf	2211030
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	12/27/2022	mjf	2211031
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Lead	1.05	J	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Selenium	< 30.0	U	ug/L	15.0	10	12/27/2022	mjf	2211031
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2211031
200.8	Thallium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2211031
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2211031
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/27/2022	mjf	2211031
2340B	Hardness	60		mg/L	2	1	12/26/2022	mjf	2211030

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3387
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 11:34
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-44 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	12600		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	2450		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	29.9		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	354	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	5160		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	1960		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2212009
200.8	Barium	32.6		ug/L	5.00	1	12/27/2022	mjf	2212009
200.8	Cadmium	0.118	J	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Cobalt	2.74		ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Copper	70.6	J	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Nickel	2.83		ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2212009
200.8	Silver	0.634	J	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2212009
2340B	Hardness	42		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3433
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 11:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-47 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	12700		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	2450		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	30.3		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	374	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	5240		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	1950		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2212009
200.8	Barium	32.3		ug/L	5.00	1	12/27/2022	mjf	2212009
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Cobalt	2.74		ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Copper	70.8		ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Nickel	2.92		ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2212009
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2212009
2340B	Hardness	42		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-487A
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 14:20
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-50 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	7990		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	1090		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	275	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	3840		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	1030		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2212009
200.8	Barium	9.67	J	ug/L	5.00	1	12/27/2022	mjf	2212009
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Copper	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Nickel	0.542	J	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2212009
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2212009
2340B	Hardness	24		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-489
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 09:05
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-53 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	14200		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	2680		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	29.3		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	349	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	5530		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	2030		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Arsenic	< 2.00	U	ug/L	0.600	1	12/27/2022	mjf	2212009
200.8	Barium	41.9		ug/L	5.00	1	12/27/2022	mjf	2212009
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Chromium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Cobalt	1.85		ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Copper	22.6		ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Lead	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Molybdenum	< 1.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Nickel	2.64		ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Selenium	< 3.00	U	ug/L	1.50	1	12/27/2022	mjf	2212009
200.8	Silver	< 1.00	U	ug/L	0.500	1	12/27/2022	mjf	2212009
200.8	Thallium	< 2.00	U	ug/L	1.00	1	12/27/2022	mjf	2212009
200.8	Uranium	< 0.200	U	ug/L	0.100	1	12/27/2022	mjf	2212009
200.8	Vanadium	< 3.00	U	ug/L	2.00	1	12/27/2022	mjf	2212009
2340B	Hardness	46		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-B4-HSE
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 13:52
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-56 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	78.0	J	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	87200		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	19900		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	31.5		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	1040		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	4950		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	3970		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	34.4		ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	12/27/2022	mjf	2212009
200.8	Barium	125		ug/L	50.0	10	12/27/2022	mjf	2212009
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2212009
200.8	Cobalt	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Copper	6.58	J	ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	12/27/2022	mjf	2212009
200.8	Nickel	9.71	J	ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Selenium	< 30.0	U	ug/L	15.0	10	12/27/2022	mjf	2212009
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Thallium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2212009
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/27/2022	mjf	2212009
2340B	Hardness	300		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-DNS-RM
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 16:02
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-59 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	64800		ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Barium	13.0		ug/L	5.00	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	16700		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Chromium	7.82		ug/L	2.50	1	12/26/2022	mjf	2212008
200.7	Cobalt	64.0		ug/L	2.50	1	12/26/2022	mjf	2212008
200.7	Copper	3840		ug/L	3.00	1	12/26/2022	mjf	2212008
200.7	Iron	60600		ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	5750		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	316		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Nickel	44.6	J	ug/L	5.00	1	12/26/2022	mjf	2212008
200.7	Potassium	829	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	9530		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	1570		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	185		ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 50.0	U	ug/L	25.0	50	12/27/2022	mjf	2212009
200.8	Arsenic	< 100	U	ug/L	30.0	50	12/27/2022	mjf	2212009
200.8	Cadmium	< 10.0	U	ug/L	5.00	50	12/27/2022	mjf	2212009
200.8	Lead	< 10.0	U	ug/L	5.00	50	12/27/2022	mjf	2212009
200.8	Molybdenum	< 50.0	U	ug/L	50.0	50	12/27/2022	mjf	2212009
200.8	Selenium	< 150	U	ug/L	75.0	50	12/27/2022	mjf	2212009
200.8	Silver	< 50.0	U	ug/L	25.0	50	12/27/2022	mjf	2212009
200.8	Thallium	< 100	U	ug/L	50.0	50	12/27/2022	mjf	2212009
200.8	Uranium	< 10.0	U	ug/L	5.00	50	12/27/2022	mjf	2212009
200.8	Vanadium	< 150	U	ug/L	100	50	12/27/2022	mjf	2212009
2340B	Hardness	65		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RF-DNS-01
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 08:37
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-62 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	12900		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	2510		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	24.4		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	384	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	5380		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	1980		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Arsenic	< 20.0	U	ug/L	6.00	10	12/27/2022	mjf	2212009
200.8	Barium	< 100	U	ug/L	50.0	10	12/27/2022	mjf	2212009
200.8	Cadmium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Chromium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2212009
200.8	Cobalt	1.89	J	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Copper	25.6		ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Lead	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Molybdenum	< 10.0	U	ug/L	10.0	10	12/27/2022	mjf	2212009
200.8	Nickel	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Selenium	< 30.0	U	ug/L	15.0	10	12/27/2022	mjf	2212009
200.8	Silver	< 10.0	U	ug/L	5.00	10	12/27/2022	mjf	2212009
200.8	Thallium	< 20.0	U	ug/L	10.0	10	12/27/2022	mjf	2212009
200.8	Uranium	< 2.00	U	ug/L	1.00	10	12/27/2022	mjf	2212009
200.8	Vanadium	< 30.0	U	ug/L	20.0	10	12/27/2022	mjf	2212009
2340B	Hardness	43		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RF-UPS-01
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 18:25
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-65 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	6380		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	1410		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	388	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	4390		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	1640		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/27/2022	mjf	2212009
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/27/2022	mjf	2212009
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/27/2022	mjf	2212009
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Copper	2.77	J	ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Lead	0.508	J	ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/27/2022	mjf	2212009
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/27/2022	mjf	2212009
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/27/2022	mjf	2212009
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/27/2022	mjf	2212009
2340B	Hardness	22		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RMA1
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 14:55
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-68 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	70200		ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Barium	5.14		ug/L	5.00	1	12/26/2022	mjf	2212008
200.7	Beryllium	10.9		ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Cadmium	21.7		ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	274000		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Chromium	2.63	J	ug/L	2.50	1	12/26/2022	mjf	2212008
200.7	Cobalt	159		ug/L	2.50	1	12/26/2022	mjf	2212008
200.7	Copper	3130		ug/L	3.00	1	12/26/2022	mjf	2212008
200.7	Iron	269000		ug/L	100	1	12/26/2022	mjf	2212008
200.7	Lead	46.0		ug/L	20.0	1	12/26/2022	mjf	2212008
200.7	Magnesium	41000		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	10400		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Nickel	103	J	ug/L	5.00	1	12/26/2022	mjf	2212008
200.7	Potassium	8780		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Selenium	141	J	ug/L	125	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	17200		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	12800		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	1390		ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 50.0	U	ug/L	25.0	50	12/27/2022	mjf	2212009
200.8	Arsenic	< 100	U	ug/L	30.0	50	12/27/2022	mjf	2212009
200.8	Molybdenum	< 50.0	U	ug/L	50.0	50	12/27/2022	mjf	2212009
200.8	Silver	< 50.0	U	ug/L	25.0	50	12/27/2022	mjf	2212009
200.8	Thallium	< 100	U	ug/L	50.0	50	12/27/2022	mjf	2212009
200.8	Uranium	14.9		ug/L	5.00	50	12/27/2022	mjf	2212009
200.8	Vanadium	< 150	U	ug/L	100	50	12/27/2022	mjf	2212009
2340B	Hardness	853		mg/L	2	1	12/26/2022	mjf	2212008

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RMA1-UPS
EPA Tag No.: No Tag Prefix-BDate / Time Sampled: 09/27/22 15:45
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-71 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/26/2022	mjf	2212008
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/26/2022	mjf	2212008
200.7	Calcium	11300		ug/L	175	1	12/26/2022	mjf	2212008
200.7	Iron	< 250	U	ug/L	100	1	12/26/2022	mjf	2212008
200.7	Magnesium	1800		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Manganese	40.6		ug/L	7.50	1	12/26/2022	mjf	2212008
200.7	Potassium	376	J	ug/L	250	1	12/26/2022	mjf	2212008
200.7	Silica (SiO2)	5300		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Sodium	1250		ug/L	250	1	12/26/2022	mjf	2212008
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/26/2022	mjf	2212008
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/27/2022	mjf	2212009
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/27/2022	mjf	2212009
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/27/2022	mjf	2212009
200.8	Cobalt	1.82		ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Copper	47.5		ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Lead	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/27/2022	mjf	2212009
200.8	Nickel	3.03	J	ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/27/2022	mjf	2212009
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/27/2022	mjf	2212009
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/27/2022	mjf	2212009
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/27/2022	mjf	2212009
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/27/2022	mjf	2212009
2340B	Hardness	36		mg/L	2	1	12/26/2022	mjf	2212008

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW_FB01
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 18:38
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	< 350	U	ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	< 250	U	ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	< 500	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	0.553	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW_FB02
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 18:39
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	< 350	U	ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	< 250	U	ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	< 500	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW_FB03
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 19:02
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-07 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	< 350	U	ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	< 250	U	ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	< 500	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	< 1000	U	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	30.9		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3258
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 11:08
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-10 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3990		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	16500		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	1030		ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	3180		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	46.6		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	462	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	5910		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	2010		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	35.0		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	41.3	J	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	5.22		ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	263		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	1.19	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	5.56		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3259

Date / Time Sampled: 09/27/22 10:15

Workorder: C221001

EPA Tag No.: No Tag Prefix-A

Matrix: Surface Water

Lab Number: C221001-13 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	2490		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	15700		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	646		ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	3050		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	37.3		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	417	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	6210		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	2010		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	31.1		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	41.7	J	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	3.82		ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	188		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	0.742	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	4.05	J	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 09:22
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-16 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	677		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	14900		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	186	J	ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	2850		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	30.7		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	487	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	5760		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	2140		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	40.5	J	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	1.93		ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	43.2		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	0.548	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	2.95	J	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 09:22
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-19 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	670		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	14900		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	176	J	ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	2810		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	30.3		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	438	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	5770		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	2080		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	40.1	J	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	1.92		ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	42.9		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	2.73	J	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3267
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 12:17
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-22 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	15100		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Barium	56.2		ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	19900		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Cobalt	13.3		ug/L	2.50	1	12/21/2022	mjf	2211108
200.7	Copper	879		ug/L	3.00	1	12/21/2022	mjf	2211108
200.7	Iron	2070		ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	3850		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	108		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Nickel	12.9	J	ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Potassium	555	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	6950		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	1980		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	99.3		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Cadmium	0.745	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Lead	1.60		ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	0.893	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 13:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-25 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	29200		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Barium	43.7		ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	21300		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Cobalt	26.7		ug/L	2.50	1	12/21/2022	mjf	2211108
200.7	Copper	1720		ug/L	3.00	1	12/21/2022	mjf	2211108
200.7	Iron	24300		ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	5150		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	180		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Nickel	21.9	J	ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Potassium	644	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	7900		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	1800		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	110		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211108
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	12/26/2022	mjf	2211108
200.8	Cadmium	< 4.00	U	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Chromium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Lead	2.61	J	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Selenium	< 60.0	U	ug/L	30.0	20	12/26/2022	mjf	2211108
200.8	Silver	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211108
200.8	Thallium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Uranium	< 4.00	U	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 13:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-28 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	28900		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Barium	43.2		ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	21600		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Chromium	3.48	J	ug/L	2.50	1	12/21/2022	mjf	2211108
200.7	Cobalt	26.4		ug/L	2.50	1	12/21/2022	mjf	2211108
200.7	Copper	1690		ug/L	3.00	1	12/21/2022	mjf	2211108
200.7	Iron	24900		ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	5240		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	177		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Nickel	21.7	J	ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Potassium	596	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	7840		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	1870		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	109		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211108
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	12/26/2022	mjf	2211108
200.8	Cadmium	< 4.00	U	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Lead	2.41	J	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Selenium	< 60.0	U	ug/L	30.0	20	12/26/2022	mjf	2211108
200.8	Silver	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211108
200.8	Thallium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Uranium	< 4.00	U	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3371A
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 13:50
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-31 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1090000		ug/L	2500	50	12/21/2022	mjf	2211108
200.7	Beryllium	< 250	U	ug/L	100	50	12/21/2022	mjf	2211108
200.7	Calcium	30800		ug/L	8750	50	12/21/2022	mjf	2211108
200.7	Chromium	148		ug/L	12.5	5	12/21/2022	mjf	2211108
200.7	Cobalt	949		ug/L	12.5	5	12/21/2022	mjf	2211108
200.7	Copper	61400		ug/L	15.0	5	12/21/2022	mjf	2211108
200.7	Iron	1240000		ug/L	5000	50	12/21/2022	mjf	2211108
200.7	Magnesium	66600		ug/L	12500	50	12/21/2022	mjf	2211108
200.7	Manganese	1280		ug/L	375	50	12/21/2022	mjf	2211108
200.7	Nickel	684	J	ug/L	25.0	5	12/21/2022	mjf	2211108
200.7	Potassium	< 50000	U	ug/L	12500	50	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	62400		ug/L	12500	50	12/21/2022	mjf	2211108
200.7	Sodium	< 50000	U	ug/L	12500	50	12/21/2022	mjf	2211108
200.7	Zinc	2520		ug/L	1500	50	12/21/2022	mjf	2211108
200.8	Antimony	< 100	U	ug/L	50.0	100	12/26/2022	mjf	2211108
200.8	Arsenic	80.9	J	ug/L	60.0	100	12/26/2022	mjf	2211108
200.8	Barium	< 1000	U	ug/L	500	100	12/26/2022	mjf	2211108
200.8	Cadmium	16.3	J	ug/L	10.0	100	12/26/2022	mjf	2211108
200.8	Lead	< 30.0	U	ug/L	10.0	100	12/26/2022	mjf	2211108
200.8	Molybdenum	< 100	U	ug/L	100	100	12/26/2022	mjf	2211108
200.8	Selenium	< 300	U	ug/L	150	100	12/26/2022	mjf	2211108
200.8	Silver	< 100	U	ug/L	50.0	100	12/26/2022	mjf	2211108
200.8	Thallium	< 200	U	ug/L	100	100	12/26/2022	mjf	2211108
200.8	Uranium	41.8		ug/L	10.0	100	12/26/2022	mjf	2211108
200.8	Vanadium	< 300	U	ug/L	200	100	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3371B
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 15:19
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-34 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	3150		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	16800		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	1670		ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	2750		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	213		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	598	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	6450		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	1560		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	61.8		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	0.674	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	3.96		ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	184		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	0.944	J	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	5.68		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3372A
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 14:28
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-37 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1570		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	12300		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Iron	< 250	U	ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	2020		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	41.8		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Potassium	467	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	5870		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	1320		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	34.6		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211108
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211108
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Cobalt	1.52		ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Copper	131		ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Nickel	2.82	J	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211108
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211108
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211108
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211108
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3374
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 11:45
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-40 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	14800		ug/L	50.0	1	12/21/2022	mjf	2211108
200.7	Barium	55.6		ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/21/2022	mjf	2211108
200.7	Calcium	19600		ug/L	175	1	12/21/2022	mjf	2211108
200.7	Cobalt	12.4		ug/L	2.50	1	12/21/2022	mjf	2211108
200.7	Copper	836		ug/L	3.00	1	12/21/2022	mjf	2211108
200.7	Iron	8630		ug/L	100	1	12/21/2022	mjf	2211108
200.7	Magnesium	3640		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Manganese	104		ug/L	7.50	1	12/21/2022	mjf	2211108
200.7	Nickel	11.5	J	ug/L	5.00	1	12/21/2022	mjf	2211108
200.7	Potassium	523	J	ug/L	250	1	12/21/2022	mjf	2211108
200.7	Silica (SiO2)	6950		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Sodium	1770		ug/L	250	1	12/21/2022	mjf	2211108
200.7	Zinc	75.8		ug/L	30.0	1	12/21/2022	mjf	2211108
200.8	Antimony	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211108
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	12/26/2022	mjf	2211108
200.8	Cadmium	< 4.00	U	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Chromium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Lead	4.10	J	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Selenium	< 60.0	U	ug/L	30.0	20	12/26/2022	mjf	2211108
200.8	Silver	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211108
200.8	Thallium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211108
200.8	Uranium	< 4.00	U	ug/L	2.00	20	12/26/2022	mjf	2211108
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	12/26/2022	mjf	2211108

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3387
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 11:34
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-43 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	696		ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	13400		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	184	J	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	2590		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	31.5		ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	492	J	ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	5290		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	1990		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	32.8	J	ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	2.75		ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	94.0		ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	3.08	J	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-3433
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 11:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-46 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	560		ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	13200		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	116	J	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	2550		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	30.8		ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	378	J	ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	5280		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	1950		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	32.7	J	ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	2.79		ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	93.8		ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	3.17	J	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-487A
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 14:20
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-49 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	8810		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	< 250	U	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	1210		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	377	J	ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	3920		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	1050		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-489
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 09:05
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-52 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	758		ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	14200		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	178	J	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	2700		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	30.5		ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	376	J	ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	5720		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	1980		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	40.4	J	ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	1.79		ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	48.8		ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	2.88	J	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-B4-HSE
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 13:52
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-55 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1040		ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	93900		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	< 250	U	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	21700		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	29.7		ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	1090		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	5380		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	4240		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	58.2		ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	122		ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	0.522	J	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	1.01		ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	27.8		ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	9.32		ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	1.53		ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-DNS-RM
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 16:02
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-58 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	69800		ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Barium	16.2		ug/L	5.00	1	12/23/2022	mjf	2211109
200.7	Beryllium	2.04	J	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	18300		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Chromium	8.69		ug/L	2.50	1	12/23/2022	mjf	2211109
200.7	Cobalt	65.3		ug/L	2.50	1	12/23/2022	mjf	2211109
200.7	Copper	4180	J	ug/L	3.00	1	12/23/2022	mjf	2211109
200.7	Iron	74800		ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	6410		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	323		ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Nickel	49.3	J	ug/L	5.00	1	12/23/2022	mjf	2211109
200.7	Potassium	1040		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	10200		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	1680		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Vanadium	15.0	J	ug/L	12.5	1	12/23/2022	mjf	2211109
200.7	Zinc	202		ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211109
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	12/26/2022	mjf	2211109
200.8	Cadmium	< 4.00	U	ug/L	2.00	20	12/26/2022	mjf	2211109
200.8	Lead	2.28	J	ug/L	2.00	20	12/26/2022	mjf	2211109
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	12/26/2022	mjf	2211109
200.8	Selenium	< 60.0	U	ug/L	30.0	20	12/26/2022	mjf	2211109
200.8	Silver	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211109
200.8	Thallium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211109
200.8	Uranium	3.25	J	ug/L	2.00	20	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RF-DNS-01
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 08:37
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-61 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	734		ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	13600		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	185	J	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	2640		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	26.2		ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	419	J	ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	5600		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	2000		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	37.3	J	ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	1.65		ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	47.8		ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RF-UPS-01

Date / Time Sampled: 09/27/22 18:25

Workorder: C221001

EPA Tag No.: No Tag Prefix-A

Matrix: Surface Water

Lab Number: C221001-64 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 100	U	ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	6870		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	< 250	U	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	1540		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	< 15.0	U	ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	423	J	ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	4340		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	1680		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RMA1
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 14:55
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-67 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	71200		ug/L	250	5	12/23/2022	mjf	2211109
200.7	Beryllium	11.4	J	ug/L	10.0	5	12/23/2022	mjf	2211109
200.7	Cadmium	23.2	J	ug/L	10.0	5	12/23/2022	mjf	2211109
200.7	Calcium	265000		ug/L	875	5	12/23/2022	mjf	2211109
200.7	Cobalt	164		ug/L	12.5	5	12/23/2022	mjf	2211109
200.7	Copper	3250	J	ug/L	15.0	5	12/23/2022	mjf	2211109
200.7	Iron	272000		ug/L	500	5	12/23/2022	mjf	2211109
200.7	Magnesium	41000		ug/L	1250	5	12/23/2022	mjf	2211109
200.7	Manganese	10600		ug/L	37.5	5	12/23/2022	mjf	2211109
200.7	Nickel	107	J	ug/L	25.0	5	12/23/2022	mjf	2211109
200.7	Potassium	8770		ug/L	1250	5	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	17400		ug/L	1250	5	12/23/2022	mjf	2211109
200.7	Sodium	12500		ug/L	1250	5	12/23/2022	mjf	2211109
200.7	Zinc	1320		ug/L	150	5	12/23/2022	mjf	2211109
200.8	Antimony	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211109
200.8	Arsenic	< 40.0	U	ug/L	12.0	20	12/26/2022	mjf	2211109
200.8	Barium	< 200	U	ug/L	100	20	12/26/2022	mjf	2211109
200.8	Chromium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211109
200.8	Lead	38.4		ug/L	2.00	20	12/26/2022	mjf	2211109
200.8	Molybdenum	< 20.0	U	ug/L	20.0	20	12/26/2022	mjf	2211109
200.8	Selenium	< 60.0	U	ug/L	30.0	20	12/26/2022	mjf	2211109
200.8	Silver	< 20.0	U	ug/L	10.0	20	12/26/2022	mjf	2211109
200.8	Thallium	< 40.0	U	ug/L	20.0	20	12/26/2022	mjf	2211109
200.8	Uranium	11.1		ug/L	2.00	20	12/26/2022	mjf	2211109
200.8	Vanadium	< 60.0	U	ug/L	40.0	20	12/26/2022	mjf	2211109

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods

Station ID: GR/LC_SW-RMA1-UPS
EPA Tag No.: No Tag Prefix-ADate / Time Sampled: 09/27/22 15:45
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-70 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	1650		ug/L	50.0	1	12/23/2022	mjf	2211109
200.7	Beryllium	< 5.00	U	ug/L	2.00	1	12/23/2022	mjf	2211109
200.7	Calcium	11700		ug/L	175	1	12/23/2022	mjf	2211109
200.7	Iron	< 250	U	ug/L	100	1	12/23/2022	mjf	2211109
200.7	Magnesium	1920		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Manganese	41.7		ug/L	7.50	1	12/23/2022	mjf	2211109
200.7	Potassium	407	J	ug/L	250	1	12/23/2022	mjf	2211109
200.7	Silica (SiO2)	5630		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Sodium	1260		ug/L	250	1	12/23/2022	mjf	2211109
200.7	Zinc	< 30.0	U	ug/L	30.0	1	12/23/2022	mjf	2211109
200.8	Antimony	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Arsenic	< 10.0	U	ug/L	3.00	5	12/26/2022	mjf	2211109
200.8	Barium	< 50.0	U	ug/L	25.0	5	12/26/2022	mjf	2211109
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Chromium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Cobalt	1.62		ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Copper	138		ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Lead	< 1.50	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Molybdenum	< 5.00	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Nickel	2.57	J	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Selenium	< 15.0	U	ug/L	7.50	5	12/26/2022	mjf	2211109
200.8	Silver	< 5.00	U	ug/L	2.50	5	12/26/2022	mjf	2211109
200.8	Thallium	< 10.0	U	ug/L	5.00	5	12/26/2022	mjf	2211109
200.8	Uranium	< 1.00	U	ug/L	0.500	5	12/26/2022	mjf	2211109
200.8	Vanadium	< 15.0	U	ug/L	10.0	5	12/26/2022	mjf	2211109

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW_FB01
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 18:38
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-01 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW_FB02
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 18:39
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-04 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW_FB03
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 19:02
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-07 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3258
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 11:08
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-10 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3259
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 10:15
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-13 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 09:22
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-16 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 09:22
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-19 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3267
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 12:17
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-22 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 13:10
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-25 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 13:10
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-28 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3371A
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 13:50
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-31 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3371B
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 15:19
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-34 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3372A
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 14:28
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-37 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3374
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 11:45
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-40 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3387
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 11:34
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-43 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-3433
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 11:10
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-46 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-487A
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 14:20
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-49 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-489
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 09:05
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-52 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-B4-HSE
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 13:52
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-55 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-DNS-RM
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 16:02
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-58 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-RF-DNS-01
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 08:37
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-61 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-RF-UPS-01
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 18:25
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-64 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-RMA1
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 14:55
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-67 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

