



September 30, 2022

Ms. Alyson Boye
Cripple Creek & Victor Gold Mining Company
P.O. Box 191
Victor, CO 80860

RE: Corrective Actions Required; Grassy Valley GVMW-25 Monthly Sampling August 2022; Cresson Project; Permit No. M-1980-244

Dear Ms. Boye,

On September 26, 2022, the Division of Reclamation, Mining and Safety (Division/DRMS) received the monitoring results for Grassy Valley GVMW-25 Monthly Sampling for August 2022 at the Cresson Project, Permit No. M-1980-244. After reviewing the data provided, the Division is citing a problem for which corrective actions are required (detailed below).

Background

During a routine inspection of the Cresson Project on June 15, 2017 Division staff noted the presence of seep water at the toe of the East Cresson Overburden Storage Area (ECOSA). A review of aerial imagery indicated the seep was present as early as March 2017. In the November 2017 inspection report, the Division clearly stated the need for a Technical Revision to monitor the impacts of seepage to the surrounding environment. Analytical results from the sampling of the seep water showed there were several analytes exceeding Water Quality Control Commission (WQCC) Regulation 41 – The Basic Standards of Groundwater Table Value Standards (TVS) and Numeric Protection Limits (NPLs) for the site.

The ECOSA was originally permitted in Amendment 9 (AM-9). The facility is unlined and was designed to allow precipitation to infiltrate into and through the facility to the underlying diatreme. Due to the variability of the alluvium on which the ECOSA was constructed, the seep developed along the southeast toe of the facility in an area that does not overlay the diatreme.

On May 30, 2018, the Division approved TR-97 for the installation of a groundwater monitoring well on the south side of Grassy Valley, downgradient of the ECOSA seep location, and on the south side of the thalweg of Grassy Creek. The monitoring well (GVMW-25) was to be constructed within the alluvium and advanced to bedrock. GVMW-25 was completed on August 1, 2018 to a depth of 79 feet below ground surface using 4-inch diameter PVC pipe.

Routine quarterly sampling of GVMW-25 began in the 4th quarter of 2018. Quarterly reports from the 4th quarter 2018 to the 2nd quarter 2021 showed no exceedances of either TVS or NPL standards, except



for two exceedances reported for sulfate in August and September 2019. Beginning with samples collected from GVMW-25 as part of the 3rd quarter 2021 sampling event, TVS and NPL standards were exceeded for aluminum, beryllium, cadmium, fluoride, manganese, pH, sulfate and zinc. At that time, CC&V stated the exceedances were due to large precipitation events causing a flushing effect, which increased the ECOSA seep discharge volume and lead to another seep expressing approximately 1,000 feet north of the first seep.

As a result of the exceedances, the Division required monthly monitoring of GVMW-25 to determine if conditions would return to 2nd quarter 2021 conditions (baseline). Since October 2021, most analytes appeared to be recovering to baseline conditions until August 2022 when analytes began to spike above TVS and NPL standards again.

Based on the sampling data provided for GVMW-25 for August 2022, the Division is citing a problem pursuant to Rule 3.1.6(1) for failure to minimize disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quality of water in surface and groundwater systems both during and after the mining operation and during reclamation. The required corrective actions and corresponding deadlines are outlined below. Please ensure your corrective action response submittals refer to the corresponding corrective action number below.

1. Please provide a detailed explanation for the sudden and extreme spike in analyte concentrations observed at GVMW-25 in August 2022, due within 30 days, by October 30, 2022.
2. Pursuant to Rule 6.4.21(12), Water Quality Monitoring Plans are required to demonstrate that all Environmental Protection Plan requirements are being met and to ensure the operation is in compliance with applicable surface water and groundwater standards and permit conditions.
 - a. Currently there are no surface water sampling locations downgradient of GVMW-25 in Grassy Creek, which is a gaining stream downgradient of GVMW-25. The Division requires the establishment of a surface water sampling location downgradient of GVMW-25 as close to the current permit boundary as possible, at a location that routinely has water available to sample. Sampling of this location must begin within five (5) business days of the date of this letter. Please notify the Division the date the sample is collected. The sample shall be collected following the currently approved surface water sampling procedures, and be analyzed for the same constituents that GVMW-25 is currently analyzed for. Laboratory analysis of the collected sample must be expedited and the results reported to the Division as soon as they are available.
 - b. On the same day as the surface water sample is collected, samples must also be collected from GVMW-25 and both seep locations. These samples must be analyzed for the same constituents that GVMW-25 is currently analyzed for, enabling comparability of results. Laboratory analysis of the collected samples must be expedited and the results reported to the Division as soon as they are available.

- c. The operator will be required to expand the monthly sampling program to include GVMW-25, both seeps, and the downgradient surface water monitoring location. Reporting of the sample results, both immediately and monthly, must include a map showing the sampling locations, and also the field sheets and QA/QC samples per the approved Surface and Groundwater Sampling Plan.
3. The operator must submit a Technical Revision within 30 days, by October 30, 2022, which includes a revised surface water sampling plan and map to incorporate the new creek monitoring location, and a detailed monitoring and reporting program for the ECOSA seeps. This revision must also include a short term plan for management of the seep during active mining operations and a long term plan for final closure of the mine which prevents or minimizes any further impacts to the hydrologic balance by the ECOSA. Any facility that is designed, constructed and operated for control or containment of acid mine drainage shall be considered to be an Environmental Protection Facility (EPF) pursuant to Rule 1.1(21). All EPFs shall be designed and constructed in accordance with Rule 7.3.

Pursuant to Rule 3.1.5(11) there shall be no unauthorized release of pollutants to groundwater from any materials mined, handled or disposed of within the permit area. The Division considers the seeps, subsequent contamination of GVMW-25, and potential impacts to surface water an unauthorized release of pollutants. In absence of an established Point of Compliance for Grassy Valley, the Division will evaluate the available surface and groundwater quality data to determine whether there have been any adverse impacts to surface or groundwater systems that could be migrating beyond the permit boundary.

The Division reserves the right to further supplement this document with additional items and/or details as necessary.

If you need additional information or have any questions, please contact me by telephone at **303-866-3567 x8114**, or by email at patrick.lennberg@state.co.us.

Sincerely,



Patrick Lennberg
Environmental Protection Specialist

cc: Katie Blake, Cripple Creek & Victor Gold Mine
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