

November 22, 2023

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

**Re: Additional Information Required and Issuance of Corrective Action, Grassy Valley
Groundwater and Surface Water Monitoring Report September 2023; Permit No. M-1980-244**

Dear Ms. Smith:

On October 26, 2023, the Division of Reclamation, Mining and Safety (Division/DRMS) received the monitoring results for the Grassy Valley Monthly Sampling for samples collected on September 12, 2023 at the Cresson Project, Permit No. M-1980-244. After reviewing the data provided and from information collected during the August and October 2023 Monthly Inspections, the Division is citing a problem for which corrective actions are required (detailed below).

During the August 24, 2023 inspection the Division viewed the cast-in-place concrete box that was to fix a break in the steel waterline located along the toe of the ECOSA. During the November 4, 2023 (October monthly inspection date) inspection, it was determined the Operator was replacing the entire length of waterline along the toe. According to the Operator statements, it was unclear if a weld had failed at a joint or if low pH groundwater had corroded the weld or a combination of the two factors. The Division was then informed that the Operator had decided to replace the entire steel waterline located at the toe with a coated steel alternative that is more resistant to corrosive water.

Also, during the November inspection the Division was informed by the Operator they intend on developing another seep location, Seep 3. The Seep 3 collection basin is tentatively planned to be developed 100 to 200 feet northeast from Seep 1 where there is a low point in the road along the toe of the ECOSA. The Seep 3 location is being developed due to the quantity of seepage occurring in the area that was discovered this past summer.

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 Table Value Standards (TVS) or Numeric Protection Limit (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, the Operator stated the exceedances were due to large



precipitation events causing a flushing effect, which increased the ECOSA seep discharge volume at Seep 1 and led to another seep, Seep 2, expressing approximately 1,000 feet north of Seep 1.

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). The analytical results from the September 2023 sampling event show that concentrations of certain constituents were at or exceeded the highest concentrations previously seen at the well. It should be noted that during the drafting of this letter the Division received the monthly samples results for October 2023 and concentrations of certain constituents exceed the highest concentrations from September 2023. To date, the Operator has made minimal progress on defining the extent of contamination and has yet to provide a mitigation plan to prevent further deterioration of groundwater quality in and around the toe of the ECOSA and Grassy Valley.

Based on the sampling data provided for GVMW-25 for September 2023, 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. The Division believes the extent of seepage from the ECOSA has been poorly defined to date. The Operator will provide to the Division their estimate of the aerial extent of seepage from the ECOSA and a narrative for describing the reasoning for that extent. **The due date for this item is December 22, 2023.**
2. On September 2, 2021 the Division performed an inspection of the site and in the inspection report, issued on October 14, 2021, the Division cited several problems. Specifically, Problem #1 addressed Seep 1 expressing at the toe of the ECOSA. On November 15, 2021 the Operator provided their initial responses to the corrective actions. On December 13, 2021 the Operator provided detailed responses to the problem citations. In the response to the Corrective Action No. 5 – A formal plan on how the new seep will be monitored and managed for Problem Citation No. 1 the Operator responded *“Following the discovery of the new expressions in August 2021, CC&V developed a scope of work for a project at ECOSA that would provide a longer-term solution for managing seepage expressions. The scope includes a gap assessment of existing data at ECOSA/Grassy Valley, evaluation and development of recommended management solutions options, and a work plan. On October 21st, Golder Associates was awarded a bid to carry out this scope of work on behalf of CC&V. Golder has since performed a site visit and developed a draft gap assessment memo outlining critical data needs. A final work plan to mitigate and manage ARD at ECOSA is expected to be developed by February 2022. Implementation of recommended solutions will be initiated following finalization of the work plan.”*

The Operator shall provide a detailed discussion of the findings of the data gap assessment memo or provide a copy of the memo itself. Additionally, the Operator shall provide details on the status

of the final work plan to mitigate and manage ARD at the ECOSA that was to be developed in February 2022. If the Operator has no plan, then provide a detailed explanation as to why no plan has been developed despite knowing and committing to one over the past 2 years. **The due date for this item is December 22, 2023.**

3. The Operator shall collect groundwater samples from the following wells during the next monthly (December 2023) round of sampling to get an accurate depiction of groundwater quality throughout Grassy Valley at the same point in time. The wells to be sampled are GVMW-4A and 4B, GVMW-7A and 7B, GVMW-8A and 8B, GVMW-10, GVMW-15A, B, and C, GVMW-22A and 22B, GVMW-24A and 24B and GVMW-25. Every attempt needs to be made to sample the wells. The Operator shall use the water levels collected from the monthly sampling event to develop groundwater surface map(s) (multiple maps may be needed due to differing screened intervals) for Grassy Valley and submitted along with the other routine monthly report materials. The Division will require monthly sampling of these well locations for a minimum of one year. Samples will be collected in accordance with the Grassy Valley and Site QAPP (currently under review as TR-139). **The due date for this item is monthly sampling and submission of the data per the monthly monitoring schedule.**
4. The Operator shall note all seep collection structures, including Seep 1 and 2, are and will be considered Environmental Protection Facilities and need to be constructed to be compliant with Exhibit U and Rule 7.3 requirements. The Operator will submit a Technical Revision to provide a discussion of the Seep 3 collection area, how it will be constructed, and a construction schedule. Included in the revision will be relevant details and schedule to bring seep collection locations 1 and 2 into compliance. **The due date for this item is January 21, 2024.**
5. There are several EMP basins located along the toe of the ECOSA that are currently holding water. The water within these basins needs to be characterized during the monthly sampling events. For each basin sampled, it needs to be clearly stated if that basin is lined or not. Samples collected from these locations will be analyzed for groundwater constituents. Additionally, surface water sampling locations GV-01, -02 and -03 will be added to the monthly sampling event. The Division will require monthly sampling of these locations for a minimum of one year. Samples will be collected in accordance with the Grassy Valley and Site QAPP (currently under review as TR-139). **The due date for this item is monthly sampling and submission of the data per the monthly monitoring schedule.**
6. During the waterline replacement was additional groundwater encountered that was similar to that water in Seeps 1 and 2? If so, please provide a map showing those locations or a description of the water and whether or not it was sampled. **The due date for this item is December 22, 2023.**

The Division reserves the right to further supplement this document with additional items and 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, CC&V
Anthony Matarrese, CC&V
Johnna Gonzalez, CC&V
Elliott Russell, DRMS
Michael Cunningham, DRMS
Tim Cazier, DRMS
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