Mercury only (Total) by EPA 245.1 / 7470A Method

Station ID: GR/LC_SW-RMA1-UPS
EPA Tag No.: No Tag Prefix-A

Date / Time Sampled: 09/27/22 15:45
Matrix: Surface Water

Workorder: C221001
Lab Number: C221001-70 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
245.1	Mercury	< 0.0500	U	ug/L	0.0380	1	10/13/2022	mjf	2210039

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW_FB01
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 18:38
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	< 5.0	U	mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	12.6		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW_FB02
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 18:39
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-06 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	< 5.0	U	mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	11.6		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW_FB03
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 19:02
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-09 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	< 5.0	U	mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	14.6		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3258
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 11:08
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-12 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	0.3		mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	71.5		mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3259
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 10:15
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-15 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	10		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	58.4		mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 09:22
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-18 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	49.5		mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	5.91	J	mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3262
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 09:22
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-21 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	49.2		mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	7.39	J	mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3267
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 12:17
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-24 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	22		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	0.3		mg/L	0.1	1	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	167		mg/L	2.5	1	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 13:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-27 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	47		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 1.0	U	mg/L	0.5	2	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 4.0	U	mg/L	2.0	2	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	0.5		mg/L	0.2	2	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 2.0	J, U	mg/L	1.0	2	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	287		mg/L	5.0	2	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3268
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 13:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-30 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	48		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 1.0	U	mg/L	0.5	2	10/18/2022	DKK	2210107
EPA 300.0	Chloride	< 4.0	U	mg/L	2.0	2	10/18/2022	DKK	2210107
EPA 300.0	Fluoride	0.9		mg/L	0.2	2	10/18/2022	DKK	2210107
EPA 300.0	Nitrate/Nitrite as N	< 2.0	J, U	mg/L	1.0	2	10/18/2022	DKK	2210107
EPA 300.0	Sulfate as SO4	286		mg/L	5.0	2	10/18/2022	DKK	2210107
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3371A
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 13:50
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-33 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	19		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 10.0	U	mg/L	5.0	20	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 40.0	U	mg/L	20.0	20	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	14.5		mg/L	2.0	20	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 20.0	J, U	mg/L	10.0	20	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	9420		mg/L	50.0	20	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3371B
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 15:19
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-36 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	17		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	51.8		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	8.22	J	mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3372A
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 14:28
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-39 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	25.6		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	18.7		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3374
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 11:45
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-42 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	21		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	0.3		mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	160		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3387
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 11:34
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-45 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	43.7		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	8.03	J	mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-3433
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 11:10
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-48 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	43.5		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	8.24	J	mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-487A
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 14:20
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-51 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	4.9	J	mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	27.9		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-489
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 09:05
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-54 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	51.6		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	7.58	J	mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-B4-HSE
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 13:52
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-57 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 1.0	U	mg/L	0.5	2	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 4.0	U	mg/L	2.0	2	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	< 0.4	U	mg/L	0.2	2	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 2.0	J, U	mg/L	1.0	2	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	322		mg/L	5.0	2	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	28.7		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-DNS-RM
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 16:02
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-60 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	106		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 2.5	U	mg/L	1.2	5	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 10.0	U	mg/L	5.0	5	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	1.2		mg/L	0.5	5	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 5.0	J, U	mg/L	2.5	5	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	592		mg/L	12.5	5	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-RF-DNS-01
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 08:37
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-63 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	0.1	J	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	44.6		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	8.32	J	mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-RF-UPS-01
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 18:25
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-66 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	0.2		mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	6.9		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	22.5		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-RMA1
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 14:55
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-69 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	60		mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 2.5	U	mg/L	1.2	5	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 10.0	U	mg/L	5.0	5	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	4.1		mg/L	0.5	5	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 5.0	J, U	mg/L	2.5	5	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	1810		mg/L	12.5	5	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	< 10.0		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

Classical Chemistry by EPA/ASTM/APHA Methods

Station ID: GR/LC_SW-RMA1-UPS
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 09/27/22 15:45
Matrix: Surface WaterWorkorder: C221001
Lab Number: C221001-72 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
EPA 160.2	Total Suspended Solids	< 10	U	mg/L	10	1	10/04/2022	DKK	2210029
EPA 300.0	Bromide	< 0.5	U	mg/L	0.2	1	10/19/2022	DKK	2210108
EPA 300.0	Chloride	< 2.0	U	mg/L	1.0	1	10/19/2022	DKK	2210108
EPA 300.0	Fluoride	< 0.2	U	mg/L	0.1	1	10/19/2022	DKK	2210108
EPA 300.0	Nitrate/Nitrite as N	< 1.0	J, U	mg/L	0.5	1	10/19/2022	DKK	2210108
EPA 300.0	Sulfate as SO4	25.1		mg/L	2.5	1	10/19/2022	DKK	2210108
EPA 310.1	Total Alkalinity	19.5		mg CaCO3 / L	5.00	1	10/10/2022	mjf	2210034

"J" Qualifier indicates an estimated value

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

ICPMS-PE NEXION350

Batch 2211031 - No Lab Prep Req'd

Water

ICPMS-PE NEXION350D

Method Blank (2211031-BLK1)

Dilution Factor: 1

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	< 2.00	3.00	ug/L
Chromium	< 1.00	2.00	"
Cobalt	< 0.100	0.200	"
Nickel	< 0.500	1.00	"
Copper	< 0.500	1.00	"
Arsenic	< 0.600	2.00	"
Selenium	< 1.50	3.00	"
Molybdenum	< 1.00	1.00	"
Silver	< 0.500	1.00	"
Cadmium	< 0.100	0.200	"
Antimony	< 0.500	1.00	"
Barium	< 5.00	10.0	"
Thallium	< 1.00	2.00	"
Lead	< 0.100	0.200	"
Uranium	< 0.100	0.200	"

Method Blank Spike (2211031-BS1)

Dilution Factor: 1

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	97.6	3.00	ug/L	100	98	85-115
Chromium	96.9	2.00	"	100	97	85-115
Cobalt	95.6	0.200	"	100	96	85-115
Nickel	96.8	1.00	"	100	97	85-115
Copper	97.7	1.00	"	100	98	85-115
Arsenic	89.9	2.00	"	100	90	85-115
Selenium	491	3.00	"	500	98	85-115
Molybdenum	94.5	1.00	"	100	94	85-115
Silver	91.7	1.00	"	100	92	85-115
Cadmium	96.4	0.200	"	100	96	85-115
Antimony	95.6	1.00	"	100	96	85-115
Barium	95.8	10.0	"	100	96	85-115
Thallium	95.9	2.00	"	100	96	85-115
Lead	94.3	0.200	"	100	94	85-115
Uranium	96.4	0.200	"	100	96	85-115

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2211031 - No Lab Prep Req'd

Water

ICPMS-PE NEXION350D

Duplicate (2211031-DUP1)

Dilution Factor: 1

Source: C221001-11

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	< 2.00	3.00	ug/L		< 2.00				20
Chromium	< 1.00	2.00	"		< 1.00				20
Cobalt	4.91	0.200	"		5.23			6	20
Nickel	4.53	1.00	"		4.98			9	20
Copper	226	1.00	"		246			8	20
Arsenic	< 0.600	2.00	"		< 0.600				20
Selenium	< 1.50	3.00	"		< 1.50				20
Molybdenum	< 1.00	1.00	"		< 1.00				20
Silver	< 0.500	1.00	"		< 0.500				20
Cadmium	0.231	0.200	"		0.239			3	20
Antimony	< 0.500	1.00	"		< 0.500				20
Barium	41.3	10.0	"		42.0			2	20
Thallium	< 1.00	2.00	"		< 1.00				20
Lead	0.271	0.200	"		0.263			3	20
Uranium	0.179	0.200	"		0.171			5	20

Matrix Spike (2211031-MS1)

Dilution Factor: 1

Source: C221001-11

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	92.6	3.00	ug/L	100	< 2.00	93	70-130
Chromium	93.0	2.00	"	100	< 1.00	93	70-130
Cobalt	100	0.200	"	100	5.23	95	70-130
Nickel	98.4	1.00	"	100	4.98	93	70-130
Copper	325	1.00	"	100	246	79	70-130
Arsenic	96.4	2.00	"	100	< 0.600	96	70-130
Selenium	534	3.00	"	500	< 1.50	107	70-130
Molybdenum	97.4	1.00	"	100	< 1.00	97	70-130
Silver	91.9	1.00	"	100	< 0.500	92	70-130
Cadmium	97.3	0.200	"	100	0.239	97	70-130
Antimony	99.2	1.00	"	100	< 0.500	99	70-130
Barium	135	10.0	"	100	42.0	93	70-130
Thallium	101	2.00	"	100	< 1.00	101	70-130
Lead	100	0.200	"	100	0.263	100	70-130
Uranium	106	0.200	"	100	0.171	106	70-130

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2211031 - No Lab Prep Req

Water

ICPMS-PE NEXION350D

Matrix Spike (2211031-MS2)

Dilution Factor: 1

Source: C221001-14

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	92.8	3.00	ug/L	100	< 2.00	93	70-130
Chromium	93.4	2.00	"	100	< 1.00	93	70-130
Cobalt	97.0	0.200	"	100	3.83	93	70-130
Nickel	96.5	1.00	"	100	3.85	93	70-130
Copper	228	1.00	"	100	147	82	70-130
Arsenic	93.8	2.00	"	100	< 0.600	94	70-130
Selenium	526	3.00	"	500	< 1.50	105	70-130
Molybdenum	97.6	1.00	"	100	< 1.00	98	70-130
Silver	93.0	1.00	"	100	< 0.500	93	70-130
Cadmium	96.3	0.200	"	100	0.173	96	70-130
Antimony	98.0	1.00	"	100	< 0.500	98	70-130
Barium	134	10.0	"	100	41.0	92	70-130
Thallium	101	2.00	"	100	< 1.00	101	70-130
Lead	99.6	0.200	"	100	< 0.100	100	70-130
Uranium	103	0.200	"	100	< 0.100	103	70-130

Batch 2212009 - No Lab Prep Req

Water

ICPMS-PE NEXION350D

Method Blank (2212009-BLK1)

Dilution Factor: 1

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	< 2.00	3.00	ug/L
Chromium	< 1.00	2.00	"
Cobalt	< 0.100	0.200	"
Nickel	< 0.500	1.00	"
Copper	< 0.500	1.00	"
Arsenic	< 0.600	2.00	"
Selenium	< 1.50	3.00	"
Molybdenum	< 1.00	1.00	"
Silver	< 0.500	1.00	"
Cadmium	< 0.100	0.200	"
Antimony	< 0.500	1.00	"
Barium	< 5.00	10.0	"
Thallium	< 1.00	2.00	"
Lead	< 0.100	0.200	"
Uranium	< 0.100	0.200	"

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2212009 - No Lab Prep Req'd

Water

ICPMS-PE NEXION350D

Method Blank Spike (2212009-BS1)

Dilution Factor: 1

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	96.2	3.00	ug/L	100		96	85-115		
Chromium	94.5	2.00	"	100		95	85-115		
Cobalt	93.5	0.200	"	100		94	85-115		
Nickel	94.6	1.00	"	100		95	85-115		
Copper	94.8	1.00	"	100		95	85-115		
Arsenic	89.4	2.00	"	100		89	85-115		
Selenium	492	3.00	"	500		98	85-115		
Molybdenum	96.5	1.00	"	100		96	85-115		
Silver	91.2	1.00	"	100		91	85-115		
Cadmium	95.9	0.200	"	100		96	85-115		
Antimony	94.8	1.00	"	100		95	85-115		
Barium	94.4	10.0	"	100		94	85-115		
Thallium	94.5	2.00	"	100		94	85-115		
Lead	95.0	0.200	"	100		95	85-115		
Uranium	95.0	0.200	"	100		95	85-115		

Duplicate (2212009-DUP1)

Dilution Factor: 1

Source: C221001-44

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	< 2.00	3.00	ug/L	< 2.00					20
Chromium	< 1.00	2.00	"	< 1.00					20
Cobalt	2.70	0.200	"	2.74				2	20
Nickel	2.90	1.00	"	2.83				2	20
Copper	69.6	1.00	"	70.6				1	20
Arsenic	< 0.600	2.00	"	< 0.600					20
Selenium	< 1.50	3.00	"	< 1.50					20
Molybdenum	< 1.00	1.00	"	< 1.00					20
Silver	< 0.500	1.00	"	0.634					20
Cadmium	< 0.100	0.200	"	0.118					20
Antimony	< 0.500	1.00	"	< 0.500					20
Barium	32.5	10.0	"	32.6				0.4	20
Thallium	< 1.00	2.00	"	< 1.00					20
Lead	< 0.100	0.200	"	< 0.100					20
Uranium	< 0.100	0.200	"	< 0.100					20

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2212009 - No Lab Prep Req'd

Water

ICPMS-PE NEXION350D

Matrix Spike (2212009-MS1)

Dilution Factor: 1

Source: C221001-44

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	92.0	3.00	ug/L	100	< 2.00	92	70-130		
Chromium	92.4	2.00	"	100	< 1.00	92	70-130		
Cobalt	95.5	0.200	"	100	2.74	93	70-130		
Nickel	96.0	1.00	"	100	2.83	93	70-130		
Copper	157	1.00	"	100	70.6	86	70-130		
Arsenic	93.0	2.00	"	100	< 0.600	93	70-130		
Selenium	518	3.00	"	500	< 1.50	104	70-130		
Molybdenum	94.2	1.00	"	100	< 1.00	94	70-130		
Silver	89.0	1.00	"	100	0.634	88	70-130		
Cadmium	96.2	0.200	"	100	0.118	96	70-130		
Antimony	96.0	1.00	"	100	< 0.500	96	70-130		
Barium	124	10.0	"	100	32.6	92	70-130		
Thallium	97.9	2.00	"	100	< 1.00	98	70-130		
Lead	96.4	0.200	"	100	< 0.100	96	70-130		
Uranium	98.8	0.200	"	100	< 0.100	99	70-130		

Batch 2212079 - 2211031

Water

ICPMS-PE NEXION350D

Serial Dilution (2212079-SRD1)

Dilution Factor: 5

Source: C221001-11

Prepared: 12/02/22 Analyzed: 12/27/22

Vanadium	< 3.00	10.0	ug/L	< 0.60				10
Chromium	< 3.00	10.0	"	< 0.60				10
Cobalt	5.17	10.0	"	5.23			1	10
Nickel	4.62	10.0	"	4.98			7	10
Copper	244	10.0	"	246			1	10
Arsenic	< 3.00	10.0	"	< 0.60				10
Selenium	< 3.00	10.0	"	< 0.60				10
Molybdenum	< 3.00	10.0	"	< 0.60				10
Silver	< 3.00	10.0	"	< 0.60				10
Cadmium	< 3.00	10.0	"	< 0.60				10
Antimony	< 3.00	10.0	"	< 0.60				10
Barium	41.2	10.0	"	42.0			2	10
Thallium	< 3.00	10.0	"	< 0.60				10
Lead	< 3.00	10.0	"	< 0.60				10
Uranium	< 3.00	10.0	"	< 0.60				10

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2212082 - 2212009			Water				ICPMS-PE NEXION350D		
Serial Dilution (2212082-SRD1)		Dilution Factor: 5		Source: C221001-44		Prepared: 12/02/22		Analyzed: 12/27/22	
Vanadium	< 7.50	15.0	ug/L		< 1.50				10
Chromium	< 7.50	15.0	"		< 1.50				10
Cobalt	< 7.50	15.0	"		< 1.50				10
Nickel	< 7.50	15.0	"		< 1.50				10
Copper	69.3	15.0	"		70.6			2	10
Arsenic	< 7.50	15.0	"		< 1.50				10
Selenium	< 7.50	15.0	"		< 1.50				10
Molybdenum	< 7.50	15.0	"		< 1.50				10
Silver	< 7.50	15.0	"		< 1.50				10
Cadmium	< 7.50	15.0	"		< 1.50				10
Antimony	< 7.50	15.0	"		< 1.50				10
Barium	32.6	15.0	"		32.6			0.1	10
Thallium	< 7.50	15.0	"		< 1.50				10
Lead	< 7.50	15.0	"		< 1.50				10
Uranium	< 7.50	15.0	"		< 1.50				10

ICPOE - PE Optima A

Batch 2211030 - No Lab Prep Req'd		Water		ICPOE - PE Optima A	
Method Blank (2211030-BLK1)		Dilution Factor: 1		Prepared: 12/02/22 Analyzed: 12/26/22	
Aluminum	< 50.0	100	ug/L		
Barium	< 5.00	5.00	"		
Beryllium	< 2.00	5.00	"		
Calcium	< 175	350	"		
Cobalt	< 2.50	5.00	"		
Copper	< 3.00	3.00	"		
Iron	< 100	250	"		
Potassium	< 250	1000	"		
Magnesium	< 250	500	"		
Manganese	< 7.50	15.0	"		
Sodium	< 250	1000	"		
Nickel	< 5.00	20.0	"		
Zinc	< 30.0	30.0	"		
Silica (SiO2)	< 250	1000	"		

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2211030 - No Lab Prep Req'd				Water			ICPOE - PE Optima A		
Method Blank Spike (2211030-BS1)		Dilution Factor: 1			Prepared: 12/02/22 Analyzed: 12/26/22				
Aluminum	10000	100	ug/L	10100		99	85-115		
Barium	88.21	5.00	"	100		88	85-115		
Beryllium	101.4	5.00	"	100		101	85-115		
Calcium	9409	350	"	10100		93	85-115		
Cobalt	100.1	5.00	"	100		100	85-115		
Copper	97.46	3.00	"	100		97	85-115		
Iron	9294	250	"	10100		92	85-115		
Potassium	9392	1000	"	10100		93	85-115		
Magnesium	9633	500	"	10100		95	85-115		
Manganese	93.72	15.0	"	100		94	85-115		
Sodium	9401	1000	"	10100		93	85-115		
Nickel	97.41	20.0	"	100		97	85-115		
Zinc	105.2	30.0	"	100		105	85-115		
Silica (SiO2)	< 250	1000	"				85-115		
Duplicate (2211030-DUP1)		Dilution Factor: 1		Source: C221001-11		Prepared: 12/02/22 Analyzed: 12/26/22			
Aluminum	2422	100	ug/L		2509			4	20
Beryllium	< 2.00	5.00	"		< 2.00				20
Calcium	15560	350	"		15370			1	20
Iron	< 100	250	"		< 100				20
Potassium	383.7	1000	"		409.3			6	20
Magnesium	2838	500	"		2803			1	20
Manganese	44.46	15.0	"		45.92			3	20
Sodium	1834	1000	"		1814			1	20
Zinc	46.39	30.0	"		33.61			32	20
Silica (SiO2)	5627	1000	"		5847			4	20
Matrix Spike (2211030-MS1)		Dilution Factor: 1		Source: C221001-11		Prepared: 12/02/22 Analyzed: 12/26/22			
Aluminum	12720	100	ug/L	10100	2509	101	70-130		
Beryllium	103.9	5.00	"	100	< 2.00	104	70-130		
Calcium	24590	350	"	10100	15370	91	70-130		
Iron	9676	250	"	10100	< 100	96	70-130		
Potassium	10130	1000	"	10100	409.3	96	70-130		
Magnesium	12240	500	"	10100	2803	93	70-130		
Manganese	143.1	15.0	"	100	45.92	97	70-130		
Sodium	11270	1000	"	10100	1814	94	70-130		
Zinc	118.3	30.0	"	100	33.61	85	70-130		
Silica (SiO2)	5805	1000	"		5847		70-130		

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2211030 - No Lab Prep Req'd

Water

ICPOE - PE Optima A

Matrix Spike (2211030-MS2)

Dilution Factor: 1

Source: C221001-14

Prepared: 12/02/22 Analyzed: 12/26/22

Aluminum	10380	100	ug/L	10100	55.43	102	70-130		
Beryllium	103.9	5.00	"	100	< 2.00	104	70-130		
Calcium	24620	350	"	10100	15570	90	70-130		
Iron	9707	250	"	10100	< 100	96	70-130		
Potassium	10220	1000	"	10100	413.7	97	70-130		
Magnesium	12390	500	"	10100	2829	95	70-130		
Manganese	132.1	15.0	"	100	35.65	96	70-130		
Sodium	11560	1000	"	10100	1912	96	70-130		
Zinc	125.0	30.0	"	100	31.55	93	70-130		
Silica (SiO2)	5777	1000	"		5871		70-130		

Batch 2212075 - 2211030

Water

ICPOE - PE Optima A

Serial Dilution (2212075-SRD1)

Dilution Factor: 5

Source: C221001-11

Prepared: 12/02/22 Analyzed: 12/26/22

Aluminum	2370	5000	ug/L	2509		6	10
Beryllium	< 1250	5000	"	< 250.00			10
Calcium	14650	5000	"	15370		5	10
Iron	< 1250	5000	"	< 250.00			10
Potassium	< 1250	5000	"	< 250.00			10
Magnesium	2681	5000	"	2803		4	10
Manganese	< 1250	5000	"	< 250.00			10
Sodium	1752	5000	"	1814		3	10
Zinc	< 1250	5000	"	< 250.00			10
Silica (SiO2)	5591	5000	"	5847		4	10

ICPOE - PE Optima B

Batch 2212008 - No Lab Prep Req'd

Water

ICPOE - PE Optima B

Method Blank (2212008-BLK1)

Dilution Factor: 1

Prepared: 12/02/22 Analyzed: 12/26/22

Aluminum	< 50.0	100	ug/L				
Barium	< 5.00	5.00	"				
Beryllium	< 2.00	5.00	"				
Calcium	< 175	350	"				
Cadmium	< 2.00	5.00	"				
Cobalt	< 2.50	5.00	"				
Chromium	< 2.50	5.00	"				
Copper	< 3.00	3.00	"				
Iron	< 100	250	"				
Potassium	< 250	1000	"				
Magnesium	< 250	500	"				

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2212008 - No Lab Prep Req'd

Water

ICPOE - PE Optima B

Method Blank (2212008-BLK1)

Dilution Factor: 1

Prepared: 12/02/22 Analyzed: 12/26/22

Manganese	< 7.50	15.0	ug/L
Sodium	< 250	1000	"
Nickel	< 5.00	20.0	"
Lead	< 20.0	40.0	"
Selenium	< 125	250	"
Zinc	< 30.0	30.0	"
Silica (SiO2)	< 250	1000	"

Method Blank Spike (2212008-BS1)

Dilution Factor: 1

Prepared: 12/02/22 Analyzed: 12/26/22

Aluminum	9928	100	ug/L	10100	98	85-115
Barium	92.55	5.00	"	100	93	85-115
Beryllium	100.5	5.00	"	100	101	85-115
Calcium	8942	350	"	10100	89	85-115
Cadmium	93.53	5.00	"	100	94	85-115
Cobalt	101.1	5.00	"	100	101	85-115
Chromium	98.86	5.00	"	100	99	85-115
Copper	91.08	3.00	"	100	91	85-115
Iron	9453	250	"	10100	94	85-115
Potassium	9440	1000	"	10100	93	85-115
Magnesium	9457	500	"	10100	94	85-115
Manganese	99.36	15.0	"	100	99	85-115
Sodium	9559	1000	"	10100	95	85-115
Nickel	103.0	20.0	"	100	103	85-115
Lead	104.9	40.0	"	100	105	85-115
Selenium	483.7	250	"	500	97	85-115
Zinc	91.28	30.0	"	100	91	85-115
Silica (SiO2)	< 250	1000	"			85-115

Project Name: Ruby Mine_SW_SEP 2022_A046

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Metals (Dissolved) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2212008 - No Lab Prep Req'd			Water				ICPOE - PE Optima B		
Duplicate (2212008-DUP1)		Dilution Factor: 1	Source: C221001-44		Prepared: 12/02/22 Analyzed: 12/26/22				
Aluminum	< 50.0	100	ug/L		< 50.0				20
Beryllium	< 2.00	5.00	"		< 2.00				20
Calcium	12560	350	"		12610			0.4	20
Iron	< 100	250	"		< 100				20
Potassium	340.0	1000	"		354.3			4	20
Magnesium	2412	500	"		2448			1	20
Manganese	30.18	15.0	"		29.94			0.8	20
Sodium	1900	1000	"		1958			3	20
Zinc	< 30.0	30.0	"		< 30.0				20
Silica (SiO2)	5152	1000	"		5161			0.2	20
Matrix Spike (2212008-MS1)		Dilution Factor: 1	Source: C221001-44		Prepared: 12/02/22 Analyzed: 12/26/22				
Aluminum	10280	100	ug/L	10100	< 50.0	102	70-130		
Beryllium	103.7	5.00	"	100	< 2.00	104	70-130		
Calcium	21520	350	"	10100	12610	88	70-130		
Iron	9770	250	"	10100	< 100	97	70-130		
Potassium	10100	1000	"	10100	354.3	96	70-130		
Magnesium	11960	500	"	10100	2448	94	70-130		
Manganese	130.1	15.0	"	100	29.94	100	70-130		
Sodium	11650	1000	"	10100	1958	96	70-130		
Zinc	108.1	30.0	"	100	< 30.0	108	70-130		
Silica (SiO2)	5104	1000	"		5161		70-130		
Batch 2212076 - 2212008			Water				ICPOE - PE Optima B		
Serial Dilution (2212076-SRD1)		Dilution Factor: 5	Source: C221001-44		Prepared: 12/02/22 Analyzed: 12/26/22				
Aluminum	< 1250	2500	ug/L		< 250.00				10
Beryllium	< 1250	2500	"		< 250.00				10
Calcium	13410	2500	"		12610			6	10
Iron	< 1250	2500	"		< 250.00				10
Potassium	< 1250	2500	"		< 250.00				10
Magnesium	2529	2500	"		2448			3	10
Manganese	< 1250	2500	"		< 250.00				10
Sodium	1994	2500	"		1958			2	10
Zinc	< 1250	2500	"		< 250.00				10
Silica (SiO2)	4910	2500	"		5161			5	10

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_SEP 2022_A046

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

ICPMS-PE NEXION350

Batch 2211108 - 200.2 - TR Metals

Water

ICPMS-PE NEXION350D

Method Blank (2211108-BLK2)	Dilution Factor: 5	Prepared: 11/28/22 Analyzed: 12/26/22

Vanadium	< 10.0	15.0	ug/L
Chromium	< 5.00	10.0	"
Cobalt	< 0.500	1.00	"
Nickel	< 2.50	5.00	"
Copper	< 2.50	5.00	"
Arsenic	< 3.00	10.0	"
Selenium	< 7.50	15.0	"
Molybdenum	< 5.00	5.00	"
Silver	< 2.50	5.00	"
Cadmium	< 0.500	1.00	"
Antimony	< 2.50	5.00	"
Barium	< 25.0	50.0	"
Thallium	< 5.00	10.0	"
Lead	1.032	1.50	"
Uranium	< 0.500	1.00	"

Duplicate (2211108-DUP2)	Dilution Factor: 5	Source: C221001-10	Prepared: 11/28/22 Analyzed: 12/26/22

Vanadium	< 10.0	15.0	ug/L	< 10.0	20
Chromium	< 5.00	10.0	"	< 5.00	20
Cobalt	5.384	1.00	"	5.225	3 20
Nickel	4.995	5.00	"	5.558	11 20
Copper	260.5	5.00	"	262.9	0.9 20
Arsenic	< 3.00	10.0	"	< 3.00	20
Selenium	< 7.50	15.0	"	< 7.50	20
Molybdenum	< 5.00	5.00	"	< 5.00	20
Silver	< 2.50	5.00	"	< 2.50	20
Cadmium	< 0.500	1.00	"	< 0.500	20
Antimony	< 2.50	5.00	"	< 2.50	20
Barium	42.38	50.0	"	41.34	2 20
Thallium	< 5.00	10.0	"	< 5.00	20
Lead	1.126	1.50	"	1.189	5 20
Uranium	< 0.500	1.00	"	< 0.500	20

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2211108 - 200.2 - TR Metals				Water			ICPMS-PE NEXION350D		
Matrix Spike (2211108-MS2)		Dilution Factor: 5	Source: C221001-10			Prepared: 11/28/22 Analyzed: 12/26/22			
Vanadium	89.88	15.0	ug/L	100	< 10.0	90	70-130		
Chromium	97.50	10.0	"	100	< 5.00	97	70-130		
Cobalt	101.0	1.00	"	100	5.225	96	70-130		
Nickel	102.0	5.00	"	100	5.558	96	70-130		
Copper	350.7	5.00	"	100	262.9	88	70-130		
Arsenic	90.71	10.0	"	100	< 3.00	91	70-130		
Selenium	496.1	15.0	"	500	< 7.50	99	70-130		
Molybdenum	95.20	5.00	"	100	< 5.00	95	70-130		
Silver	94.41	5.00	"	100	< 2.50	94	70-130		
Cadmium	97.11	1.00	"	100	< 0.500	97	70-130		
Antimony	93.74	5.00	"	100	< 2.50	94	70-130		
Barium	138.5	50.0	"	100	41.34	97	70-130		
Thallium	98.66	10.0	"	100	< 5.00	99	70-130		
Lead	99.54	1.50	"	100	1.189	98	70-130		
Uranium	100.9	1.00	"	100	< 0.500	101	70-130		
Matrix Spike (2211108-MS4)		Dilution Factor: 5	Source: C221001-13			Prepared: 11/28/22 Analyzed: 12/26/22			
Vanadium	96.96	15.0	ug/L	100	< 10.0	97	70-130		
Chromium	98.64	10.0	"	100	< 5.00	99	70-130		
Cobalt	100.2	1.00	"	100	3.817	96	70-130		
Nickel	101.4	5.00	"	100	4.047	97	70-130		
Copper	286.7	5.00	"	100	188.3	98	70-130		
Arsenic	88.24	10.0	"	100	< 3.00	88	70-130		
Selenium	502.8	15.0	"	500	< 7.50	101	70-130		
Molybdenum	99.02	5.00	"	100	< 5.00	99	70-130		
Silver	97.53	5.00	"	100	< 2.50	98	70-130		
Cadmium	99.75	1.00	"	100	< 0.500	100	70-130		
Antimony	97.57	5.00	"	100	< 2.50	98	70-130		
Barium	137.1	50.0	"	100	41.67	95	70-130		
Thallium	100.7	10.0	"	100	< 5.00	101	70-130		
Lead	102.0	1.50	"	100	0.7420	101	70-130		
Uranium	105.1	1.00	"	100	< 0.500	105	70-130		

Project Name: Ruby Mine_SW_SEP 2022_A046

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2211108 - 200.2 - TR Metals

Water

ICPMS-PE NEXION350D

Reference (2211108-SRM2)

Dilution Factor: 5

Prepared: 11/28/22 Analyzed: 12/26/22

Vanadium	91.62	15.0	ug/L	100		92	85-115		
Chromium	97.25	10.0	"	100		97	85-115		
Cobalt	94.48	1.00	"	100		94	85-115		
Nickel	95.52	5.00	"	100		96	85-115		
Copper	96.26	5.00	"	100		96	85-115		
Arsenic	88.59	10.0	"	100		89	85-115		
Selenium	491.2	15.0	"	500		98	85-115		
Molybdenum	97.62	5.00	"	100		98	85-115		
Silver	92.61	5.00	"	100		93	85-115		
Cadmium	96.60	1.00	"	100		97	85-115		
Antimony	92.07	5.00	"	100		92	85-115		
Barium	94.51	50.0	"	100		95	85-115		
Thallium	94.43	10.0	"	100		94	85-115		
Lead	98.08	1.50	"	100		98	85-115		
Uranium	99.64	1.00	"	100		100	85-115		

Batch 2211109 - 200.2 - TR Metals

Water

ICPMS-PE NEXION350D

Method Blank (2211109-BLK2)

Dilution Factor: 5

Prepared: 11/28/22 Analyzed: 12/26/22

Vanadium	< 10.0	15.0	ug/L						
Chromium	< 5.00	10.0	"						
Cobalt	< 0.500	1.00	"						
Nickel	< 2.50	5.00	"						
Copper	< 2.50	5.00	"						
Arsenic	< 3.00	10.0	"						
Selenium	< 7.50	15.0	"						
Molybdenum	< 5.00	5.00	"						
Silver	< 2.50	5.00	"						
Cadmium	< 0.500	1.00	"						
Antimony	< 2.50	5.00	"						
Barium	< 25.0	50.0	"						
Thallium	< 5.00	10.0	"						
Lead	< 0.500	1.50	"						
Uranium	< 0.500	1.00	"						

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2211109 - 200.2 - TR Metals			<i>Water</i>			ICPMS-PE NEXION350D			
Duplicate (2211109-DUP2)		Dilution Factor: 5		Source: C221001-43		Prepared: 11/28/22 Analyzed: 12/26/22			
Vanadium	< 10.0	15.0	ug/L		< 10.0				20
Chromium	< 5.00	10.0	"		< 5.00				20
Cobalt	2.711	1.00	"		2.745			1	20
Nickel	2.917	5.00	"		3.080			5	20
Copper	94.33	5.00	"		93.99			0.4	20
Arsenic	< 3.00	10.0	"		< 3.00				20
Selenium	< 7.50	15.0	"		< 7.50				20
Molybdenum	< 5.00	5.00	"		< 5.00				20
Silver	< 2.50	5.00	"		< 2.50				20
Cadmium	< 0.500	1.00	"		< 0.500				20
Antimony	< 2.50	5.00	"		< 2.50				20
Barium	32.23	50.0	"		32.77			2	20
Thallium	< 5.00	10.0	"		< 5.00				20
Lead	< 0.500	1.50	"		< 0.500				20
Uranium	< 0.500	1.00	"		< 0.500				20
Matrix Spike (2211109-MS2)		Dilution Factor: 5		Source: C221001-43		Prepared: 11/28/22 Analyzed: 12/26/22			
Vanadium	88.50	15.0	ug/L	100	< 10.0	89	70-130		
Chromium	97.06	10.0	"	100	< 5.00	97	70-130		
Cobalt	97.59	1.00	"	100	2.745	95	70-130		
Nickel	98.26	5.00	"	100	3.080	95	70-130		
Copper	188.7	5.00	"	100	93.99	95	70-130		
Arsenic	85.42	10.0	"	100	< 3.00	85	70-130		
Selenium	479.6	15.0	"	500	< 7.50	96	70-130		
Molybdenum	93.49	5.00	"	100	< 5.00	93	70-130		
Silver	90.82	5.00	"	100	< 2.50	91	70-130		
Cadmium	93.60	1.00	"	100	< 0.500	94	70-130		
Antimony	92.10	5.00	"	100	< 2.50	92	70-130		
Barium	124.9	50.0	"	100	32.77	92	70-130		
Thallium	97.16	10.0	"	100	< 5.00	97	70-130		
Lead	99.59	1.50	"	100	< 0.500	100	70-130		
Uranium	102.6	1.00	"	100	< 0.500	103	70-130		

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2211109 - 200.2 - TR Metals

Water

ICPMS-PE NEXION350D

Reference (2211109-SRM2)

Dilution Factor: 5

Prepared: 11/28/22 Analyzed: 12/26/22

Vanadium	95.25	15.0	ug/L	100		95	85-115		
Chromium	98.29	10.0	"	100		98	85-115		
Cobalt	95.89	1.00	"	100		96	85-115		
Nickel	96.27	5.00	"	100		96	85-115		
Copper	96.37	5.00	"	100		96	85-115		
Arsenic	89.33	10.0	"	100		89	85-115		
Selenium	498.6	15.0	"	500		100	85-115		
Molybdenum	95.17	5.00	"	100		95	85-115		
Silver	94.29	5.00	"	100		94	85-115		
Cadmium	97.83	1.00	"	100		98	85-115		
Antimony	94.80	5.00	"	100		95	85-115		
Barium	94.04	50.0	"	100		94	85-115		
Thallium	97.55	10.0	"	100		98	85-115		
Lead	100.3	1.50	"	100		100	85-115		
Uranium	103.3	1.00	"	100		103	85-115		

Batch 2212077 - 2211108

Water

ICPMS-PE NEXION350D

Serial Dilution (2212077-SRD1)

Dilution Factor: 25

Source: C221001-10

Prepared: 11/28/22 Analyzed: 12/26/22

Vanadium	< 50.0	75.0	ug/L	< 10.00					10
Chromium	< 50.0	75.0	"	< 10.00					10
Cobalt	< 50.0	75.0	"	< 10.00					10
Nickel	< 50.0	75.0	"	< 10.00					10
Copper	265.6	75.0	"	262.9				1	10
Arsenic	< 50.0	75.0	"	< 10.00					10
Selenium	< 50.0	75.0	"	< 10.00					10
Molybdenum	< 50.0	75.0	"	< 10.00					10
Silver	< 50.0	75.0	"	< 10.00					10
Cadmium	< 50.0	75.0	"	< 10.00					10
Antimony	< 50.0	75.0	"	< 10.00					10
Barium	< 50.0	75.0	"	< 10.00					10
Thallium	< 50.0	75.0	"	< 10.00					10
Lead	< 50.0	75.0	"	< 10.00					10
Uranium	< 50.0	75.0	"	< 10.00					10

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Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2212078 - 2211109			Water				ICPMS-PE NEXION350D		
Serial Dilution (2212078-SRD1)		Dilution Factor: 25		Source: C221001-43		Prepared: 11/28/22		Analyzed: 12/26/22	
Vanadium	< 37.5	75.0	ug/L		< 7.50				10
Chromium	< 37.5	75.0	"		< 7.50				10
Cobalt	< 37.5	75.0	"		< 7.50				10
Nickel	< 37.5	75.0	"		< 7.50				10
Copper	97.85	75.0	"		93.99			4	10
Arsenic	< 37.5	75.0	"		< 7.50				10
Selenium	< 37.5	75.0	"		< 7.50				10
Molybdenum	< 37.5	75.0	"		< 7.50				10
Silver	< 37.5	75.0	"		< 7.50				10
Cadmium	< 37.5	75.0	"		< 7.50				10
Antimony	< 37.5	75.0	"		< 7.50				10
Barium	< 37.5	75.0	"		< 7.50				10
Thallium	< 37.5	75.0	"		< 7.50				10
Lead	< 37.5	75.0	"		< 7.50				10
Uranium	< 37.5	75.0	"		< 7.50				10

ICPOE - PE Optima B

Batch 2211108 - 200.2 - TR Metals		Water		ICPOE - PE Optima B	
Method Blank (2211108-BLK1)		Dilution Factor: 1		Prepared: 11/28/22 Analyzed: 12/21/22	
Aluminum	< 50.0	100	ug/L		
Barium	< 5.00	5.00	"		
Beryllium	< 2.00	5.00	"		
Calcium	< 175	350	"		
Cobalt	< 2.50	5.00	"		
Chromium	< 2.50	5.00	"		
Copper	< 3.00	3.00	"		
Iron	< 100	250	"		
Potassium	< 250	1000	"		
Magnesium	< 250	500	"		
Manganese	< 7.50	15.0	"		
Sodium	< 250	1000	"		
Nickel	< 5.00	10.0	"		
Silica (SiO2)	< 250	1000	"		
Zinc	< 30.0	30.0	"		

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2211108 - 200.2 - TR Metals				Water		ICPOE - PE Optima B			
Duplicate (2211108-DUP1)		Dilution Factor: 1		Source: C221001-10		Prepared: 11/28/22 Analyzed: 12/21/22			
Aluminum	3998	100	ug/L		3987			0.3	20
Beryllium	< 2.00	5.00	"		< 2.00				20
Calcium	16060	350	"		16490			3	20
Iron	1008	250	"		1033			3	20
Potassium	454.4	1000	"		461.7			2	20
Magnesium	3110	500	"		3184			2	20
Manganese	47.06	15.0	"		46.61			1	20
Sodium	1948	1000	"		2013			3	20
Silica (SiO2)	5935	1000	"		5909			0.4	20
Zinc	32.88	30.0	"		35.03			6	20
Matrix Spike (2211108-MS1)		Dilution Factor: 1		Source: C221001-10		Prepared: 11/28/22 Analyzed: 12/21/22			
Aluminum	14400	100	ug/L	10100	3987	103	70-130		
Beryllium	96.94	5.00	"	100	< 2.00	97	70-130		
Calcium	26590	350	"	10100	16490	100	70-130		
Iron	11730	250	"	10100	1033	106	70-130		
Potassium	10680	1000	"	10100	461.7	101	70-130		
Magnesium	13630	500	"	10100	3184	103	70-130		
Manganese	145.7	15.0	"	100	46.61	99	70-130		
Sodium	12570	1000	"	10100	2013	105	70-130		
Silica (SiO2)	6100	1000	"		5909		70-130		
Zinc	127.7	30.0	"	100	35.03	93	70-130		
Matrix Spike (2211108-MS3)		Dilution Factor: 1		Source: C221001-13		Prepared: 11/28/22 Analyzed: 12/21/22			
Aluminum	12680	100	ug/L	10100	2492	101	70-130		
Beryllium	97.45	5.00	"	100	< 2.00	97	70-130		
Calcium	26160	350	"	10100	15700	104	70-130		
Iron	11320	250	"	10100	646.0	106	70-130		
Potassium	10600	1000	"	10100	417.5	101	70-130		
Magnesium	13510	500	"	10100	3049	104	70-130		
Manganese	134.9	15.0	"	100	37.26	98	70-130		
Sodium	12470	1000	"	10100	2007	104	70-130		
Silica (SiO2)	6270	1000	"		6205		70-130		
Zinc	122.9	30.0	"	100	31.06	92	70-130		

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

Batch 2211108 - 200.2 - TR Metals

Water

ICPOE - PE Optima B

Reference (2211108-SRM1)

Dilution Factor: 1

Prepared: 11/28/22 Analyzed: 12/21/22

Aluminum	9911	100	ug/L	10100		98	85-115		
Barium	101.4	5.00	"	100		101	85-115		
Beryllium	96.34	5.00	"	100		96	85-115		
Calcium	9734	350	"	10100		96	85-115		
Cobalt	96.38	5.00	"	100		96	85-115		
Chromium	102.6	5.00	"	100		103	85-115		
Copper	97.81	3.00	"	100		98	85-115		
Iron	10480	250	"	10100		104	85-115		
Potassium	10150	1000	"	10100		101	85-115		
Magnesium	10320	500	"	10100		102	85-115		
Manganese	95.03	15.0	"	100		95	85-115		
Sodium	10350	1000	"	10100		102	85-115		
Nickel	101.5	10.0	"	100		102	85-115		
Zinc	94.23	30.0	"	100		94	85-115		

Batch 2211109 - 200.2 - TR Metals

Water

ICPOE - PE Optima B

Method Blank (2211109-BLK1)

Dilution Factor: 1

Prepared: 11/28/22 Analyzed: 12/23/22

Aluminum	< 50.0	100	ug/L						
Barium	< 5.00	5.00	"						
Beryllium	< 2.00	5.00	"						
Calcium	< 175	350	"						
Cadmium	< 2.00	5.00	"						
Cobalt	< 2.50	5.00	"						
Chromium	< 2.50	5.00	"						
Copper	< 3.00	3.00	"						
Iron	< 100	250	"						
Potassium	< 250	1000	"						
Magnesium	< 250	500	"						
Manganese	< 7.50	15.0	"						
Sodium	< 250	1000	"						
Nickel	< 5.00	20.0	"						
Silica (SiO2)	< 250	1000	"						
Vanadium	< 12.5	50.0	"						
Zinc	< 30.0	30.0	"						

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2211109 - 200.2 - TR Metals			<i>Water</i>			ICPOE - PE Optima B			
Duplicate (2211109-DUP1)		Dilution Factor: 1	Source: C221001-43			Prepared: 11/28/22 Analyzed: 12/23/22			
Aluminum	716.4	100	ug/L		696.5			3	20
Beryllium	< 2.00	5.00	"		< 2.00				20
Calcium	13560	350	"		13390			1	20
Iron	180.4	250	"		183.6			2	20
Potassium	476.2	1000	"		492.0			3	20
Magnesium	2613	500	"		2589			0.9	20
Manganese	32.60	15.0	"		31.49			3	20
Sodium	2022	1000	"		1995			1	20
Silica (SiO2)	5445	1000	"		5291			3	20
Zinc	< 30.0	30.0	"		< 30.0				20
Matrix Spike (2211109-MS1)		Dilution Factor: 1	Source: C221001-43			Prepared: 11/28/22 Analyzed: 12/23/22			
Aluminum	10760	100	ug/L	10100	696.5	100	70-130		
Beryllium	101.5	5.00	"	100	< 2.00	102	70-130		
Calcium	22850	350	"	10100	13390	94	70-130		
Iron	10310	250	"	10100	183.6	100	70-130		
Potassium	10460	1000	"	10100	492.0	99	70-130		
Magnesium	12500	500	"	10100	2589	98	70-130		
Manganese	131.0	15.0	"	100	31.49	100	70-130		
Sodium	12040	1000	"	10100	1995	99	70-130		
Silica (SiO2)	5367	1000	"		5291		70-130		
Zinc	112.8	30.0	"	100	< 30.0	113	70-130		
Reference (2211109-SRM1)		Dilution Factor: 1				Prepared: 11/28/22 Analyzed: 12/23/22			
Aluminum	10080	100	ug/L	10100		100	85-115		
Barium	98.22	5.00	"	100		98	85-115		
Beryllium	102.1	5.00	"	100		102	85-115		
Calcium	9403	350	"	10100		93	85-115		
Cadmium	97.41	5.00	"	100		97	85-115		
Cobalt	101.5	5.00	"	100		102	85-115		
Chromium	100.3	5.00	"	100		100	85-115		
Copper	102.3	3.00	"	100		102	85-115		
Iron	10000	250	"	10100		99	85-115		
Potassium	9871	1000	"	10100		98	85-115		
Magnesium	9973	500	"	10100		99	85-115		
Manganese	101.0	15.0	"	100		101	85-115		
Sodium	9988	1000	"	10100		99	85-115		
Nickel	104.9	20.0	"	100		105	85-115		
Vanadium	95.56	50.0	"	100		96	85-115		
Zinc	88.32	30.0	"	100		88	85-115		

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Metals (Total Recov) by EPA 200/7000 Series Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2211109 - 200.2 - TR Metals			Water				ICPOE - PE Optima B		
Batch 2212070 - 2211108			Water				ICPOE - PE Optima B		
Serial Dilution (2212070-SRD1)		Dilution Factor: 5	Source: C221001-10		Prepared: 11/28/22 Analyzed: 12/21/22				
Aluminum	4105	75.0	ug/L		3987			3	10
Beryllium	< 37.5	75.0	"		< 7.50				10
Calcium	16350	75.0	"		16490			0.9	10
Iron	1016	75.0	"		1033			2	10
Potassium	650.5	75.0	"		461.7			34	10
Magnesium	3376	75.0	"		3184			6	10
Manganese	50.47	75.0	"		46.61			8	10
Sodium	2051	75.0	"		2013			2	10
Silica (SiO2)	5882	75.0	"		5909			0.5	10
Zinc	39.73	75.0	"		< 7.50			13	10
Batch 2212073 - 2211109			Water				ICPOE - PE Optima B		
Serial Dilution (2212073-SRD1)		Dilution Factor: 5	Source: C221001-43		Prepared: 11/28/22 Analyzed: 12/23/22				
Aluminum	674.6	150	ug/L		696.5			3	10
Beryllium	< 150	150	"		< 30.00				10
Calcium	12630	150	"		13390			6	10
Iron	182.6	150	"		183.6			0.5	10
Potassium	319.5	150	"		492.0			43	10
Magnesium	2597	150	"		2589			0.3	10
Manganese	< 150	150	"		< 30.00				10
Sodium	1885	150	"		1995			6	10
Silica (SiO2)	5120	150	"		5291			3	10
Zinc	< 150	150	"		< 30.00				10

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Mercury only (Total) by EPA 245.1 / 7470A Method - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
NIC RA-4500									
Batch 2210039 - EPA 245.1/245.2 Prep			Water				NIC RA-4500		
Method Blank (2210039-BLK1)		Dilution Factor: 1				Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	< 0.0380	0.0500	ug/L						
Method Blank (2210039-BLK2)		Dilution Factor: 1				Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	< 0.0380	0.0500	ug/L						
Method Blank Spike (2210039-BS1)		Dilution Factor: 1				Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	4.37	0.0500	ug/L	4.00		109	85-115		
Method Blank Spike (2210039-BS2)		Dilution Factor: 1				Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	4.43	0.0500	ug/L	4.00		111	85-115		
Duplicate (2210039-DUP1)		Dilution Factor: 1		Source: C221001-10		Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	< 0.0380	0.0500	ug/L		< 0.0380				20
Duplicate (2210039-DUP2)		Dilution Factor: 1		Source: C221001-13		Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	< 0.0380	0.0500	ug/L		< 0.0380				20
Matrix Spike (2210039-MS1)		Dilution Factor: 1		Source: C221001-10		Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	3.28	0.0500	ug/L	4.00	< 0.0380	82	70-130		
Matrix Spike (2210039-MS2)		Dilution Factor: 1		Source: C221001-13		Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	3.19	0.0500	ug/L	4.00	< 0.0380	80	70-130		
Matrix Spike (2210039-MS3)		Dilution Factor: 1		Source: C221001-16		Prepared: 10/10/22 Analyzed: 10/13/22			
Mercury	4.55	0.0500	ug/L	4.00	< 0.0380	114	70-130		

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

ESAT Dionex IC

Batch 2210107 - No Prep Req

Water

ESAT Dionex IC

Method Blank (2210107-BLK1)	Dilution Factor: 1		Prepared & Analyzed: 10/18/22						

Fluoride	< 0.1	0.2	mg/L
Chloride	< 1.0	2.0	"
Bromide	< 0.2	0.5	"
Sulfate as SO4	< 2.5	5.0	"
Nitrate/Nitrite as N	< 0.5	1.0	"

Method Blank Spike (2210107-BS1)	Dilution Factor: 1		Prepared & Analyzed: 10/18/22						

Fluoride	5.2	0.2	mg/L	5.00	105	90-110
Chloride	24.7	2.0	"	25.0	99	90-110
Bromide	5.0	0.5	"	5.00	100	90-110
Sulfate as SO4	24.0	5.0	"	25.0	96	90-110
Nitrate/Nitrite as N	10.0	1.0	"	10.0	100	90-110

Duplicate (2210107-DUP1)	Dilution Factor: 1		Source: C221001-12		Prepared & Analyzed: 10/18/22				

Fluoride	0.2	0.2	mg/L	0.3	11	20
Chloride	< 1.0	2.0	"	< 1.0		20
Bromide	< 0.2	0.5	"	< 0.2		20
Sulfate as SO4	71.3	5.0	"	71.5	0.2	20
Nitrate/Nitrite as N	< 0.5	1.0	"	< 0.5		20

Matrix Spike (2210107-MS1)	Dilution Factor: 1		Source: C221001-12		Prepared & Analyzed: 10/18/22				

Fluoride	5.8	0.2	mg/L	5.00	0.3	110	80-120
Chloride	25.3	2.0	"	25.0	< 1.0	101	80-120
Bromide	5.1	0.5	"	5.00	< 0.2	103	80-120
Sulfate as SO4	97.7	5.0	"	25.0	71.5	105	80-120
Nitrate/Nitrite as N	10.1	1.0	"	10.0	< 0.5	101	80-120

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2210108 - No Prep Req			Water				ESAT Dionex IC		
Method Blank (2210108-BLK1)		Dilution Factor: 1				Prepared & Analyzed: 10/19/22			
Fluoride	< 0.1	0.2	mg/L						
Chloride	< 1.0	2.0	"						
Bromide	< 0.2	0.5	"						
Sulfate as SO4	< 2.5	5.0	"						
Nitrate/Nitrite as N	< 0.5	1.0	"						
Method Blank Spike (2210108-BS1)		Dilution Factor: 1				Prepared & Analyzed: 10/19/22			
Fluoride	5.2	0.2	mg/L	5.00		105	90-110		
Chloride	24.7	2.0	"	25.0		99	90-110		
Bromide	5.0	0.5	"	5.00		101	90-110		
Sulfate as SO4	24.2	5.0	"	25.0		97	90-110		
Nitrate/Nitrite as N	10.1	1.0	"	10.0		101	90-110		
Duplicate (2210108-DUP1)		Dilution Factor: 1		Source: C221001-36		Prepared & Analyzed: 10/19/22			
Fluoride	0.2	0.2	mg/L		0.1			40	20
Chloride	< 1.0	2.0	"		< 1.0				20
Bromide	< 0.2	0.5	"		< 0.2				20
Sulfate as SO4	51.8	5.0	"		51.8			0.05	20
Nitrate/Nitrite as N	< 0.5	1.0	"		< 0.5				20
Matrix Spike (2210108-MS1)		Dilution Factor: 1		Source: C221001-36		Prepared & Analyzed: 10/19/22			
Fluoride	5.6	0.2	mg/L	5.00	0.1	110	80-120		
Chloride	25.5	2.0	"	25.0	< 1.0	102	80-120		
Bromide	5.2	0.5	"	5.00	< 0.2	104	80-120		
Sulfate as SO4	77.2	5.0	"	25.0	51.8	102	80-120		
Nitrate/Nitrite as N	10.3	1.0	"	10.0	< 0.5	103	80-120		
Matrix Spike (2210108-MS2)		Dilution Factor: 1		Source: C221001-66		Prepared & Analyzed: 10/19/22			
Fluoride	5.9	0.2	mg/L	5.00	0.2	114	80-120		
Chloride	25.7	2.0	"	25.0	< 1.0	103	80-120		
Bromide	5.2	0.5	"	5.00	< 0.2	103	80-120		
Sulfate as SO4	31.0	5.0	"	25.0	6.9	96	80-120		
Nitrate/Nitrite as N	10.2	1.0	"	10.0	< 0.5	102	80-120		

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit

InstBatch 2210029 - No Prep Req *Water* **Inst**

Method Blank (2210029-BLK1)	Dilution Factor: 1	Prepared & Analyzed: 10/04/22

Total Suspended Solids	< 10	10	mg/L

Method Blank (2210029-BLK2)	Dilution Factor: 1	Prepared & Analyzed: 10/04/22

Total Suspended Solids	< 10	10	mg/L

Duplicate (2210029-DUP1)	Dilution Factor: 1	Source: C221001-27	Prepared & Analyzed: 10/04/22

Total Suspended Solids	46	10	mg/L	47	2	20

Duplicate (2210029-DUP2)	Dilution Factor: 1	Source: C221001-42	Prepared & Analyzed: 10/04/22

Total Suspended Solids	18	10	mg/L	21	15	20

Duplicate (2210029-DUP3)	Dilution Factor: 1	Source: C221001-69	Prepared & Analyzed: 10/04/22

Total Suspended Solids	61	10	mg/L	60	2	20

Reference (2210029-SRM1)	Dilution Factor: 1	Prepared & Analyzed: 10/04/22

Total Suspended Solids	150	10	mg/L	150	100	85-115

Reference (2210029-SRM2)	Dilution Factor: 1	Prepared & Analyzed: 10/04/22

Total Suspended Solids	153	10	mg/L	150	102	85-115

Mettler T5Batch 2210034 - No Prep Req *Water* **Mettler T5**

Method Blank (2210034-BLK1)	Dilution Factor: 1	Prepared & Analyzed: 10/10/22

Total Alkalinity	< 5.00	10.0	mg CaCO ₃ / L

Method Blank (2210034-BLK2)	Dilution Factor: 1	Prepared & Analyzed: 10/10/22

Total Alkalinity	< 5.00	10.0	mg CaCO ₃ / L

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

Classical Chemistry by EPA/ASTM/APHA Methods - Quality Control

TechLaw, Inc. - ESAT Region 8

Analyte	Result	Det. Limit	Units	Spike Level	Source Result	%R	%R Limits	%D or RPD	%D or RPD Limit
Batch 2210034 - No Prep Req			Water					Mettler T5	
Duplicate (2210034-DUP1)		Dilution Factor: 1	Source: C221001-12			Prepared & Analyzed: 10/10/22			
Total Alkalinity	< 5.00	10.0	mg CaCO3 / L		< 5.00				20
Duplicate (2210034-DUP2)		Dilution Factor: 1	Source: C221001-15			Prepared & Analyzed: 10/10/22			
Total Alkalinity	< 5.00	10.0	mg CaCO3 / L		< 5.00				20
Duplicate (2210034-DUP3)		Dilution Factor: 1	Source: C221001-18			Prepared & Analyzed: 10/10/22			
Total Alkalinity	5.93	10.0	mg CaCO3 / L		5.91			0.3	20
Reference (2210034-SRM1)		Dilution Factor: 1				Prepared & Analyzed: 10/10/22			
Total Alkalinity	74.8	10.0	mg CaCO3 / L	75.8		99	85-115		
Reference (2210034-SRM2)		Dilution Factor: 1				Prepared & Analyzed: 10/10/22			
Total Alkalinity	87.7	10.0	mg CaCO3 / L	86.4		102	85-115		

NOTE: %R = % Recovery, %R limits do not apply when sample levels exceed 4x the spike level.
 RPD = Relative Percent Difference, %D = % Difference, DL = Detection Limit for QC sample

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: EPA 310.1

Analysis Name: WC - Alkalinity

Instrument: Mettler T5

Work Order: C221001

Analytical Sequence: **Total**

Concentration Units: mg CaCO3 / L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Total Alkalinity		1	2	3	4	NA	2210034-BLK2	10.00
		1.01	2.04	1.54	1.34	NA	1.60	
	5	6	7	8				
		1	2	3	4	2210034-BLK1	NA	10.00
		1.01	2.04	1.54	1.34	0.88	NA	
	5	6	7	8				

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 245.1

Analysis Name: TM_Mercury 245.1

Instrument: NIC RA-4500

Work Order: C221001

Analytical Sequence: 2210076 **Total**

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Mercury	0.02	1	2	3	4	NA	2210039-BLK2	0.05
		0.02	0.01	0.01	0.01	NA	0.00	
		5	6	7	8			
	0.02	1	2	3	4	2210039-BLK1	NA	0.05
		0.02	0.01	0.01	0.01	0.01	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: EPA 300.0

Analysis Name: WC - Anions by Ion Chromatography

Instrument: ESAT Dionex IC

Work Order: C221001

Analytical Sequence: 2210122 Dissolved

Concentration Units: mg/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Fluoride	0.00	1	2	3	4	2210108-BLK1	NA	0.20
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
	0.00	1	2	3	4	2210107-BLK1	NA	0.20
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
Chloride	0.00	1	2	3	4	2210107-BLK1	NA	2.00
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
	0.00	1	2	3	4	2210108-BLK1	NA	2.00
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
Bromide	0.00	1	2	3	4	2210107-BLK1	NA	0.50
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
	0.00	1	2	3	4	2210108-BLK1	NA	0.50
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
Sulfate as SO4	0.00	1	2	3	4	2210108-BLK1	NA	5.00
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
	0.00	1	2	3	4	2210107-BLK1	NA	5.00
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: EPA 300.0

Analysis Name: WC - Anions by Ion Chromatography

Instrument: ESAT Dionex IC

Work Order: C221001

Analytical Sequence: 2210122 Dissolved

Concentration Units: mg/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Nitrate/Nitrite as N	0.00	1	2	3	4	2210107-BLK1	NA	1.00
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						
	0.00	1	2	3	4	2210108-BLK1	NA	1.00
		0.00	0.00	0.00	0.00	0.00	NA	
	0.00	5	6	7	8			
		0.00						

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212070 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Aluminum	0.97	1	2	3	4	2211109-BLK1	NA	100.00
		1.00	1.57	0.86	2.69	0.03	NA	
		5	6	7	8			
	0.97	1	2	3	4	2211108-BLK1	NA	100.00
		1.00	1.57	0.86	2.69	3.18	NA	
		5	6	7	8			
Barium	0.05	1	2	3	4	2211109-BLK1	NA	5.00
		-0.31	0.28	-0.67	0.26	1.05	NA	
		5	6	7	8			
	0.05	1	2	3	4	2211108-BLK1	NA	5.00
		-0.31	0.28	-0.67	0.26	-0.09	NA	
		5	6	7	8			
Beryllium	-0.25	1	2	3	4	2211109-BLK1	NA	5.00
		-0.20	-0.19	-0.18	-0.19	-0.15	NA	
		5	6	7	8			
	-0.25	1	2	3	4	2211108-BLK1	NA	5.00
		-0.20	-0.19	-0.18	-0.19	-0.13	NA	
		5	6	7	8			
Calcium	0.09	1	2	3	4	2211108-BLK1	NA	350.00
		-1.70	-0.07	6.31	0.36	5.68	NA	
		5	6	7	8			
	0.09	1	2	3	4	2211109-BLK1	NA	350.00
		-1.70	-0.07	6.31	0.36	-1.87	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212070 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Cobalt	-1.00	1	2	3	4	2211108-BLK1	NA	5.00
		-1.13	-0.38	-0.77	0.02	-1.41	NA	
		5	6	7	8			
	-1.00	1	2	3	4	2211109-BLK1	NA	5.00
		-1.13	-0.38	-0.77	0.02	0.58	NA	
		5	6	7	8			
Chromium	-0.78	1	2	3	4	2211108-BLK1	NA	5.00
		-0.58	-0.27	0.24	0.22	-0.07	NA	
		5	6	7	8			
	-0.78	1	2	3	4	2211109-BLK1	NA	5.00
		-0.58	-0.27	0.24	0.22	0.10	NA	
		5	6	7	8			
Copper	1.17	1	2	3	4	2211109-BLK1	NA	3.00
		0.45	1.00	0.90	1.06	0.92	NA	
		5	6	7	8			
	1.17	1	2	3	4	2211108-BLK1	NA	3.00
		0.45	1.00	0.90	1.06	1.13	NA	
		5	6	7	8			
Iron	-0.72	1	2	3	4	2211108-BLK1	NA	250.00
		0.45	0.25	-0.74	1.40	4.53	NA	
		5	6	7	8			
	-0.72	1	2	3	4	2211109-BLK1	NA	250.00
		0.45	0.25	-0.74	1.40	2.85	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212070 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Potassium	-11.44	1	2	3	4	2211109-BLK1	NA	1,000.00
		22.32	46.06	26.51	94.90	45.96	NA	
		5	6	7	8			
	-11.44	1	2	3	4	2211108-BLK1	NA	1,000.00
		22.32	46.06	26.51	94.90	-9.77	NA	
		5	6	7	8			
Magnesium	1.21	1	2	3	4	2211109-BLK1	NA	500.00
		0.27	1.28	0.32	1.04	0.42	NA	
		5	6	7	8			
	1.21	1	2	3	4	2211108-BLK1	NA	500.00
		0.27	1.28	0.32	1.04	2.29	NA	
		5	6	7	8			
Manganese	0.02	1	2	3	4	2211109-BLK1	NA	15.00
		-0.08	-0.05	-0.08	-0.10	0.14	NA	
		5	6	7	8			
	0.02	1	2	3	4	2211108-BLK1	NA	15.00
		-0.08	-0.05	-0.08	-0.10	-0.13	NA	
		5	6	7	8			
Sodium	-11.41	1	2	3	4	2211108-BLK1	NA	1,000.00
		7.91	-7.56	-17.17	-0.76	8.99	NA	
		5	6	7	8			
	-11.41	1	2	3	4	2211109-BLK1	NA	1,000.00
		7.91	-7.56	-17.17	-0.76	3.18	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212070 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Nickel	-2.18	1	2	3	4	2211109-BLK1	NA	20.00
		-0.38	-1.65	-0.61	-4.54	-1.43	NA	
		5	6	7	8			
	-2.18	1	2	3	4	2211108-BLK1	NA	10.00
		-0.38	-1.65	-0.61	-4.54	-2.79	NA	
		5	6	7	8			
Silica (SiO2)	4.80	1	2	3	4	2211108-BLK1	NA	1,000.00
		-0.95	1.27	3.56	1.19	16.59	NA	
		5	6	7	8			
	4.80	1	2	3	4	2211109-BLK1	NA	1,000.00
		-0.95	1.27	3.56	1.19	18.64	NA	
		5	6	7	8			
Zinc	-0.46	1	2	3	4	2211109-BLK1	NA	30.00
		-0.87	-1.34	-0.24	-1.44	-2.51	NA	
		5	6	7	8			
	-0.46	1	2	3	4	2211108-BLK1	NA	30.00
		-0.87	-1.34	-0.24	-1.44	1.45	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212073 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Aluminum	0.42	1	2	3	4	2211108-BLK1	NA	100.00
		0.32	-1.06			3.18	NA	
		5	6	7	8			
	0.42	1	2	3	4	2211109-BLK1	NA	100.00
		0.32	-1.06			0.03	NA	
		5	6	7	8			
Barium	0.37	1	2	3	4	2211109-BLK1	NA	5.00
		0.83	0.22			1.05	NA	
		5	6	7	8			
	0.37	1	2	3	4	2211108-BLK1	NA	5.00
		0.83	0.22			-0.09	NA	
		5	6	7	8			
Beryllium	0.06	1	2	3	4	2211108-BLK1	NA	5.00
		-0.14	-0.09			-0.13	NA	
		5	6	7	8			
	0.06	1	2	3	4	2211109-BLK1	NA	5.00
		-0.14	-0.09			-0.15	NA	
		5	6	7	8			
Calcium	0.40	1	2	3	4	2211108-BLK1	NA	350.00
		0.96	2.59			5.68	NA	
		5	6	7	8			
	0.40	1	2	3	4	2211109-BLK1	NA	350.00
		0.96	2.59			-1.87	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212073 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Cadmium	0.15	1	2	3	4	2211109-BLK1	NA	5.00
		-0.17	-0.25			-0.39	NA	
		5	6	7	8			
Cobalt	1.17	1	2	3	4	2211109-BLK1	NA	5.00
		0.68	0.89			0.58	NA	
		5	6	7	8			
	1.17	1	2	3	4	2211108-BLK1	NA	5.00
		0.68	0.89			-1.41	NA	
		5	6	7	8			
Chromium	0.39	1	2	3	4	2211108-BLK1	NA	5.00
		0.23	0.70			-0.07	NA	
		5	6	7	8			
	0.39	1	2	3	4	2211109-BLK1	NA	5.00
		0.23	0.70			0.10	NA	
		5	6	7	8			
Copper	0.29	1	2	3	4	2211108-BLK1	NA	3.00
		0.33	0.47			1.13	NA	
		5	6	7	8			
	0.29	1	2	3	4	2211109-BLK1	NA	3.00
		0.33	0.47			0.92	NA	
		5	6	7	8			
Iron	0.20	1	2	3	4	2211108-BLK1	NA	250.00
		1.79	1.28			4.53	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212073 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Iron	0.20	1	2	3	4	2211109-BLK1	NA	250.00
		1.79	1.28			2.85	NA	
		5	6	7	8			
Potassium	45.78	1	2	3	4	2211108-BLK1	NA	1,000.00
		-7.62	54.01			-9.77	NA	
		5	6	7	8			
	45.78	1	2	3	4	2211109-BLK1	NA	1,000.00
		-7.62	54.01			45.96	NA	
		5	6	7	8			
Magnesium	1.23	1	2	3	4	2211108-BLK1	NA	500.00
		0.66	1.19			2.29	NA	
		5	6	7	8			
	1.23	1	2	3	4	2211109-BLK1	NA	500.00
		0.66	1.19			0.42	NA	
		5	6	7	8			
Manganese	0.23	1	2	3	4	2211109-BLK1	NA	15.00
		0.33	0.08			0.14	NA	
		5	6	7	8			
	0.23	1	2	3	4	2211108-BLK1	NA	15.00
		0.33	0.08			-0.13	NA	
		5	6	7	8			
Sodium	-10.05	1	2	3	4	2211108-BLK1	NA	1,000.00
		-11.56	-13.20			8.99	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212073 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Sodium	-10.05	1	2	3	4	2211109-BLK1	NA	1,000.00
		-11.56	-13.20			3.18	NA	
		5	6	7	8			
Nickel	-0.15	1	2	3	4	2211108-BLK1	NA	10.00
		-1.76	-2.36			-2.79	NA	
		5	6	7	8			
	-0.15	1	2	3	4	2211109-BLK1	NA	20.00
		-1.76	-2.36			-1.43	NA	
		5	6	7	8			
Silica (SiO2)	8.63	1	2	3	4	2211108-BLK1	NA	1,000.00
		2.04	2.56			16.59	NA	
		5	6	7	8			
	8.63	1	2	3	4	2211109-BLK1	NA	1,000.00
		2.04	2.56			18.64	NA	
		5	6	7	8			
Vanadium	0.49	1	2	3	4	2211109-BLK1	NA	50.00
		-0.01	-0.35			0.33	NA	
		5	6	7	8			
Zinc	-0.99	1	2	3	4	2211109-BLK1	NA	30.00
		-2.55	-1.43			-2.51	NA	
		5	6	7	8			
	-0.99	1	2	3	4	2211108-BLK1	NA	30.00
		-2.55	-1.43			1.45	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima A

Work Order: C221001

Analytical Sequence: 2212075 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Aluminum	5.44	1	2	3	4	2212008-BLK1	NA	100.00
		3.10	17.24	6.80		1.99	NA	
		5	6	7	8			
	5.44	1	2	3	4	2211030-BLK1	NA	100.00
		3.10	17.24	6.80		-2.66	NA	
		5	6	7	8			
Barium	1.85	1	2	3	4	2211030-BLK1	NA	5.00
		0.47	1.19	-1.62		-0.30	NA	
		5	6	7	8			
	1.85	1	2	3	4	2212008-BLK1	NA	5.00
		0.47	1.19	-1.62		-0.50	NA	
		5	6	7	8			
Beryllium	0.46	1	2	3	4	2211030-BLK1	NA	5.00
		-0.38	-0.39	-0.35		-0.60	NA	
		5	6	7	8			
	0.46	1	2	3	4	2212008-BLK1	NA	5.00
		-0.38	-0.39	-0.35		0.08	NA	
		5	6	7	8			
Calcium	5.10	1	2	3	4	2212008-BLK1	NA	350.00
		14.35	9.29	12.30		5.75	NA	
		5	6	7	8			
	5.10	1	2	3	4	2211030-BLK1	NA	350.00
		14.35	9.29	12.30		-0.27	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima A

Work Order: C221001

Analytical Sequence: 2212075 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Cobalt	0.51	1	2	3	4	2212008-BLK1	NA	5.00
		0.02	-0.40	-0.05		-1.44	NA	
		5	6	7	8			
	0.51	1	2	3	4	2211030-BLK1	NA	5.00
		0.02	-0.40	-0.05		-0.02	NA	
		5	6	7	8			
Copper	0.81	1	2	3	4	2212008-BLK1	NA	3.00
		0.02	0.73	0.15		0.07	NA	
		5	6	7	8			
	0.81	1	2	3	4	2211030-BLK1	NA	3.00
		0.02	0.73	0.15		-0.55	NA	
		5	6	7	8			
Iron	5.47	1	2	3	4	2211030-BLK1	NA	250.00
		6.34	12.90	4.40		-2.62	NA	
		5	6	7	8			
	5.47	1	2	3	4	2212008-BLK1	NA	250.00
		6.34	12.90	4.40		7.55	NA	
		5	6	7	8			
Potassium	39.91	1	2	3	4	2212008-BLK1	NA	1,000.00
		85.76	35.26	30.00		-16.51	NA	
		5	6	7	8			
	39.91	1	2	3	4	2211030-BLK1	NA	1,000.00
		85.76	35.26	30.00		26.34	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima A

Work Order: C221001

Analytical Sequence: 2212075 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Magnesium	4.61	1	2	3	4	2211030-BLK1	NA	500.00
		6.72	5.08	5.49		-1.07	NA	
		5	6	7	8			
	4.61	1	2	3	4	2212008-BLK1	NA	500.00
		6.72	5.08	5.49		1.52	NA	
		5	6	7	8			
Manganese	0.52	1	2	3	4	2211030-BLK1	NA	15.00
		-0.49	-0.39	-0.33		-0.90	NA	
		5	6	7	8			
	0.52	1	2	3	4	2212008-BLK1	NA	15.00
		-0.49	-0.39	-0.33		0.07	NA	
		5	6	7	8			
Sodium	5.20	1	2	3	4	2212008-BLK1	NA	1,000.00
		16.59	11.61	7.76		15.83	NA	
		5	6	7	8			
	5.20	1	2	3	4	2211030-BLK1	NA	1,000.00
		16.59	11.61	7.76		8.92	NA	
		5	6	7	8			
Nickel	1.67	1	2	3	4	2211030-BLK1	NA	20.00
		-0.82	1.20	0.83		-0.87	NA	
		5	6	7	8			
	1.67	1	2	3	4	2212008-BLK1	NA	20.00
		-0.82	1.20	0.83		-3.91	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7Analysis Name: ICPOE Diss. MetalsInstrument: ICPOE - PE Optima AWork Order: C221001Analytical Sequence: 2212075 **Dissolved**Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Zinc	2.89	1	2	3	4	2212008-BLK1	NA	30.00
		23.28	15.36	14.48		-1.23	NA	
		5	6	7	8			
	2.89	1	2	3	4	2211030-BLK1	NA	30.00
		23.28	15.36	14.48		9.84	NA	
		5	6	7	8			
Silica (SiO2)	3.44	1	2	3	4	2212008-BLK1	NA	1,000.00
		-5.44	-2.22	0.47		-12.56	NA	
		5	6	7	8			
	3.44	1	2	3	4	2211030-BLK1	NA	1,000.00
		-5.44	-2.22	0.47		11.26	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212076 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Aluminum	-1.10	1	2	3	4	2212008-BLK1	NA	100.00
		-1.15	0.02			1.99	NA	
		5	6	7	8			
	-1.10	1	2	3	4	2211030-BLK1	NA	100.00
		-1.15	0.02			-2.66	NA	
		5	6	7	8			
Barium	-0.04	1	2	3	4	2212008-BLK1	NA	5.00
		-0.84	-0.26			-0.50	NA	
		5	6	7	8			
	-0.04	1	2	3	4	2211030-BLK1	NA	5.00
		-0.84	-0.26			-0.30	NA	
		5	6	7	8			
Beryllium	0.11	1	2	3	4	2212008-BLK1	NA	5.00
		0.02	0.11			0.08	NA	
		5	6	7	8			
	0.11	1	2	3	4	2211030-BLK1	NA	5.00
		0.02	0.11			-0.60	NA	
		5	6	7	8			
Calcium	1.38	1	2	3	4	2211030-BLK1	NA	350.00
		-1.38	-1.72			-0.27	NA	
		5	6	7	8			
	1.38	1	2	3	4	2212008-BLK1	NA	350.00
		-1.38	-1.72			5.75	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212076 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Cadmium	0.50	1	2	3	4	2212008-BLK1	NA	5.00
		0.26	0.05			-0.13	NA	
		5	6	7	8			
Cobalt	0.57	1	2	3	4	2212008-BLK1	NA	5.00
		-0.44	-0.04			-1.44	NA	
		5	6	7	8			
	0.57	1	2	3	4	2211030-BLK1	NA	5.00
		-0.44	-0.04			-0.02	NA	
		5	6	7	8			
Chromium	-0.02	1	2	3	4	2212008-BLK1	NA	5.00
		0.03	-0.33			-0.10	NA	
		5	6	7	8			
Copper	0.08	1	2	3	4	2211030-BLK1	NA	3.00
		-0.27	0.03			-0.55	NA	
		5	6	7	8			
	0.08	1	2	3	4	2212008-BLK1	NA	3.00
		-0.27	0.03			0.07	NA	
		5	6	7	8			
Iron	0.30	1	2	3	4	2212008-BLK1	NA	250.00
		1.76	2.51			7.55	NA	
		5	6	7	8			
	0.30	1	2	3	4	2211030-BLK1	NA	250.00
		1.76	2.51			-2.62	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212076 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Potassium	-61.03	1	2	3	4	2212008-BLK1	NA	1,000.00
		-30.21	-6.35			-16.51	NA	
		5	6	7	8			
	-61.03	1	2	3	4	2211030-BLK1	NA	1,000.00
		-30.21	-6.35			26.34	NA	
		5	6	7	8			
Magnesium	-1.03	1	2	3	4	2211030-BLK1	NA	500.00
		-1.10	-0.76			-1.07	NA	
		5	6	7	8			
	-1.03	1	2	3	4	2212008-BLK1	NA	500.00
		-1.10	-0.76			1.52	NA	
		5	6	7	8			
Manganese	0.07	1	2	3	4	2212008-BLK1	NA	15.00
		0.07	0.18			0.07	NA	
		5	6	7	8			
	0.07	1	2	3	4	2211030-BLK1	NA	15.00
		0.07	0.18			-0.90	NA	
		5	6	7	8			
Sodium	9.89	1	2	3	4	2211030-BLK1	NA	1,000.00
		7.39	7.83			8.92	NA	
		5	6	7	8			
	9.89	1	2	3	4	2212008-BLK1	NA	1,000.00
		7.39	7.83			15.83	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.7

Analysis Name: ICPOE Diss. Metals

Instrument: ICPOE - PE Optima B

Work Order: C221001

Analytical Sequence: 2212076 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Nickel	-0.97	1	2	3	4	2212008-BLK1	NA	20.00
		-0.64	-1.53			-3.91	NA	
		5	6	7	8			
	-0.97	1	2	3	4	2211030-BLK1	NA	20.00
		-0.64	-1.53			-0.87	NA	
		5	6	7	8			
Lead	-5.69	1	2	3	4	2212008-BLK1	NA	40.00
		-3.76	0.42			-4.09	NA	
		5	6	7	8			
Selenium	19.16	1	2	3	4	2212008-BLK1	NA	250.00
		23.99	18.19			17.23	NA	
		5	6	7	8			
Zinc	-0.14	1	2	3	4	2212008-BLK1	NA	30.00
		-0.71	1.07			-1.23	NA	
		5	6	7	8			
	-0.14	1	2	3	4	2211030-BLK1	NA	30.00
		-0.71	1.07			9.84	NA	
		5	6	7	8			
Silica (SiO2)	1.45	1	2	3	4	2212008-BLK1	NA	1,000.00
		1.71	-1.92			-12.56	NA	
		5	6	7	8			
	1.45	1	2	3	4	2211030-BLK1	NA	1,000.00
		1.71	-1.92			11.26	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212077 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Vanadium	-0.17	1	2	3	4	NA	2211108-BLK2	3.00
		-0.19	-0.18	-0.17		NA	-1.19	
		5	6	7	8			
	-0.17	1	2	3	4	NA	2211109-BLK2	3.00
		-0.19	-0.18	-0.17		NA	-1.26	
		5	6	7	8			
Chromium	-0.54	1	2	3	4	NA	2211109-BLK2	2.00
		-0.57	-0.64	-0.59		NA	0.24	
		5	6	7	8			
	-0.54	1	2	3	4	NA	2211108-BLK2	2.00
		-0.57	-0.64	-0.59		NA	0.51	
		5	6	7	8			
Cobalt	0.00	1	2	3	4	NA	2211109-BLK2	0.20
		0.00	0.00	0.00		NA	0.00	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211108-BLK2	0.20
		0.00	0.00	0.00		NA	0.00	
		5	6	7	8			
Nickel	0.01	1	2	3	4	NA	2211108-BLK2	1.00
		0.01	0.00	0.02		NA	0.00	
		5	6	7	8			
	0.01	1	2	3	4	NA	2211109-BLK2	1.00
		0.01	0.00	0.02		NA	0.01	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212077 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Copper	0.01	1	2	3	4	NA	2211108-BLK2	1.00
		0.01	0.01	0.00		NA	0.01	
		5	6	7	8			
	0.01	1	2	3	4	NA	2211109-BLK2	1.00
		0.01	0.01	0.00		NA	0.02	
		5	6	7	8			
Arsenic	-0.01	1	2	3	4	NA	2211109-BLK2	2.00
		-0.02	-0.04	-0.05		NA	0.13	
		5	6	7	8			
	-0.01	1	2	3	4	NA	2211108-BLK2	2.00
		-0.02	-0.04	-0.05		NA	0.00	
		5	6	7	8			
Selenium	0.07	1	2	3	4	NA	2211109-BLK2	3.00
		-0.09	-0.07	-0.09		NA	-0.17	
		5	6	7	8			
	0.07	1	2	3	4	NA	2211108-BLK2	3.00
		-0.09	-0.07	-0.09		NA	-0.04	
		5	6	7	8			
Molybdenum	0.02	1	2	3	4	NA	2211109-BLK2	1.00
		0.02	0.03	0.02		NA	-0.01	
		5	6	7	8			
	0.02	1	2	3	4	NA	2211108-BLK2	1.00
		0.02	0.03	0.02		NA	0.03	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212077 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Silver	0.05	1	2	3	4	NA	2211108-BLK2	1.00
		0.06	0.05	0.05		NA	0.04	
		5	6	7	8			
	0.05	1	2	3	4	NA	2211109-BLK2	1.00
		0.06	0.05	0.05		NA	0.00	
		5	6	7	8			
Cadmium	0.06	1	2	3	4	NA	2211108-BLK2	0.20
		0.05	0.03	0.06		NA	0.02	
		5	6	7	8			
	0.06	1	2	3	4	NA	2211109-BLK2	0.20
		0.05	0.03	0.06		NA	0.03	
		5	6	7	8			
Antimony	0.14	1	2	3	4	NA	2211109-BLK2	1.00
		0.21	0.22	0.22		NA	0.00	
		5	6	7	8			
	0.14	1	2	3	4	NA	2211108-BLK2	1.00
		0.21	0.22	0.22		NA	-0.02	
		5	6	7	8			
Barium	0.00	1	2	3	4	NA	2211109-BLK2	10.00
		0.00	0.00	0.00		NA	0.03	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211108-BLK2	10.00
		0.00	0.00	0.00		NA	0.05	
		5	6	7	8			

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212077 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Thallium	0.00	1	2	3	4	NA	2211108-BLK2	2.00
		0.03	0.01	0.01		NA	0.08	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211109-BLK2	2.00
		0.03	0.01	0.01		NA	0.00	
		5	6	7	8			
Lead	-0.01	1	2	3	4	NA	2211109-BLK2	0.30
		-0.01	-0.01	-0.01		NA	0.06	
		5	6	7	8			
	-0.01	1	2	3	4	NA	2211108-BLK2	0.30
		-0.01	-0.01	-0.01		NA	0.21	
		5	6	7	8			
Uranium	0.00	1	2	3	4	NA	2211109-BLK2	0.20
		0.00	0.00	0.00		NA	0.00	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211108-BLK2	0.20
		0.00	0.00	0.00		NA	0.00	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212078 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Vanadium	-0.17	1	2	3	4	NA	2211109-BLK2	3.00
		-0.17	-0.19			NA	-1.26	
		5	6	7	8			
	-0.17	1	2	3	4	NA	2211108-BLK2	3.00
		-0.17	-0.19			NA	-1.19	
		5	6	7	8			
Chromium	-0.54	1	2	3	4	NA	2211109-BLK2	2.00
		-0.60	-0.64			NA	0.24	
		5	6	7	8			
	-0.54	1	2	3	4	NA	2211108-BLK2	2.00
		-0.60	-0.64			NA	0.51	
		5	6	7	8			
Cobalt	0.00	1	2	3	4	NA	2211109-BLK2	0.20
		0.00	0.00			NA	0.00	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211108-BLK2	0.20
		0.00	0.00			NA	0.00	
		5	6	7	8			
Nickel	0.01	1	2	3	4	NA	2211109-BLK2	1.00
		0.01	0.01			NA	0.01	
		5	6	7	8			
	0.01	1	2	3	4	NA	2211108-BLK2	1.00
		0.01	0.01			NA	0.00	
		5	6	7	8			

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212078 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Copper	0.01	1	2	3	4	NA	2211108-BLK2	1.00
		0.00	0.01			NA	0.01	
		5	6	7	8			
	0.01	1	2	3	4	NA	2211109-BLK2	1.00
		0.00	0.01			NA	0.02	
		5	6	7	8			
Arsenic	-0.01	1	2	3	4	NA	2211108-BLK2	2.00
		-0.01	-0.05			NA	0.00	
		5	6	7	8			
	-0.01	1	2	3	4	NA	2211109-BLK2	2.00
		-0.01	-0.05			NA	0.13	
		5	6	7	8			
Selenium	0.07	1	2	3	4	NA	2211109-BLK2	3.00
		-0.07	-0.09			NA	-0.17	
		5	6	7	8			
	0.07	1	2	3	4	NA	2211108-BLK2	3.00
		-0.07	-0.09			NA	-0.04	
		5	6	7	8			
Molybdenum	0.02	1	2	3	4	NA	2211108-BLK2	1.00
		0.03	0.03			NA	0.03	
		5	6	7	8			
	0.02	1	2	3	4	NA	2211109-BLK2	1.00
		0.03	0.03			NA	-0.01	
		5	6	7	8			

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212078 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Silver	0.05	1	2	3	4	NA	2211109-BLK2	1.00
		0.06	0.05			NA	0.00	
		5	6	7	8			
	0.05	1	2	3	4	NA	2211108-BLK2	1.00
		0.06	0.05			NA	0.04	
		5	6	7	8			
Cadmium	0.06	1	2	3	4	NA	2211108-BLK2	0.20
		0.06	0.03			NA	0.02	
		5	6	7	8			
	0.06	1	2	3	4	NA	2211109-BLK2	0.20
		0.06	0.03			NA	0.03	
		5	6	7	8			
Antimony	0.14	1	2	3	4	NA	2211109-BLK2	1.00
		0.21	0.23			NA	0.00	
		5	6	7	8			
	0.14	1	2	3	4	NA	2211108-BLK2	1.00
		0.21	0.23			NA	-0.02	
		5	6	7	8			
Barium	0.00	1	2	3	4	NA	2211108-BLK2	10.00
		0.00	0.00			NA	0.05	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211109-BLK2	10.00
		0.00	0.00			NA	0.03	
		5	6	7	8			

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212078 Total Recoverable

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Thallium	0.00	1	2	3	4	NA	2211108-BLK2	2.00
		0.02	0.01			NA	0.08	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211109-BLK2	2.00
		0.02	0.01			NA	0.00	
		5	6	7	8			
Lead	-0.01	1	2	3	4	NA	2211108-BLK2	0.30
		-0.01	-0.01			NA	0.21	
		5	6	7	8			
	-0.01	1	2	3	4	NA	2211109-BLK2	0.30
		-0.01	-0.01			NA	0.06	
		5	6	7	8			
Uranium	0.00	1	2	3	4	NA	2211109-BLK2	0.20
		0.00	0.00			NA	0.00	
		5	6	7	8			
	0.00	1	2	3	4	NA	2211108-BLK2	0.20
		0.00	0.00			NA	0.00	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212079 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Vanadium	-0.01	1	2	3	4	2212009-BLK1	NA	3.00
		-0.01	-0.03	-0.03		0.01	NA	
		5	6	7	8			
	-0.01	1	2	3	4	2211031-BLK1	NA	3.00
		-0.01	-0.03	-0.03		0.00	NA	
		5	6	7	8			
Chromium	-0.04	1	2	3	4	2211031-BLK1	NA	2.00
		-0.11	-0.17	-0.14		0.05	NA	
		5	6	7	8			
	-0.04	1	2	3	4	2212009-BLK1	NA	2.00
		-0.11	-0.17	-0.14		0.03	NA	
		5	6	7	8			
Cobalt	0.00	1	2	3	4	2212009-BLK1	NA	0.20
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
	0.00	1	2	3	4	2211031-BLK1	NA	0.20
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Nickel	-0.01	1	2	3	4	2211031-BLK1	NA	1.00
		0.00	0.00	0.00		-0.04	NA	
		5	6	7	8			
	-0.01	1	2	3	4	2212009-BLK1	NA	1.00
		0.00	0.00	0.00		-0.02	NA	
		5	6	7	8			

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Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212079 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Copper	0.01	1	2	3	4	2211031-BLK1	NA	1.00
		0.02	0.01	0.02		0.03	NA	
	5	6	7	8				
	0.01	1	2	3	4	2212009-BLK1	NA	1.00
		0.02	0.01	0.02		0.01	NA	
	5	6	7	8				
Arsenic	0.01	1	2	3	4	2212009-BLK1	NA	2.00
		-0.03	-0.02	0.00		0.04	NA	
	5	6	7	8				
	0.01	1	2	3	4	2211031-BLK1	NA	2.00
		-0.03	-0.02	0.00		0.03	NA	
	5	6	7	8				
Selenium	0.09	1	2	3	4	2212009-BLK1	NA	3.00
		0.01	-0.04	0.04		0.04	NA	
	5	6	7	8				
	0.09	1	2	3	4	2211031-BLK1	NA	3.00
		0.01	-0.04	0.04		0.06	NA	
	5	6	7	8				
Molybdenum	0.01	1	2	3	4	2212009-BLK1	NA	1.00
		0.03	0.40	0.01		-0.01	NA	
	5	6	7	8				
	0.01	1	2	3	4	2211031-BLK1	NA	1.00
		0.03	0.40	0.01		0.06	NA	
	5	6	7	8				

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212079 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Silver	0.02	1	2	3	4	2211031-BLK1	NA	1.00
		0.04	0.02	0.02		0.32	NA	
		5	6	7	8			
	0.02	1	2	3	4	2212009-BLK1	NA	1.00
		0.04	0.02	0.02		0.44	NA	
		5	6	7	8			
Cadmium	0.01	1	2	3	4	2211031-BLK1	NA	0.20
		-0.02	-0.03	-0.02		-0.04	NA	
		5	6	7	8			
	0.01	1	2	3	4	2212009-BLK1	NA	0.20
		-0.02	-0.03	-0.02		-0.02	NA	
		5	6	7	8			
Antimony	0.06	1	2	3	4	2212009-BLK1	NA	1.00
		0.13	0.11	0.13		0.11	NA	
		5	6	7	8			
	0.06	1	2	3	4	2211031-BLK1	NA	1.00
		0.13	0.11	0.13		0.04	NA	
		5	6	7	8			
Barium	0.00	1	2	3	4	2212009-BLK1	NA	10.00
		0.00	0.00	0.00		-0.01	NA	
		5	6	7	8			
	0.00	1	2	3	4	2211031-BLK1	NA	10.00
		0.00	0.00	0.00		0.01	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212079 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Thallium	0.00	1	2	3	4	2211031-BLK1	NA	2.00
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
	0.00	1	2	3	4	2212009-BLK1	NA	2.00
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Lead	0.00	1	2	3	4	2212009-BLK1	NA	0.20
		0.00	0.00	0.00		0.01	NA	
		5	6	7	8			
	0.00	1	2	3	4	2211031-BLK1	NA	0.20
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
Uranium	0.00	1	2	3	4	2211031-BLK1	NA	0.20
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			
	0.00	1	2	3	4	2212009-BLK1	NA	0.20
		0.00	0.00	0.00		0.00	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212082 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Vanadium	-0.01	1	2	3	4	2212009-BLK1	NA	3.00
		-0.03	0.06			0.01	NA	
		5	6	7	8			
	-0.01	1	2	3	4	2211031-BLK1	NA	3.00
		-0.03	0.06			0.00	NA	
		5	6	7	8			
Chromium	-0.04	1	2	3	4	2212009-BLK1	NA	2.00
		-0.09	0.01			0.03	NA	
		5	6	7	8			
	-0.04	1	2	3	4	2211031-BLK1	NA	2.00
		-0.09	0.01			0.05	NA	
		5	6	7	8			
Cobalt	0.00	1	2	3	4	2211031-BLK1	NA	0.20
		0.00	0.00			0.00	NA	
		5	6	7	8			
	0.00	1	2	3	4	2212009-BLK1	NA	0.20
		0.00	0.00			0.00	NA	
		5	6	7	8			
Nickel	-0.01	1	2	3	4	2211031-BLK1	NA	1.00
		0.01	-0.03			-0.04	NA	
		5	6	7	8			
	-0.01	1	2	3	4	2212009-BLK1	NA	1.00
		0.01	-0.03			-0.02	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TechLaw Inc., ESAT Region 8
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Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212082 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Copper	0.01	1	2	3	4	2211031-BLK1	NA	1.00
		0.02	0.00			0.03	NA	
		5	6	7	8			
	0.01	1	2	3	4	2212009-BLK1	NA	1.00
		0.02	0.00			0.01	NA	
		5	6	7	8			
Arsenic	0.01	1	2	3	4	2211031-BLK1	NA	2.00
		-0.03	-0.05			0.03	NA	
		5	6	7	8			
	0.01	1	2	3	4	2212009-BLK1	NA	2.00
		-0.03	-0.05			0.04	NA	
		5	6	7	8			
Selenium	0.09	1	2	3	4	2212009-BLK1	NA	3.00
		-0.05	0.08			0.04	NA	
		5	6	7	8			
	0.09	1	2	3	4	2211031-BLK1	NA	3.00
		-0.05	0.08			0.06	NA	
		5	6	7	8			
Molybdenum	0.01	1	2	3	4	2211031-BLK1	NA	1.00
		0.02	0.03			0.06	NA	
		5	6	7	8			
	0.01	1	2	3	4	2212009-BLK1	NA	1.00
		0.02	0.03			-0.01	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212082 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Silver	0.02	1	2	3	4	2211031-BLK1	NA	1.00
		0.03	0.08			0.32	NA	
		5	6	7	8			
	0.02	1	2	3	4	2212009-BLK1	NA	1.00
		0.03	0.08			0.44	NA	
		5	6	7	8			
Cadmium	0.01	1	2	3	4	2212009-BLK1	NA	0.20
		0.00	0.01			-0.02	NA	
		5	6	7	8			
	0.01	1	2	3	4	2211031-BLK1	NA	0.20
		0.00	0.01			-0.04	NA	
		5	6	7	8			
Antimony	0.06	1	2	3	4	2211031-BLK1	NA	1.00
		0.13	0.20			0.04	NA	
		5	6	7	8			
	0.06	1	2	3	4	2212009-BLK1	NA	1.00
		0.13	0.20			0.11	NA	
		5	6	7	8			
Barium	0.00	1	2	3	4	2212009-BLK1	NA	10.00
		0.00	0.01			-0.01	NA	
		5	6	7	8			
	0.00	1	2	3	4	2211031-BLK1	NA	10.00
		0.00	0.01			0.01	NA	
		5	6	7	8			

Project Name: Ruby Mine_SW_SEP 2022_A046

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TDF #: A-046

TechLaw Inc., ESAT Region 8
INORGANIC ANALYSES DATA SHEET
Initial and Continuing Calibration Blanks

Analytical Method: 200.8

Analysis Name: ICPMS Diss. Metals

Instrument: ICPMS-PE NEXION350D

Work Order: C221001

Analytical Sequence: 2212082 Dissolved

Concentration Units: ug/L

Blank criteria = +/- 5x analyte MDL (+/- PQL)

Analyte	Initial Calibration Blank (1 & 2)	Continuing Calibration Blanks				Method Blank (Batch ID)		PQL
Thallium	0.00	1	2	3	4	2211031-BLK1	NA	2.00
		0.00	0.01			0.00	NA	
		5	6	7	8			
	0.00	1	2	3	4	2212009-BLK1	NA	2.00
		0.00	0.01			0.00	NA	
		5	6	7	8			
Lead	0.00	1	2	3	4	2211031-BLK1	NA	0.20
		0.00	0.01			0.00	NA	
		5	6	7	8			
	0.00	1	2	3	4	2212009-BLK1	NA	0.20
		0.00	0.01			0.01	NA	
		5	6	7	8			
Uranium	0.00	1	2	3	4	2211031-BLK1	NA	0.20
		0.00	0.01			0.00	NA	
		5	6	7	8			
	0.00	1	2	3	4	2212009-BLK1	NA	0.20
		0.00	0.01			0.00	NA	
		5	6	7	8			

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

Mettler T5

Method: EPA 310.1

Analysis Name: WC - Alkalinity

Sequence: 2210040

Work Order: C221001

Units: mg CaCO₃ / L

Total Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Total Alkalinity				1			2			3		
				100	101	101.0	100	104	104.0	100	105	105.0
				4			5			6		
				100	104	104.0						
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

NIC RA-4500

Method: 245.1

Analysis Name: TM_Mercury 245.1

Sequence: 2210076

Work Order: C221001

Units: ug/L

Total Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Mercury	5.00	4.99	99.8	1			2			3		
				5.00	5.05	101.0	5.00	5.01	100.2	5.00	5.03	100.6
				4			5			6		
		5.00			5.01	100.2						
		7			8			9				

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ESAT Dionex IC

Method: EPA 300.0

Analysis Name: WC - Anions by Ion Chromatography

Sequence: 2210122

Work Order: C221001

Units: mg/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Bromide	10.0	10.2	102.0	1			2			3		
				10.0	10.1	101.0	10.0	10.0	100.0	10.0	10.0	100.0
				4			5			6		
	10.0	10.0	100.0	10.0	10.1	101.0	10.0	10.3	103.0			
				7			8			9		
Chloride	40.0	40.2	100.5	1			2			3		
				40.0	40.1	100.3	40.0	40.1	100.3	40.0	40.4	101.0
				4			5			6		
	40.0	40.2	100.5	40.0	40.4	101.0	40.0	40.6	101.5			
				7			8			9		
Fluoride	4.00	4.1	102.5	1			2			3		
				4.00	4.1	102.5	4.00	3.8	95.0	4.00	3.9	97.5
				4			5			6		
	4.00	3.9	97.5	4.00	4.0	100.0	4.00	4.2	105.0			
				7			8			9		
Nitrate/Nitrite as N	20.0	20.4	102.0	1			2			3		
				20.0	20.3	101.5	20.0	20.2	101.0	20.0	20.4	102.0
				4			5			6		
	20.0	20.3	101.5	20.0	20.5	102.5	20.0	20.6	103.0			
				7			8			9		
Sulfate as SO4	100	100	100.0	1			2			3		
				100	100	100.0	100	100	100.0	100	101	101.0
				4			5			6		
	100	101	101.0	100	101	101.0	100	101	101.0			
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2212070

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	12500	12420	99.4	1			2			3		
				12500	12470	99.8	12500	12470	99.8	12500	12580	100.6
				4			5			6		
				12500	12430	99.4						
				7			8			9		
Barium	500	504.3	100.9	1			2			3		
				500	502.4	100.5	500	497.1	99.4	500	501.2	100.2
				4			5			6		
				500	518.0	103.6						
				7			8			9		
Beryllium	500	485.8	97.2	1			2			3		
				500	486.6	97.3	500	487.1	97.4	500	489.6	97.9
				4			5			6		
				500	481.1	96.2						
				7			8			9		
Calcium	12500	12600	100.8	1			2			3		
				12500	12450	99.6	12500	12310	98.5	12500	12380	99.0
				4			5			6		
				12500	12790	102.3						
				7			8			9		
Chromium	2500	2525	101.0	1			2			3		
				2500	2560	102.4	2500	2527	101.1	2500	2514	100.6
				4			5			6		
				2500	2499	100.0						
				7			8			9		
Cobalt	500	509.1	101.8	1			2			3		
				500	509.7	101.9	500	505.6	101.1	500	503.5	100.7
				4			5			6		
				500	499.4	99.9						
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2212070

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	1000	1015	101.5		1			2			3	
				1000	1032	103.2	1000	1024	102.4	1000	1025	102.5
					4			5			6	
				1000	1024	102.4						
					7			8			9	
Iron	12500	12680	101.4		1			2			3	
				12500	12600	100.8	12500	12760	102.1	12500	12820	102.6
					4			5			6	
				12500	13080	104.6						
					7			8			9	
Magnesium	12500	12620	101.0		1			2			3	
				12500	12670	101.4	12500	12790	102.3	12500	13010	104.1
					4			5			6	
				12500	13370	107.0						
					7			8			9	
Manganese	1000	977.2	97.7		1			2			3	
				1000	973.0	97.3	1000	973.6	97.4	1000	978.4	97.8
					4			5			6	
				1000	961.7	96.2						
					7			8			9	
Nickel	2500	2581	103.2		1			2			3	
				2500	2602	104.1	2500	2552	102.1	2500	2541	101.6
					4			5			6	
				2500	2533	101.3						
					7			8			9	
Potassium	25000	24080	96.3		1			2			3	
				25000	24150	96.6	25000	24510	98.0	25000	24890	99.6
					4			5			6	
				25000	25770	103.1						
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2212070

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Silica (SiO ₂)	10000	10280	102.8	1			2			3		
				10000	10350	103.5	10000	10230	102.3	10000	10290	102.9
				4			5			6		
				10000	10280	102.8						
				7			8			9		
Sodium	12500	12480	99.8	1			2			3		
				12500	12500	100.0	12500	12630	101.0	12500	12900	103.2
				4			5			6		
				12500	13260	106.1						
				7			8			9		
Zinc	2500	2553	102.1	1			2			3		
				2500	2529	101.2	2500	2494	99.8	2500	2500	100.0
				4			5			6		
				2500	2576	103.0						
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2212073

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	12500	12380	99.0	1			2			3		
				12500	12480	99.8	12500	12450	99.6			
				4			5			6		
				7			8			9		
Barium	500	484.0	96.8	1			2			3		
				500	485.5	97.1	500	484.2	96.8			
				4			5			6		
				7			8			9		
Beryllium	500	499.7	99.9	1			2			3		
				500	505.6	101.1	500	502.8	100.6			
				4			5			6		
				7			8			9		
Cadmium	500	518.1	103.6	1			2			3		
				500	517.7	103.5	500	513.7	102.7			
				4			5			6		
				7			8			9		
Calcium	12500	12070	96.6	1			2			3		
				12500	12060	96.5	12500	11950	95.6			
				4			5			6		
				7			8			9		
Chromium	2500	2456	98.2	1			2			3		
				2500	2456	98.2	2500	2432	97.3			
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2212073

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Cobalt	500	524.1	104.8		1			2			3	
				500	525.0	105.0	500	523.2	104.6			
					4			5			6	
					7			8			9	
Copper	1000	1036	103.6		1			2			3	
				1000	1048	104.8	1000	1040	104.0			
					4			5			6	
					7			8			9	
Iron	12500	12090	96.7		1			2			3	
				12500	12150	97.2	12500	12150	97.2			
					4			5			6	
					7			8			9	
Magnesium	12500	12230	97.8		1			2			3	
				12500	12240	97.9	12500	12340	98.7			
					4			5			6	
					7			8			9	
Manganese	1000	1009	100.9		1			2			3	
				1000	1019	101.9	1000	1013	101.3			
					4			5			6	
					7			8			9	
Nickel	2500	2526	101.0		1			2			3	
				2500	2536	101.4	2500	2499	100.0			
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Tot. Rec. Metals

Sequence: 2212073

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Potassium	25000	23740	95.0	1			2			3		
				25000	23800	95.2	25000	24180	96.7			
				4			5			6		
		7			8			9				
Silica (SiO2)	10000	9724	97.2	1			2			3		
				10000	9937	99.4	10000	9868	98.7			
				4			5			6		
		7			8			9				
Sodium	12500	12200	97.6	1			2			3		
				12500	12200	97.6	12500	12190	97.5			
				4			5			6		
		7			8			9				
Vanadium	1000	970.2	97.0	1			2			3		
				1000	998.7	99.9	1000	986.6	98.7			
				4			5			6		
		7			8			9				
Zinc	2500	2431	97.2	1			2			3		
				2500	2424	97.0	2500	2419	96.8			
				4			5			6		
		7			8			9				

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima A

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2212075

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	12500	12290	98.3	1			2			3		
				12500	12420	99.4	12500	12370	99.0	12500	12980	103.8
				4			5			6		
				7			8			9		
Barium	500	479.2	95.8	1			2			3		
				500	471.3	94.3	500	467.4	93.5	500	466.8	93.4
				4			5			6		
				7			8			9		
Beryllium	500	500.3	100.1	1			2			3		
				500	503.8	100.8	500	501.7	100.3	500	525.5	105.1
				4			5			6		
				7			8			9		
Calcium	12500	12080	96.6	1			2			3		
				12500	11750	94.0	12500	11940	95.5	12500	11800	94.4
				4			5			6		
				7			8			9		
Cobalt	500	499.6	99.9	1			2			3		
				500	507.9	101.6	500	502.3	100.5	500	519.9	104.0
				4			5			6		
				7			8			9		
Copper	1000	991.1	99.1	1			2			3		
				1000	1005	100.5	1000	991.9	99.2	1000	1046	104.6
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima A

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2212075

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Iron	12500	12200	97.6	1	2	3	12500	11930	95.4	12500	11940	95.5
				4	5	6						
				7	8	9						
Magnesium	12500	12390	99.1	1	2	3	12500	11970	95.8	12500	12130	97.0
				4	5	6	12500	11980	95.8			
				7	8	9						
Manganese	1000	982.8	98.3	1	2	3	1000	998.1	99.8	1000	978.5	97.9
				4	5	6	1000	1035	103.5			
				7	8	9						
Nickel	2500	2507	100.3	1	2	3	2500	2546	101.8	2500	2514	100.6
				4	5	6	2500	2655	106.2			
				7	8	9						
Potassium	25000	24390	97.6	1	2	3	25000	23880	95.5	25000	23750	95.0
				4	5	6	25000	23810	95.2			
				7	8	9						
Silica (SiO2)	10000	9955	99.6	1	2	3	10000	10090	100.9	10000	9959	99.6
				4	5	6	10000	10520	105.2			
				7	8	9						

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima A

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2212075

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Sodium	12500	12160	97.3	1			2			3		
				12500	11850	94.8	12500	11970	95.8	12500	11850	94.8
				4			5			6		
				7			8			9		
Zinc	2500	2442	97.7	1			2			3		
				2500	2434	97.4	2500	2410	96.4	2500	2411	96.4
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2212076

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Aluminum	12500	12380	99.0	1			2			3		
				12500	12380	99.0	12500	12410	99.3			
				4			5			6		
				7			8			9		
Barium	500	483.2	96.6	1			2			3		
				500	471.6	94.3	500	476.8	95.4			
				4			5			6		
				7			8			9		
Beryllium	500	504.6	100.9	1			2			3		
				500	502.0	100.4	500	502.8	100.6			
				4			5			6		
				7			8			9		
Cadmium	500	492.1	98.4	1			2			3		
				500	488.5	97.7	500	489.7	97.9			
				4			5			6		
				7			8			9		
Calcium	12500	12110	96.9	1			2			3		
				12500	11790	94.3	12500	11870	95.0			
				4			5			6		
				7			8			9		
Chromium	2500	2458	98.3	1			2			3		
				2500	2486	99.4	2500	2438	97.5			
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2212076

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Cobalt	500	527.0	105.4		1			2			3	
				500	527.6	105.5	500	526.6	105.3			
					4			5			6	
					7			8			9	
Copper	1000	970.0	97.0		1			2			3	
				1000	983.5	98.4	1000	965.2	96.5			
					4			5			6	
					7			8			9	
Iron	12500	12130	97.0		1			2			3	
				12500	11910	95.3	12500	11990	95.9			
					4			5			6	
					7			8			9	
Lead	2500	2510	100.4		1			2			3	
				2500	2497	99.9	2500	2499	100.0			
					4			5			6	
					7			8			9	
Magnesium	12500	12160	97.3		1			2			3	
				12500	11990	95.9	12500	12010	96.1			
					4			5			6	
					7			8			9	
Manganese	1000	1016	101.6		1			2			3	
				1000	1012	101.2	1000	1013	101.3			
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPOE - PE Optima B

Method: 200.7

Analysis Name: ICPOE Diss. Metals

Sequence: 2212076

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Nickel	2500	2532	101.3		1			2			3	
				2500	2552	102.1	2500	2505	100.2			
					4			5			6	
					7			8			9	
Potassium	25000	23770	95.1		1			2			3	
				25000	23170	92.7	25000	23410	93.6			
					4			5			6	
					7			8			9	
Selenium	2500	2535	101.4		1			2			3	
				2500	2478	99.1	2500	2495	99.8			
					4			5			6	
					7			8			9	
Silica (SiO2)	10000	9764	97.6		1			2			3	
				10000	9889	98.9	10000	9682	96.8			
					4			5			6	
					7			8			9	
Sodium	12500	12000	96.0		1			2			3	
				12500	11820	94.6	12500	11930	95.4			
					4			5			6	
					7			8			9	
Zinc	2500	2457	98.3		1			2			3	
				2500	2391	95.6	2500	2415	96.6			
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2212077

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	50.35	100.7		1			2			3	
				50.0	49.27	98.5	50.0	48.21	96.4	50.0	49.43	98.9
					4			5			6	
					7			8			9	
Arsenic	50.0	48.46	96.9		1			2			3	
				50.0	48.00	96.0	50.0	47.97	95.9	50.0	48.30	96.6
					4			5			6	
					7			8			9	
Barium	50.0	50.04	100.1		1			2			3	
				50.0	49.55	99.1	50.0	48.02	96.0	50.0	49.05	98.1
					4			5			6	
					7			8			9	
Cadmium	50.0	49.69	99.4		1			2			3	
				50.0	49.13	98.3	50.0	47.77	95.5	50.0	49.15	98.3
					4			5			6	
					7			8			9	
Chromium	50.0	49.82	99.6		1			2			3	
				50.0	48.97	97.9	50.0	48.22	96.4	50.0	49.49	99.0
					4			5			6	
					7			8			9	
Cobalt	50.0	49.72	99.4		1			2			3	
				50.0	49.27	98.5	50.0	47.92	95.8	50.0	49.27	98.5
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2212077

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	50.0	50.24	100.5		1			2			3	
				50.0	50.18	100.4	50.0	48.33	96.7	50.0	49.54	99.1
					4			5			6	
					7			8			9	
Lead	50.0	49.61	99.2		1			2			3	
				50.0	51.52	103.0	50.0	52.22	104.4	50.0	52.26	104.5
					4			5			6	
					7			8			9	
Molybdenum	50.0	50.15	100.3		1			2			3	
				50.0	49.54	99.1	50.0	48.42	96.8	50.0	49.23	98.5
					4			5			6	
					7			8			9	
Nickel	50.0	49.60	99.2		1			2			3	
				50.0	50.28	100.6	50.0	48.95	97.9	50.0	49.49	99.0
					4			5			6	
					7			8			9	
Selenium	50.0	49.50	99.0		1			2			3	
				50.0	49.83	99.7	50.0	48.55	97.1	50.0	48.38	96.8
					4			5			6	
					7			8			9	
Silver	50.0	50.73	101.5		1			2			3	
				50.0	49.78	99.6	50.0	49.58	99.2	50.0	50.31	100.6
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2212077

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Thallium	50.0	49.10	98.2	1			2			3		
				50.0	50.92	101.8	50.0	51.77	103.5	50.0	51.47	102.9
				4			5			6		
		7			8			9				
Uranium	50.0	49.65	99.3	1			2			3		
				50.0	52.09	104.2	50.0	53.35	106.7	50.0	52.91	105.8
				4			5			6		
		7			8			9				
Vanadium	50.0	50.28	100.6	1			2			3		
				50.0	49.29	98.6	50.0	48.66	97.3	50.0	50.31	100.6
				4			5			6		
		7			8			9				

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2212078

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	50.35	100.7		1			2			3	
				50.0	50.48	101.0	50.0	49.50	99.0			
					4			5			6	
					7			8			9	
Arsenic	50.0	48.46	96.9		1			2			3	
				50.0	49.48	99.0	50.0	47.75	95.5			
					4			5			6	
					7			8			9	
Barium	50.0	50.04	100.1		1			2			3	
				50.0	49.80	99.6	50.0	47.51	95.0			
					4			5			6	
					7			8			9	
Cadmium	50.0	49.69	99.4		1			2			3	
				50.0	49.79	99.6	50.0	47.87	95.7			
					4			5			6	
					7			8			9	
Chromium	50.0	49.82	99.6		1			2			3	
				50.0	49.73	99.5	50.0	48.84	97.7			
					4			5			6	
					7			8			9	
Cobalt	50.0	49.72	99.4		1			2			3	
				50.0	49.75	99.5	50.0	48.53	97.1			
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2212078

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	50.0	50.24	100.5		1			2			3	
				50.0	50.36	100.7	50.0	48.38	96.8			
					4			5			6	
					7			8			9	
Lead	50.0	49.61	99.2		1			2			3	
				50.0	53.28	106.6	50.0	52.44	104.9			
					4			5			6	
					7			8			9	
Molybdenum	50.0	50.15	100.3		1			2			3	
				50.0	50.14	100.3	50.0	48.62	97.2			
					4			5			6	
					7			8			9	
Nickel	50.0	49.60	99.2		1			2			3	
				50.0	49.98	100.0	50.0	48.89	97.8			
					4			5			6	
					7			8			9	
Selenium	50.0	49.50	99.0		1			2			3	
				50.0	51.24	102.5	50.0	50.57	101.1			
					4			5			6	
					7			8			9	
Silver	50.0	50.73	101.5		1			2			3	
				50.0	51.48	103.0	50.0	50.15	100.3			
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Tot. Rec. Metals

Sequence: 2212078

Work Order: C221001

Units: ug/L

Total Recoverable Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Thallium	50.0	49.10	98.2	1			2			3		
				50.0	52.98	106.0	50.0	52.28	104.6			
				4			5			6		
				7			8			9		
Uranium	50.0	49.65	99.3	1			2			3		
				50.0	53.77	107.5	50.0	54.43	108.9			
				4			5			6		
				7			8			9		
Vanadium	50.0	50.28	100.6	1			2			3		
				50.0	49.50	99.0	50.0	48.65	97.3			
				4			5			6		
				7			8			9		

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2212079

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	49.6	99.2		1			2			3	
				50.0	48.0	96.0	50.0	48.7	97.4	50.0	50.1	100.2
					4			5			6	
					7			8			9	
Arsenic	50.0	48.5	97.0		1			2			3	
				50.0	48.3	96.6	50.0	49.6	99.2	50.0	50.0	100.0
					4			5			6	
					7			8			9	
Barium	50.0	49.5	99.0		1			2			3	
				50.0	49.1	98.2	50.0	49.1	98.2	50.0	50.4	100.8
					4			5			6	
					7			8			9	
Cadmium	50.0	49.3	98.6		1			2			3	
				50.0	47.2	94.4	50.0	48.3	96.6	50.0	48.7	97.4
					4			5			6	
					7			8			9	
Chromium	50.0	50.5	101.0		1			2			3	
				50.0	48.5	97.0	50.0	49.0	98.0	50.0	50.1	100.2
					4			5			6	
					7			8			9	
Cobalt	50.0	49.6	99.2		1			2			3	
				50.0	48.3	96.6	50.0	49.5	99.0	50.0	49.3	98.6
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2212079

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	50.0	49.7	99.4		1			2			3	
				50.0	47.7	95.4	50.0	48.5	97.0	50.0	49.3	98.6
					4			5			6	
					7			8			9	
Lead	50.0	48.9	97.8		1			2			3	
				50.0	51.0	102.0	50.0	52.5	105.0	50.0	53.0	106.0
					4			5			6	
					7			8			9	
Molybdenum	50.0	50.1	100.2		1			2			3	
				50.0	48.4	96.8	50.0	49.7	99.4	50.0	50.0	100.0
					4			5			6	
					7			8			9	
Nickel	50.0	49.8	99.6		1			2			3	
				50.0	49.2	98.4	50.0	48.9	97.8	50.0	49.6	99.2
					4			5			6	
					7			8			9	
Selenium	50.0	47.8	95.6		1			2			3	
				50.0	48.3	96.6	50.0	49.1	98.2	50.0	50.0	100.0
					4			5			6	
					7			8			9	
Silver	50.0	49.8	99.6		1			2			3	
				50.0	47.5	95.0	50.0	48.5	97.0	50.0	49.2	98.4
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2212079

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Thallium	50.0	49.3	98.6	1			2			3		
				50.0	51.0	102.0	50.0	52.3	104.6	50.0	52.7	105.4
				4			5			6		
		7			8			9				
Uranium	50.0	48.9	97.8	1			2			3		
				50.0	51.1	102.2	50.0	53.1	106.2	50.0	53.7	107.4
				4			5			6		
		7			8			9				
Vanadium	50.0	50.0	100.0	1			2			3		
				50.0	48.3	96.6	50.0	49.2	98.4	50.0	50.0	100.0
				4			5			6		
		7			8			9				

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2212082

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Antimony	50.0	49.6	99.2		1			2			3	
				50.0	48.8	97.6	50.0	49.0	98.0			
					4			5			6	
					7			8			9	
Arsenic	50.0	48.5	97.0		1			2			3	
				50.0	48.9	97.8	50.0	50.5	101.0			
					4			5			6	
					7			8			9	
Barium	50.0	49.5	99.0		1			2			3	
				50.0	49.7	99.4	50.0	50.8	101.6			
					4			5			6	
					7			8			9	
Cadmium	50.0	49.3	98.6		1			2			3	
				50.0	49.0	98.0	50.0	49.9	99.8			
					4			5			6	
					7			8			9	
Chromium	50.0	50.5	101.0		1			2			3	
				50.0	50.4	100.8	50.0	51.1	102.2			
					4			5			6	
					7			8			9	
Cobalt	50.0	49.6	99.2		1			2			3	
				50.0	49.9	99.8	50.0	50.1	100.2			
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2212082

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Copper	50.0	49.7	99.4		1			2			3	
				50.0	49.5	99.0	50.0	50.2	100.4			
					4			5			6	
					7			8			9	
Lead	50.0	48.9	97.8		1			2			3	
				50.0	51.2	102.4	50.0	51.6	103.2			
					4			5			6	
					7			8			9	
Molybdenum	50.0	50.1	100.2		1			2			3	
				50.0	50.4	100.8	50.0	51.6	103.2			
					4			5			6	
					7			8			9	
Nickel	50.0	49.8	99.6		1			2			3	
				50.0	50.1	100.2	50.0	49.8	99.6			
					4			5			6	
					7			8			9	
Selenium	50.0	47.8	95.6		1			2			3	
				50.0	49.1	98.2	50.0	50.9	101.8			
					4			5			6	
					7			8			9	
Silver	50.0	49.8	99.6		1			2			3	
				50.0	48.4	96.8	50.0	51.2	102.4			
					4			5			6	
					7			8			9	

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

Initial and Continuing Calibration Verification Results

ICPMS-PE NEXION350D

Method: 200.8

Analysis Name: ICPMS Diss. Metals

Sequence: 2212082

Work Order: C221001

Units: ug/L

Dissolved Analyte	Initial (ICV1, ICV2)			Continuing Calibration Verification Standards (CCVs)								
	True	Found	%R	True	Found	%R	True	Found	%R	True	Found	%R
Thallium	50.0	49.3	98.6	1			2			3		
				50.0	51.8	103.6	50.0	51.4	102.8			
				4			5			6		
		7			8			9				
Uranium	50.0	48.9	97.8	1			2			3		
				50.0	51.7	103.4	50.0	51.0	102.0			
				4			5			6		
		7			8			9				
Vanadium	50.0	50.0	100.0	1			2			3		
				50.0	50.8	101.6	50.0	50.8	101.6			
				4			5			6		
		7			8			9				

TDF #: A-046

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPMS-PE NEXION350D

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212077	Analysis: ICPMS Tot. Rec. Metals					
Antimony	IFA1	0.1	ug/L			1.00
	IFB1	0.0	ug/L			1.00
Arsenic	IFA1	0.0	ug/L			2.00
	IFB1	18.4	ug/L	20	92	2.00
Barium	IFA1	0.3	ug/L			10.0
	IFB1	0.4	ug/L			10.0
Cadmium	IFA1	0.2	ug/L			0.200
	IFB1	19.7	ug/L	20	99	0.200
Chromium	IFA1	0.0	ug/L			2.00
	IFB1	19.4	ug/L	20	97	2.00
Cobalt	IFA1	0.0	ug/L			0.200
	IFB1	19.3	ug/L	20	97	0.200
Copper	IFA1	0.4	ug/L			1.00
	IFB1	20.0	ug/L	20	100	1.00
Lead	IFA1	0.2	ug/L			0.200
	IFB1	0.2	ug/L			0.200
Molybdenum	IFA1	194.8	ug/L	200	97	1.00
	IFB1	193.9	ug/L	200	97	1.00
Nickel	IFA1	0.6	ug/L			1.00
	IFB1	20.4	ug/L	20	102	1.00
Selenium	IFA1	0.1	ug/L			3.00
	IFB1	-0.1	ug/L			3.00
Silver	IFA1	0.0	ug/L			1.00
	IFB1	18.6	ug/L	20	93	1.00
Thallium	IFA1	0.0	ug/L			2.00
	IFB1	0.0	ug/L			2.00
Uranium	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Vanadium	IFA1	-0.1	ug/L			3.00
	IFB1	-0.3	ug/L			3.00

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPMS-PE NEXION350D

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212078	Analysis: ICPMS Tot. Rec. Metals					
Antimony	IFA1	0.1	ug/L			1.00
	IFB1	0.0	ug/L			1.00
Arsenic	IFA1	0.0	ug/L			2.00
	IFB1	18.4	ug/L	20	92	2.00
Barium	IFA1	0.3	ug/L			10.0
	IFB1	0.4	ug/L			10.0
Cadmium	IFA1	0.2	ug/L			0.200
	IFB1	19.7	ug/L	20	99	0.200
Chromium	IFA1	0.0	ug/L			2.00
	IFB1	19.4	ug/L	20	97	2.00
Cobalt	IFA1	0.0	ug/L			0.200
	IFB1	19.3	ug/L	20	97	0.200
Copper	IFA1	0.4	ug/L			1.00
	IFB1	20.0	ug/L	20	100	1.00
Lead	IFA1	0.2	ug/L			0.200
	IFB1	0.2	ug/L			0.200
Molybdenum	IFA1	194.8	ug/L	200	97	1.00
	IFB1	193.9	ug/L	200	97	1.00
Nickel	IFA1	0.6	ug/L			1.00
	IFB1	20.4	ug/L	20	102	1.00
Selenium	IFA1	0.1	ug/L			3.00
	IFB1	-0.1	ug/L			3.00
Silver	IFA1	0.0	ug/L			1.00
	IFB1	18.6	ug/L	20	93	1.00
Thallium	IFA1	0.0	ug/L			2.00
	IFB1	0.0	ug/L			2.00
Uranium	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Vanadium	IFA1	-0.1	ug/L			3.00
	IFB1	-0.3	ug/L			3.00

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPMS-PE NEXION350D

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212079	Analysis: ICPMS Diss. Metals					
Antimony	IFA1	0.0	ug/L			1.00
	IFB1	0.0	ug/L			1.00
Arsenic	IFA1	0.1	ug/L			2.00
	IFB1	18.4	ug/L	20	92	2.00
Barium	IFA1	0.4	ug/L			10.0
	IFB1	0.2	ug/L			10.0
Cadmium	IFA1	0.2	ug/L			0.200
	IFB1	19.0	ug/L	20	95	0.200
Chromium	IFA1	0.4	ug/L			2.00
	IFB1	19.3	ug/L	20	96	2.00
Cobalt	IFA1	0.0	ug/L			0.200
	IFB1	18.9	ug/L	20	95	0.200
Copper	IFA1	0.5	ug/L			1.00
	IFB1	19.4	ug/L	20	97	1.00
Lead	IFA1	0.1	ug/L			0.200
	IFB1	0.1	ug/L			0.200
Molybdenum	IFA1	192.4	ug/L	200	96	1.00
	IFB1	191.5	ug/L	200	96	1.00
Nickel	IFA1	0.7	ug/L			1.00
	IFB1	19.6	ug/L	20	98	1.00
Selenium	IFA1	0.1	ug/L			3.00
	IFB1	-0.1	ug/L			3.00
Silver	IFA1	0.0	ug/L			1.00
	IFB1	17.7	ug/L	20	88	1.00
Thallium	IFA1	0.0	ug/L			2.00
	IFB1	0.0	ug/L			2.00
Uranium	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Vanadium	IFA1	-0.1	ug/L			3.00
	IFB1	-0.3	ug/L			3.00

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPMS-PE NEXION350D

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212082	Analysis: ICPMS Diss. Metals					
Antimony	IFA1	0.0	ug/L			1.00
	IFB1	0.0	ug/L			1.00
Arsenic	IFA1	0.1	ug/L			2.00
	IFB1	18.4	ug/L	20	92	2.00
Barium	IFA1	0.4	ug/L			10.0
	IFB1	0.2	ug/L			10.0
Cadmium	IFA1	0.2	ug/L			0.200
	IFB1	19.0	ug/L	20	95	0.200
Chromium	IFA1	0.4	ug/L			2.00
	IFB1	19.3	ug/L	20	96	2.00
Cobalt	IFA1	0.0	ug/L			0.200
	IFB1	18.9	ug/L	20	95	0.200
Copper	IFA1	0.5	ug/L			1.00
	IFB1	19.4	ug/L	20	97	1.00
Lead	IFA1	0.1	ug/L			0.200
	IFB1	0.1	ug/L			0.200
Molybdenum	IFA1	192.4	ug/L	200	96	1.00
	IFB1	191.5	ug/L	200	96	1.00
Nickel	IFA1	0.7	ug/L			1.00
	IFB1	19.6	ug/L	20	98	1.00
Selenium	IFA1	0.1	ug/L			3.00
	IFB1	-0.1	ug/L			3.00
Silver	IFA1	0.0	ug/L			1.00
	IFB1	17.7	ug/L	20	88	1.00
Thallium	IFA1	0.0	ug/L			2.00
	IFB1	0.0	ug/L			2.00
Uranium	IFA1	0.0	ug/L			0.200
	IFB1	0.0	ug/L			0.200
Vanadium	IFA1	-0.1	ug/L			3.00
	IFB1	-0.3	ug/L			3.00

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima A

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212075	Analysis: ICPOE Diss. Metals					
Aluminum	IFA1	62,652.4	ug/L	60,000	104	100
	IFB1	63,104.8	ug/L	60,000	105	100
Barium	IFA1	4.4	ug/L			5.00
	IFB1	289.4	ug/L	300	96	5.00
Beryllium	IFA1	0.1	ug/L			5.00
	IFB1	100.8	ug/L	100	101	5.00
Calcium	IFA1	283,061.6	ug/L	300,000	94	350
	IFB1	289,370.3	ug/L	300,000	96	350
Cobalt	IFA1	4.9	ug/L			5.00
	IFB1	285.8	ug/L	300	95	5.00
Copper	IFA1	-3.1	ug/L			3.00
	IFB1	302.2	ug/L	300	101	3.00
Iron	IFA1	229,984.6	ug/L	250,000	92	250
	IFB1	237,357.9	ug/L	250,000	95	250
Magnesium	IFA1	134,960.3	ug/L	150,000	90	500
	IFB1	139,208.1	ug/L	150,000	93	500
Manganese	IFA1	1.4	ug/L			15.0
	IFB1	185.0	ug/L	200	92	15.0
Nickel	IFA1	-17.4	ug/L			10.0
	IFB1	263.5	ug/L	300	88	10.0
Potassium	IFA1	-217.5	ug/L			1000
	IFB1	20,231.6	ug/L	20,000	101	1000
Silica (SiO2)	IFA1	-15.6	ug/L			1000
	IFB1	498.8	ug/L	500	100	1000
Sodium	IFA1	49,591.0	ug/L	50,000	99	1000
	IFB1	51,059.8	ug/L	50,000	102	1000
Zinc	IFA1	12.9	ug/L			30.0
	IFB1	300.3	ug/L	300	100	30.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima B

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212070	Analysis: ICPOE Tot. Rec. Metals					
Aluminum	IFA1	62,027.8	ug/L	60,000	103	100
	IFB1	62,387.6	ug/L	60,000	104	100
Barium	IFA1	-3.4	ug/L			5.00
	IFB1	295.9	ug/L	300	99	5.00
Beryllium	IFA1	0.0	ug/L			5.00
	IFB1	97.8	ug/L	100	98	5.00
Calcium	IFA1	276,080.9	ug/L	300,000	92	350
	IFB1	272,047.1	ug/L	300,000	91	350
Chromium	IFA1	3.1	ug/L			5.00
	IFB1	327.8	ug/L	300	109	5.00
Cobalt	IFA1	0.8	ug/L			5.00
	IFB1	291.8	ug/L	300	97	5.00
Copper	IFA1	-13.3	ug/L			3.00
	IFB1	285.7	ug/L	300	95	3.00
Iron	IFA1	250,514.5	ug/L	250,000	100	250
	IFB1	247,270.2	ug/L	250,000	99	250
Magnesium	IFA1	135,989.6	ug/L	150,000	91	500
	IFB1	135,126.1	ug/L	150,000	90	500
Manganese	IFA1	11.6	ug/L			15.0
	IFB1	200.4	ug/L	200	100	15.0
Nickel	IFA1	8.9	ug/L			10.0
	IFB1	307.2	ug/L	300	102	10.0
Potassium	IFA1	159.4	ug/L			1000
	IFB1	19,725.2	ug/L	20,000	99	1000
Silica (SiO2)	IFA1	23.0	ug/L			1000
	IFB1	528.2	ug/L	500	106	1000
Sodium	IFA1	50,475.1	ug/L	50,000	101	1000
	IFB1	49,656.6	ug/L	50,000	99	1000
Zinc	IFA1	12.6	ug/L			30.0
	IFB1	290.1	ug/L	300	97	30.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima B

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212073	Analysis: ICPOE Tot. Rec. Metals					
Aluminum	IFA1	62,265.5	ug/L	60,000	104	100
	IFB1	62,735.9	ug/L	60,000	105	100
Barium	IFA1	-3.1	ug/L			5.00
	IFB1	289.7	ug/L	300	97	5.00
Beryllium	IFA1	0.1	ug/L			5.00
	IFB1	102.4	ug/L	100	102	5.00
Cadmium	IFA1	0.1	ug/L			5.00
	IFB1	299.8	ug/L	300	100	5.00
Calcium	IFA1	254,905.2	ug/L	300,000	85	350
	IFB1	272,409.2	ug/L	300,000	91	350
Chromium	IFA1	1.9	ug/L			5.00
	IFB1	315.8	ug/L	300	105	5.00
Cobalt	IFA1	2.6	ug/L			5.00
	IFB1	298.2	ug/L	300	99	5.00
Copper	IFA1	-17.6	ug/L			3.00
	IFB1	296.2	ug/L	300	99	3.00
Iron	IFA1	230,309.3	ug/L	250,000	92	250
	IFB1	244,599.4	ug/L	250,000	98	250
Magnesium	IFA1	126,060.4	ug/L	150,000	84	500
	IFB1	134,326.2	ug/L	150,000	90	500
Manganese	IFA1	11.0	ug/L			15.0
	IFB1	209.7	ug/L	200	105	15.0
Nickel	IFA1	10.4	ug/L			10.0
	IFB1	307.2	ug/L	300	102	10.0
Potassium	IFA1	120.4	ug/L			1000
	IFB1	20,100.9	ug/L	20,000	101	1000
Silica (SiO2)	IFA1	19.0	ug/L			1000
	IFB1	515.4	ug/L	500	103	1000
Sodium	IFA1	47,733.8	ug/L	50,000	95	1000
	IFB1	50,026.3	ug/L	50,000	100	1000
Vanadium	IFA1	26.5	ug/L			50.0
	IFB1	335.2	ug/L	300	112	50.0
Zinc	IFA1	14.4	ug/L			30.0
	IFB1	284.4	ug/L	300	95	30.0

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT Region 8
ICP Interference Check Sample
ICPOE - PE Optima B

Analyte

Check Sample

Result*

Units

True

%R

PQL

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima B

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212076	Analysis: ICPOE Diss. Metals					
Aluminum	IFA1	62,374.5	ug/L	60,000	104	100
	IFB1	61,557.1	ug/L	60,000	103	100
Barium	IFA1	-2.8	ug/L			5.00
	IFB1	271.1	ug/L	300	90	5.00
Beryllium	IFA1	0.4	ug/L			5.00
	IFB1	99.7	ug/L	100	100	5.00
Cadmium	IFA1	-0.2	ug/L			5.00
	IFB1	277.6	ug/L	300	93	5.00
Calcium	IFA1	266,974.9	ug/L	300,000	89	350
	IFB1	261,648.4	ug/L	300,000	87	350
Chromium	IFA1	2.5	ug/L			5.00
	IFB1	313.5	ug/L	300	105	5.00
Cobalt	IFA1	2.4	ug/L			5.00
	IFB1	295.3	ug/L	300	98	5.00
Copper	IFA1	-16.6	ug/L			3.00
	IFB1	272.5	ug/L	300	91	3.00
Iron	IFA1	238,859.9	ug/L	250,000	96	250
	IFB1	233,302.3	ug/L	250,000	93	250
Lead	IFA1	11.0	ug/L			40.0
	IFB1	956.0	ug/L	1,000	96	40.0
Magnesium	IFA1	130,050.6	ug/L	150,000	87	500
	IFB1	128,039.2	ug/L	150,000	85	500
Manganese	IFA1	11.0	ug/L			15.0
	IFB1	204.6	ug/L	200	102	15.0
Nickel	IFA1	12.9	ug/L			10.0
	IFB1	303.5	ug/L	300	101	10.0
Potassium	IFA1	127.9	ug/L			1000
	IFB1	18,835.1	ug/L	20,000	94	1000
Selenium	IFA1	44.5	ug/L			250
	IFB1	542.3	ug/L	500	108	250
Silica (SiO2)	IFA1	2.0	ug/L			1000
	IFB1	479.2	ug/L	500	96	1000
Sodium	IFA1	48,875.9	ug/L	50,000	98	1000
	IFB1	47,334.4	ug/L	50,000	95	1000

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT Region 8

ICP Interference Check Sample

ICPOE - PE Optima B

<u>Analyte</u>	<u>Check Sample</u>	<u>Result*</u>	<u>Units</u>	<u>True</u>	<u>%R</u>	<u>PQL</u>
Sequence: 2212076	Analysis: ICPOE Diss. Metals					
Zinc	IFA1	10.1	ug/L			30.0
	IFB1	269.1	ug/L	300	90	30.0

*Criteria = 80-120%R of True Value or +/- PQL

See raw data for complete analyte list and results.

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT

Region 8

MRL Check

Mettler T5

Method Classical Chemistry by EPA/ASTM/APHA Methods

Batch 2210034

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Total Alkalinity	5.00	<		mg CaCO ₃ / L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT
Region 8
MRL Check
NIC RA-4500

Method Mercury only (Total) by EPA 245.1 / 7470A Method

Batch 2210039

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Mercury	0.0500	0.0606	121	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

TechLaw, Inc. - ESAT
Region 8
MRL Check
ESAT Dionex IC

Method Classical Chemistry by EPA/ASTM/APHA Methods

Batch 2210107

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Bromide	1.00	1.0	98	mg/L
Chloride	5.00	5.0	99	mg/L
Fluoride	1.00	1.0	98	mg/L
Nitrate/Nitrite as N	2.00	2.0	99	mg/L
Sulfate as SO4	5.00	5.3	106	mg/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ESAT Dionex IC****Method** Classical Chemistry by EPA/ASTM/APHA Methods**Batch** 2210108

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Bromide	1.00	1.0	101	mg/L
Sulfate as SO4	5.00	5.3	105	mg/L
Nitrate/Nitrite as N	2.00	2.0	100	mg/L
Chloride	5.00	5.0	100	mg/L
Fluoride	1.00	1.0	101	mg/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima A****Method** Metals (Dissolved) by EPA 200/7000 Series Methods**Batch** 2211030

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Magnesium	2000	1887	94	ug/L
Iron	200	212.3	106	ug/L
Zinc	100	107.6	108	ug/L
Sodium	2000	1918	96	ug/L
Silica (SiO2)	500	556.0	111	ug/L
Potassium	2000	1932	97	ug/L
Nickel	20.0	20.25	101	ug/L
Copper	20.0	19.39	97	ug/L
Cobalt	20.0	21.02	105	ug/L
Calcium	500	489.7	98	ug/L
Beryllium	10.0	9.591	96	ug/L
Barium	20.0	18.83	94	ug/L
Aluminum	200	202.2	101	ug/L
Manganese	20.0	18.99	95	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

**TechLaw, Inc. - ESAT
Region 8****MRL Check****CPMS-PE NEXION350I****Method** Metals (Dissolved) by EPA 200/7000 Series Methods**Batch** 2211031

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Arsenic	4.00	3.80	95	ug/L
Uranium	0.400	0.381	95	ug/L
Thallium	2.00	1.97	98	ug/L
Silver	2.00	1.88	94	ug/L
Selenium	4.00	3.87	97	ug/L
Molybdenum	2.00	1.89	94	ug/L
Copper	2.00	2.09	104	ug/L
Cobalt	0.400	0.383	96	ug/L
Chromium	4.00	3.77	94	ug/L
Barium	20.0	19.8	99	ug/L
Nickel	2.00	1.94	97	ug/L
Antimony	2.00	1.95	97	ug/L
Vanadium	4.00	3.85	96	ug/L
Cadmium	0.400	0.399	100	ug/L

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8**

MRL Check

CPMS-PE NEXION350I

Method Metals (Dissolved) by EPA 200/7000 Series Methods

Batch 2211031

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Lead	0.400	0.398	99	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima B****Method** Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2211108

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Iron	200	225.3	113	ug/L
Zinc	100	104.8	105	ug/L
Sodium	2000	2146	107	ug/L
Silica (SiO2)	500	569.0	114	ug/L
Potassium	2000	2111	106	ug/L
Nickel	20.0	20.21	101	ug/L
Copper	20.0	19.71	99	ug/L
Magnesium	2000	2137	107	ug/L
Antimony	2.00	2.091	105	ug/L
Arsenic	4.00	3.950	99	ug/L
Barium	20.0	19.80	99	ug/L
Cadmium	0.400	0.4707	118	ug/L
Chromium	4.00	3.653	91	ug/L
Cobalt	0.400	0.4188	105	ug/L

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima B****Method** Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2211108

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Calcium	500	523.2	105	ug/L
Cobalt	20.0	20.47	102	ug/L
Manganese	20.0	21.66	108	ug/L
Chromium	20.0	21.07	105	ug/L
Copper	2.00	2.188	109	ug/L
Beryllium	10.0	9.401	94	ug/L
Barium	20.0	21.52	108	ug/L
Aluminum	200	202.3	101	ug/L
Vanadium	4.00	3.904	98	ug/L
Thallium	2.00	1.999	100	ug/L
Lead	0.400	0.5268	132	ug/L
Silver	2.00	2.016	101	ug/L
Selenium	4.00	4.115	103	ug/L
Nickel	2.00	2.027	101	ug/L

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8**

MRL Check

CPMS-PE NEXION350I

Method Metals (Total Recov) by EPA 200/7000 Series Methods

Batch 2211108

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Molybdenum	2.00	2.031	102	ug/L
Uranium	0.400	0.3930	98	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima B****Method** Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2211109

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Nickel	20.0	20.96	105	ug/L
Barium	20.0	21.19	106	ug/L
Cadmium	20.0	20.48	102	ug/L
Calcium	500	496.9	99	ug/L
Chromium	20.0	20.59	103	ug/L
Cobalt	20.0	21.94	110	ug/L
Copper	20.0	20.58	103	ug/L
Iron	200	213.5	107	ug/L
Sodium	2000	2064	103	ug/L
Manganese	20.0	22.46	112	ug/L
Potassium	2000	2082	104	ug/L
Silica (SiO2)	500	540.8	108	ug/L
Vanadium	100	94.87	95	ug/L
Aluminum	200	199.6	100	ug/L

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima B****Method** Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2211109

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Magnesium	2000	2052	103	ug/L
Barium	20.0	19.86	99	ug/L
Vanadium	4.00	3.854	96	ug/L
Zinc	100	98.03	98	ug/L
Beryllium	10.0	9.802	98	ug/L
Arsenic	4.00	4.040	101	ug/L
Cadmium	0.400	0.4421	111	ug/L
Chromium	4.00	3.549	89	ug/L
Cobalt	0.400	0.4098	102	ug/L
Thallium	2.00	2.113	106	ug/L
Lead	0.400	0.4346	109	ug/L
Molybdenum	2.00	1.919	96	ug/L
Nickel	2.00	1.987	99	ug/L
Uranium	0.400	0.4215	105	ug/L

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****CPMS-PE NEXION350I****Method** Metals (Total Recov) by EPA 200/7000 Series Methods**Batch** 2211109

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Selenium	4.00	4.339	108	ug/L
Silver	2.00	1.943	97	ug/L
Copper	2.00	2.157	108	ug/L
Antimony	2.00	2.054	103	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima B****Method** Metals (Dissolved) by EPA 200/7000 Series Methods**Batch** 2212008

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Lead	60.0	68.87	115	ug/L
Magnesium	2000	2111	106	ug/L
Manganese	20.0	23.63	118	ug/L
Nickel	20.0	20.60	103	ug/L
Potassium	2000	2038	102	ug/L
Sodium	2000	2121	106	ug/L
Silica (SiO2)	500	549.3	110	ug/L
Barium	20.0	20.85	104	ug/L
Zinc	100	106.4	106	ug/L
Iron	200	223.8	112	ug/L
Copper	20.0	19.54	98	ug/L
Cobalt	20.0	22.14	111	ug/L
Chromium	20.0	21.47	107	ug/L
Calcium	500	515.4	103	ug/L

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****ICPOE - PE Optima B****Method** Metals (Dissolved) by EPA 200/7000 Series Methods**Batch** 2212008

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Selenium	200	191.6	96	ug/L
Beryllium	10.0	10.32	103	ug/L
Aluminum	200	210.8	105	ug/L
Cadmium	20.0	20.40	102	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

**TechLaw, Inc. - ESAT
Region 8****MRL Check****CPMS-PE NEXION350I****Method** Metals (Dissolved) by EPA 200/7000 Series Methods**Batch** 2212009

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Lead	0.400	0.414	103	ug/L
Antimony	2.00	1.92	96	ug/L
Arsenic	4.00	3.75	94	ug/L
Barium	20.0	19.9	99	ug/L
Cadmium	0.400	0.370	92	ug/L
Chromium	4.00	4.12	103	ug/L
Copper	2.00	2.05	102	ug/L
Molybdenum	2.00	1.94	97	ug/L
Nickel	2.00	2.03	101	ug/L
Selenium	4.00	4.07	102	ug/L
Silver	2.00	1.86	93	ug/L
Thallium	2.00	2.06	103	ug/L
Uranium	0.400	0.397	99	ug/L
Vanadium	4.00	3.96	99	ug/L

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw, Inc. - ESAT
Region 8
MRL Check
CPMS-PE NEXION350I

Method Metals (Dissolved) by EPA 200/7000 Series Methods

Batch 2212009

<u>Analyte</u>	<u>True</u>	<u>Found</u>	<u>%Recovery</u>	<u>Units</u>
Cobalt	0.400	0.405	101	ug/L

Recovery Control Limits: 70-130% except Pb, Tl, Sb, & Hg at 50-150%. No limits for Al, Ca, Fe, K, Mg & Na.

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 310.1

Total

Sequence ID#: 2210040

Instrument ID #: Mettler T5

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
C221001-30	GR/LC SW-3268	10/10/22	01:00
C221001-33	GR/LC SW-3371A	10/10/22	01:00
C221001-36	GR/LC SW-3371B	10/10/22	01:01
C221001-39	GR/LC SW-3372A	10/10/22	01:03
2210040-CCV2	Calibration Check	10/10/22	01:04
2210040-CCB2	Calibration Blank	10/10/22	01:07
2210034-SRM2	Reference	10/10/22	01:08
2210034-BLK2	Blank	10/10/22	01:10
C221001-42	GR/LC SW-3374	10/10/22	01:11
C221001-45	GR/LC SW-3387	10/10/22	01:12
C221001-48	GR/LC SW-3433	10/10/22	01:14
C221001-51	GR/LC SW-487A	10/10/22	01:15
C221001-54	GR/LC SW-489	10/10/22	01:17
C221001-57	GR/LC SW-B4-HSE	10/10/22	01:18
C221001-60	GR/LC SW-DNS-RM	10/10/22	01:20
C221001-63	GR/LC SW-RF-DNS-01	10/10/22	01:20
2210040-CCV3	Calibration Check	10/10/22	01:22
2210040-CCB3	Calibration Blank	10/10/22	01:24
C221001-66	GR/LC SW-RF-UPS-01	10/10/22	01:25
C221001-69	GR/LC SW-RMA1	10/10/22	01:27
C221001-72	GR/LC SW-RMA1-UPS	10/10/22	01:28
2210040-CCV4	Calibration Check	10/10/22	01:32
2210040-CCB4	Calibration Blank	10/10/22	01:34
2210034-MRL1	MRL Check	10/10/22	12:36
2210034-SRM1	Reference	10/10/22	12:38
2210034-BLK1	Blank	10/10/22	12:40
C221001-12	GR/LC SW-3258	10/10/22	12:41
2210034-DUP1	Duplicate	10/10/22	12:42
C221001-15	GR/LC SW-3259	10/10/22	12:43
2210034-DUP2	Duplicate	10/10/22	12:44
C221001-18	GR/LC SW-3262	10/10/22	12:45
2210034-DUP3	Duplicate	10/10/22	12:46
2210040-CCV1	Calibration Check	10/10/22	12:48
2210040-CCB1	Calibration Blank	10/10/22	12:50
C221001-03	GR/LC SW FB01	10/10/22	12:51
C221001-06	GR/LC SW FB02	10/10/22	12:53
C221001-09	GR/LC SW FB03	10/10/22	12:55
C221001-21	GR/LC SW-3262	10/10/22	12:56
C221001-24	GR/LC SW-3267	10/10/22	12:58

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 310.1

Total

Sequence ID#: 2210040

Instrument ID #: Mettler T5

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
C221001-27	GR/LC SW-3268	10/10/22	12:59

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 245.1

Total

Sequence ID#: 2210076

Instrument ID #: NIC RA-4500

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2210076-ICV1	Initial Cal Check	10/13/22	16:01
2210076-ICB1	Initial Cal Blank	10/13/22	16:01
2210076-SCV1	Secondary Cal Check	10/13/22	16:01
2210039-MRL1	MRL Check	10/13/22	16:01
2210039-BLK1	Blank	10/13/22	16:01
2210039-BS1		10/13/22	16:01
C221001-10	GR/LC SW-3258	10/13/22	16:01
2210039-DUP1	Duplicate	10/13/22	16:01
2210039-MS1	Matrix Spike	10/13/22	16:01
2210076-CCV1	Calibration Check	10/13/22	16:01
2210076-CCB1	Calibration Blank	10/13/22	16:01
C221001-13	GR/LC SW-3259	10/13/22	16:01
2210039-DUP2	Duplicate	10/13/22	16:01
2210039-MS2	Matrix Spike	10/13/22	16:01
C221001-16	GR/LC SW-3262	10/13/22	16:01
2210039-MS3	Matrix Spike	10/13/22	16:01
C221001-01	GR/LC SW FB01	10/13/22	16:01
C221001-04	GR/LC SW FB02	10/13/22	16:01
C221001-07	GR/LC SW FB03	10/13/22	16:01
C221001-19	GR/LC SW-3262	10/13/22	16:01
C221001-22	GR/LC SW-3267	10/13/22	16:01
2210076-CCV2	Calibration Check	10/13/22	16:01
2210076-CCB2	Calibration Blank	10/13/22	16:01
C221001-25	GR/LC SW-3268	10/13/22	16:01
C221001-28	GR/LC SW-3268	10/13/22	16:01
C221001-31	GR/LC SW-3371A	10/13/22	16:01
C221001-34	GR/LC SW-3371B	10/13/22	16:01
C221001-37	GR/LC SW-3372A	10/13/22	16:01
C221001-40	GR/LC SW-3374	10/13/22	16:01
C221001-43	GR/LC SW-3387	10/13/22	16:01
C221001-46	GR/LC SW-3433	10/13/22	16:01
C221001-49	GR/LC SW-487A	10/13/22	16:01
C221001-52	GR/LC SW-489	10/13/22	16:01
2210076-CCV3	Calibration Check	10/13/22	16:01
2210076-CCB3	Calibration Blank	10/13/22	16:01
2210039-BLK2	Blank	10/13/22	16:01
2210039-BS2		10/13/22	16:01
C221001-55	GR/LC SW-B4-HSE	10/13/22	16:01
C221001-58	GR/LC SW-DNS-RM	10/13/22	16:01

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 245.1

Total

Sequence ID#: 2210076

Instrument ID #: NIC RA-4500

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
C221001-61	GR/LC SW-RF-DNS-01	10/13/22	16:01
C221001-64	GR/LC SW-RF-UPS-01	10/13/22	16:01
C221001-67	GR/LC SW-RMA1	10/13/22	16:01
C221001-70	GR/LC SW-RMA1-UPS	10/13/22	16:01
2210076-CCV4	Calibration Check	10/13/22	16:01
2210076-CCB4	Calibration Blank	10/13/22	16:01

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 300.0

Dissolved

Sequence ID#: 2210122

Instrument ID #: ESAT Dionex IC

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2210122-ICV1	Initial Cal Check	10/18/22	14:57
2210122-ICB1	Initial Cal Blank	10/18/22	15:12
2210122-SCV1	Secondary Cal Check	10/18/22	15:26
2210107-BS1		10/18/22	15:40
2210107-BLK1	Blank	10/18/22	15:54
C221001-03	GR/LC SW FB01	10/18/22	16:09
C221001-06	GR/LC SW FB02	10/18/22	16:23
C221001-09	GR/LC SW FB03	10/18/22	16:37
C221001-12	GR/LC SW-3258	10/18/22	16:51
2210107-DUP1	Duplicate	10/18/22	17:06
2210107-MS1	Matrix Spike	10/18/22	17:20
C221001-15	GR/LC SW-3259	10/18/22	17:34
2210122-CCV1	Calibration Check	10/18/22	18:18
2210122-CCB1	Calibration Blank	10/18/22	18:32
C221001-18	GR/LC SW-3262	10/18/22	18:46
C221001-21	GR/LC SW-3262	10/18/22	19:00
C221001-24	GR/LC SW-3267	10/18/22	19:15
C221001-27	GR/LC SW-3268	10/18/22	19:29
C221001-30	GR/LC SW-3268	10/18/22	19:43
2210107-MRL1	MRL Check	10/18/22	19:57
2210122-CCV2	Calibration Check	10/18/22	20:11
2210122-CCB2	Calibration Blank	10/18/22	20:26
2210122-ICV2	Initial Cal Check	10/19/22	09:58
2210122-ICB2	Initial Cal Blank	10/19/22	10:12
2210122-SCV2	Secondary Cal Check	10/19/22	10:26
2210108-BS1		10/19/22	10:41
2210108-BLK1	Blank	10/19/22	10:55
C221001-33	GR/LC SW-3371A	10/19/22	11:09
C221001-36	GR/LC SW-3371B	10/19/22	11:23
2210108-DUP1	Duplicate	10/19/22	11:37
2210108-MS1	Matrix Spike	10/19/22	11:52
C221001-39	GR/LC SW-3372A	10/19/22	12:06
C221001-42	GR/LC SW-3374	10/19/22	12:20
C221001-45	GR/LC SW-3387	10/19/22	12:34
2210122-CCV3	Calibration Check	10/19/22	12:49
2210122-CCB3	Calibration Blank	10/19/22	13:03
C221001-48	GR/LC SW-3433	10/19/22	13:17
C221001-51	GR/LC SW-487A	10/19/22	13:31
C221001-54	GR/LC SW-489	10/19/22	13:45

Project Name: Ruby Mine_SW_SEP 2022_A046

Certificate of Analysis

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: EPA 300.0

Dissolved

Sequence ID#: 2210122

Instrument ID #: ESAT Dionex IC

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
C221001-57	GR/LC SW-B4-HSE	10/19/22	14:00
C221001-60	GR/LC SW-DNS-RM	10/19/22	14:14
C221001-63	GR/LC SW-RF-DNS-01	10/19/22	14:28
C221001-66	GR/LC SW-RF-UPS-01	10/19/22	14:42
2210108-MS2	Matrix Spike	10/19/22	14:56
2210122-CCV4	Calibration Check	10/19/22	15:11
2210122-CCB4	Calibration Blank	10/19/22	15:25
C221001-69	GR/LC SW-RMA1	10/19/22	15:39
C221001-72	GR/LC SW-RMA1-UPS	10/19/22	15:53
2210108-MRL1	MRL Check	10/19/22	16:07
2210122-CCV5	Calibration Check	10/19/22	16:22
2210122-CCB5	Calibration Blank	10/19/22	16:36

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.7

Total Recoverable

Sequence ID#: 2212070

Instrument ID #: ICPOE - PE Optima B

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212070-ICV1	Initial Cal Check	12/21/22	11:05
2212070-SCV1	Secondary Cal Check	12/21/22	11:10
2212070-ICB1	Initial Cal Blank	12/21/22	11:13
2211108-MRL1	MRL Check	12/21/22	11:17
2212070-IFA1	Interference Check A	12/21/22	11:20
2212070-IFB1	Interference Check B	12/21/22	11:25
2211108-BLK1	Blank	12/21/22	11:29
2211108-SRM1	Reference	12/21/22	11:33
C221001-10	GR/LC SW-3258	12/21/22	11:36
2211108-DUP1	Duplicate	12/21/22	11:41
2212070-SRD1	Serial Dilution	12/21/22	11:46
2211108-MS1	Matrix Spike	12/21/22	11:49
C221001-13	GR/LC SW-3259	12/21/22	11:57
2211108-MS3	Matrix Spike	12/21/22	12:01
2212070-CCV1	Calibration Check	12/21/22	12:09
2212070-CCB1	Calibration Blank	12/21/22	12:14
C221001-01	GR/LC SW FB01	12/21/22	12:17
C221001-04	GR/LC SW FB02	12/21/22	12:21
C221001-07	GR/LC SW FB03	12/21/22	12:24
C221001-16	GR/LC SW-3262	12/21/22	12:27
C221001-19	GR/LC SW-3262	12/21/22	12:32
C221001-22	GR/LC SW-3267	12/21/22	12:37
C221001-25	GR/LC SW-3268	12/21/22	12:41
C221001-28	GR/LC SW-3268	12/21/22	12:46
C221001-31	GR/LC SW-3371A	12/21/22	13:43
2212070-CCV2	Calibration Check	12/21/22	12:59
2212070-CCB2	Calibration Blank	12/21/22	13:03
C221001-34	GR/LC SW-3371B	12/21/22	13:06
C221001-37	GR/LC SW-3372A	12/21/22	13:11
C221001-40	GR/LC SW-3374	12/21/22	13:16
2212070-CCV3	Calibration Check	12/21/22	13:24
2212070-CCB3	Calibration Blank	12/21/22	13:28
2212070-CCV4	Calibration Check	12/21/22	13:47
2212070-CCB4	Calibration Blank	12/21/22	13:51

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.7

Total Recoverable

Sequence ID#: 2212073

Instrument ID #: ICPOE - PE Optima B

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212073-ICV1	Initial Cal Check	12/23/22	11:37
2212073-SCV1	Secondary Cal Check	12/23/22	11:41
2212073-ICB1	Initial Cal Blank	12/23/22	11:45
2211109-MRL1	MRL Check	12/23/22	11:48
2212073-IFA1	Interference Check A	12/23/22	11:51
2212073-IFB1	Interference Check B	12/23/22	11:56
2211109-BLK1	Blank	12/23/22	12:01
2211109-SRM1	Reference	12/23/22	12:04
C221001-43	GR/LC SW-3387	12/23/22	12:08
2211109-DUP1	Duplicate	12/23/22	12:13
2212073-SRD1	Serial Dilution	12/23/22	12:18
2211109-MS1	Matrix Spike	12/23/22	12:21
C221001-46	GR/LC SW-3433	12/23/22	12:29
C221001-49	GR/LC SW-487A	12/23/22	12:33
2212073-CCV1	Calibration Check	12/23/22	12:40
2212073-CCB1	Calibration Blank	12/23/22	12:45
C221001-52	GR/LC SW-489	12/23/22	12:48
C221001-55	GR/LC SW-B4-HSE	12/23/22	12:53
C221001-58	GR/LC SW-DNS-RM	12/23/22	12:57
C221001-61	GR/LC SW-RF-DNS-01	12/23/22	13:02
C221001-64	GR/LC SW-RF-UPS-01	12/23/22	13:07
C221001-67	GR/LC SW-RMA1	12/23/22	13:10
C221001-70	GR/LC SW-RMA1-UPS	12/23/22	13:13
2212073-CCV2	Calibration Check	12/23/22	13:21
2212073-CCB2	Calibration Blank	12/23/22	13:26

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.7

Dissolved

Sequence ID#: 2212075

Instrument ID #: ICPOE - PE Optima A

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212075-ICV1	Initial Cal Check	12/26/22	12:49
2212075-SCV1	Secondary Cal Check	12/26/22	12:53
2212075-ICB1	Initial Cal Blank	12/26/22	12:56
2212075-IFA1	Interference Check A	12/26/22	13:03
2212075-IFB1	Interference Check B	12/26/22	13:08
2211030-MRL1	MRL Check	12/26/22	13:14
2211030-BLK1	Blank	12/26/22	13:18
2211030-BS1		12/26/22	13:21
C221001-11	GR/LC SW-3258	12/26/22	13:25
2211030-DUP1	Duplicate	12/26/22	13:28
2212075-SRD1	Serial Dilution	12/26/22	13:32
2211030-MS1	Matrix Spike	12/26/22	13:36
C221001-14	GR/LC SW-3259	12/26/22	13:42
2211030-MS2	Matrix Spike	12/26/22	13:46
2212075-CCV1	Calibration Check	12/26/22	13:53
2212075-CCB1	Calibration Blank	12/26/22	13:56
C221001-02	GR/LC SW FB01	12/26/22	13:59
C221001-05	GR/LC SW FB02	12/26/22	14:03
C221001-08	GR/LC SW FB03	12/26/22	14:06
C221001-17	GR/LC SW-3262	12/26/22	14:09
C221001-20	GR/LC SW-3262	12/26/22	14:13
C221001-23	GR/LC SW-3267	12/26/22	14:16
C221001-26	GR/LC SW-3268	12/26/22	14:19
C221001-29	GR/LC SW-3268	12/26/22	14:23
C221001-32	GR/LC SW-3371A	12/26/22	15:10
2212075-CCV2	Calibration Check	12/26/22	14:33
2212075-CCB2	Calibration Blank	12/26/22	14:36
C221001-35	GR/LC SW-3371B	12/26/22	14:40
C221001-38	GR/LC SW-3372A	12/26/22	14:43
C221001-41	GR/LC SW-3374	12/26/22	14:46
2212075-CCV3	Calibration Check	12/26/22	14:53
2212075-CCB3	Calibration Blank	12/26/22	14:57

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.7

Dissolved

Sequence ID#: 2212076

Instrument ID #: ICPOE - PE Optima B

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212076-ICV1	Initial Cal Check	12/26/22	14:39
2212076-SCV1	Secondary Cal Check	12/26/22	14:43
2212076-ICB1	Initial Cal Blank	12/26/22	14:47
2212008-MRL1	MRL Check	12/26/22	14:50
2212076-IFA1	Interference Check A	12/26/22	14:53
2212076-IFB1	Interference Check B	12/26/22	14:58
2212008-BLK1	Blank	12/26/22	15:03
2212008-BS1		12/26/22	15:06
C221001-44	GR/LC SW-3387	12/26/22	15:09
2212008-DUP1	Duplicate	12/26/22	15:14
2212076-SRD1	Serial Dilution	12/26/22	15:18
2212008-MS1	Matrix Spike	12/26/22	15:22
C221001-47	GR/LC SW-3433	12/26/22	15:30
C221001-50	GR/LC SW-487A	12/26/22	15:34
2212076-CCV1	Calibration Check	12/26/22	15:41
2212076-CCB1	Calibration Blank	12/26/22	15:46
C221001-53	GR/LC SW-489	12/26/22	15:49
C221001-56	GR/LC SW-B4-HSE	12/26/22	15:53
C221001-59	GR/LC SW-DNS-RM	12/26/22	15:57
C221001-62	GR/LC SW-RF-DNS-01	12/26/22	16:01
C221001-65	GR/LC SW-RF-UPS-01	12/26/22	16:06
C221001-68	GR/LC SW-RMA1	12/26/22	16:09
C221001-71	GR/LC SW-RMA1-UPS	12/26/22	16:14
2212076-CCV2	Calibration Check	12/26/22	16:22
2212076-CCB2	Calibration Blank	12/26/22	16:26

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.8

Total Recoverable

Sequence ID#: 2212077

Instrument ID #: ICPMS-PE NEXION350D

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212077-ICV1	Initial Cal Check	12/26/22	12:55
2212077-SCV1	Secondary Cal Check	12/26/22	12:59
2212077-ICB1	Initial Cal Blank	12/26/22	13:03
2211108-MRL2	MRL Check	12/26/22	13:07
2212077-IFA1	Interference Check A	12/26/22	13:10
2212077-IFB1	Interference Check B	12/26/22	13:14
2211108-BLK2	Blank	12/26/22	13:25
2211108-SRM2	Reference	12/26/22	13:29
C221001-10	GR/LC SW-3258	12/26/22	13:33
2211108-DUP2	Duplicate	12/26/22	13:37
2212077-SRD1	Serial Dilution	12/26/22	13:41
2211108-MS2	Matrix Spike	12/26/22	13:46
C221001-13	GR/LC SW-3259	12/26/22	13:54
2211108-MS4	Matrix Spike	12/26/22	13:58
2212077-CCV1	Calibration Check	12/26/22	14:06
2212077-CCB1	Calibration Blank	12/26/22	14:10
C221001-01	GR/LC SW FB01	12/26/22	14:13
C221001-04	GR/LC SW FB02	12/26/22	14:17
C221001-07	GR/LC SW FB03	12/26/22	14:21
C221001-16	GR/LC SW-3262	12/26/22	14:26
C221001-19	GR/LC SW-3262	12/26/22	14:30
C221001-22	GR/LC SW-3267	12/26/22	14:34
C221001-25	GR/LC SW-3268	12/26/22	14:38
C221001-28	GR/LC SW-3268	12/26/22	14:42
C221001-31	GR/LC SW-3371A	12/26/22	14:46
2212077-CCV2	Calibration Check	12/26/22	14:54
2212077-CCB2	Calibration Blank	12/26/22	14:58
C221001-34	GR/LC SW-3371B	12/26/22	15:01
C221001-37	GR/LC SW-3372A	12/26/22	15:05
C221001-40	GR/LC SW-3374	12/26/22	15:10
2212077-CCV3	Calibration Check	12/26/22	15:18
2212077-CCB3	Calibration Blank	12/26/22	15:21

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.8

Total Recoverable

Sequence ID#: 2212078

Instrument ID #: ICPMS-PE NEXION350D

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212078-ICV1	Initial Cal Check	12/26/22	12:55
2212078-SCV1	Secondary Cal Check	12/26/22	12:59
2212078-ICB1	Initial Cal Blank	12/26/22	13:03
2212078-IFA1	Interference Check A	12/26/22	13:10
2212078-IFB1	Interference Check B	12/26/22	13:14
2211109-BLK2	Blank	12/26/22	15:29
2211109-MRL2	MRL Check	12/26/22	15:33
2211109-SRM2	Reference	12/26/22	15:37
C221001-43	GR/LC SW-3387	12/26/22	15:41
2211109-DUP2	Duplicate	12/26/22	15:45
2212078-SRD1	Serial Dilution	12/26/22	15:49
2211109-MS2	Matrix Spike	12/26/22	15:53
C221001-46	GR/LC SW-3433	12/26/22	16:01
C221001-49	GR/LC SW-487A	12/26/22	16:05
2212078-CCV1	Calibration Check	12/26/22	16:10
2212078-CCB1	Calibration Blank	12/26/22	16:13
C221001-52	GR/LC SW-489	12/26/22	16:17
C221001-55	GR/LC SW-B4-HSE	12/26/22	16:21
C221001-58	GR/LC SW-DNS-RM	12/26/22	16:25
C221001-61	GR/LC SW-RF-DNS-01	12/26/22	16:29
C221001-64	GR/LC SW-RF-UPS-01	12/26/22	16:33
C221001-67	GR/LC SW-RMA1	12/26/22	16:38
C221001-70	GR/LC SW-RMA1-UPS	12/26/22	16:42
2212078-CCV2	Calibration Check	12/26/22	16:46
2212078-CCB2	Calibration Blank	12/26/22	16:49

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.8

Dissolved

Sequence ID#: 2212079

Instrument ID #: ICPMS-PE NEXION350D

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212079-ICV1	Initial Cal Check	12/27/22	11:59
2212079-SCV1	Secondary Cal Check	12/27/22	12:04
2212079-ICB1	Initial Cal Blank	12/27/22	12:08
2211031-MRL1	MRL Check	12/27/22	12:12
2212079-IFA1	Interference Check A	12/27/22	12:15
2212079-IFB1	Interference Check B	12/27/22	12:19
2211031-BLK1	Blank	12/27/22	12:24
2211031-BS1		12/27/22	12:28
C221001-11	GR/LC SW-3258	12/27/22	12:32
2211031-DUP1	Duplicate	12/27/22	12:36
2212079-SRD1	Serial Dilution	12/27/22	12:40
2211031-MS1	Matrix Spike	12/27/22	12:44
C221001-14	GR/LC SW-3259	12/27/22	12:53
2211031-MS2	Matrix Spike	12/27/22	12:57
2212079-CCV1	Calibration Check	12/27/22	13:05
2212079-CCB1	Calibration Blank	12/27/22	13:09
C221001-02	GR/LC SW FB01	12/27/22	13:12
C221001-05	GR/LC SW FB02	12/27/22	13:16
C221001-08	GR/LC SW FB03	12/27/22	13:20
C221001-17	GR/LC SW-3262	12/27/22	13:25
C221001-23	GR/LC SW-3267	12/27/22	13:33
C221001-26	GR/LC SW-3268	12/27/22	13:37
C221001-29	GR/LC SW-3268	12/27/22	13:41
2212079-CCV2	Calibration Check	12/27/22	13:53
2212079-CCB2	Calibration Blank	12/27/22	13:57
C221001-35	GR/LC SW-3371B	12/27/22	14:17
C221001-38	GR/LC SW-3372A	12/27/22	14:23
C221001-41	GR/LC SW-3374	12/27/22	14:27
C221001-20	GR/LC SW-3262	12/27/22	14:31
C221001-32	GR/LC SW-3371A	12/27/22	14:35
2212079-CCV3	Calibration Check	12/27/22	14:43
2212079-CCB3	Calibration Blank	12/27/22	14:47

TDF #: A-046

TechLaw Inc., ESAT Region 8

INSTRUMENT ANALYSIS SEQUENCE LOG

Analytical Method: 200.8

Dissolved

Sequence ID#: 2212082

Instrument ID #: ICPMS-PE NEXION350D

Water

LSR #: A-046

Analysis ID	Sample Name	Analysis Date	Analysis Time
2212082-ICV1	Initial Cal Check	12/27/22	11:59
2212082-SCV1	Secondary Cal Check	12/27/22	12:04
2212082-ICB1	Initial Cal Blank	12/27/22	12:08
2212082-IFA1	Interference Check A	12/27/22	12:15
2212082-IFB1	Interference Check B	12/27/22	12:19
2212009-BLK1	Blank	12/27/22	15:13
2212009-MRL1	MRL Check	12/27/22	15:17
2212009-BS1		12/27/22	15:21
C221001-44	GR/LC SW-3387	12/27/22	15:25
2212009-DUP1	Duplicate	12/27/22	15:29
2212082-SRD1	Serial Dilution	12/27/22	15:33
2212009-MS1	Matrix Spike	12/27/22	15:37
C221001-47	GR/LC SW-3433	12/27/22	15:46
C221001-50	GR/LC SW-487A	12/27/22	15:50
2212082-CCV1	Calibration Check	12/27/22	15:54
2212082-CCB1	Calibration Blank	12/27/22	15:57
C221001-53	GR/LC SW-489	12/27/22	16:01
C221001-56	GR/LC SW-B4-HSE	12/27/22	17:25
C221001-59	GR/LC SW-DNS-RM	12/27/22	17:37
C221001-62	GR/LC SW-RF-DNS-01	12/27/22	17:41
C221001-65	GR/LC SW-RF-UPS-01	12/27/22	17:46
C221001-68	GR/LC SW-RMA1	12/27/22	17:50
C221001-71	GR/LC SW-RMA1-UPS	12/27/22	17:54
2212082-CCV2	Calibration Check	12/27/22	18:28
2212082-CCB2	Calibration Blank	12/27/22	18:32