



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

April 26, 2019

Mr. Mike Schaffner
Cripple Creek & Victor Gold Mining Company
P.O. Box 191
Victor, CO 80860

**Re: Project, Permit No. M-1980-244;
Technical Revision (TR-113) Preliminary Adequacy Review**

Dear Mr. Schaffner:

The Division of Reclamation, Mining and Safety (DRMS) received a request for a Technical Revision (TR-113) addressing the following:

Leach Cell Study

The submittal was called complete for the purpose of filing on April 11, 2019. **The decision date for TR-113 is May 11, 2019.** Please be advised that if you are unable to satisfactorily address any concerns identified in this review before the decision date, **it will be your responsibility to request an extension of the review period.** If there are outstanding issues that have not been adequately addressed prior to the end of the review period, and no extension has been requested, the Division may deny this Technical Revision.

The following comments are based on the Division's review of the request for TR-113:

- 1) Figures and Maps: Pursuant to Rule 6.2.1(2), Maps and Exhibits, maps, except the index map, must conform to the following criteria:
 - a) show name of Applicant;
 - b) must be prepared and signed by a registered land surveyor, professional engineer, or other qualified person;
 - c) give date prepared;
 - d) identify and outline the area that corresponds with the application;
 - e) with the exception of the map of the affected lands ... shall be prepared at a scale that is appropriate to clearly show all elements that are required to be delineated by the Act and these Rules. The acceptable range of map scales shall not be larger than 1 inch = 50 feet nor smaller than 1 inch = 660 feet. Also, that a map scale, appropriate legend, map title, date and a north arrow shall be included. *[In addition, maps and figures utilizing photographs (ground-based, aerial or satellite) should include the date of the image.]*



With the exception of Figure 1 (which does not include the date of the aerial image), none of the figures in the TR-113 submittal conform to the standard in Rule 6.2.1(2). Please resubmit figures 2 through 4 to conform to Rule 6.2.1(2). In lieu of resubmitting Figure 1 with the date of the aerial image, please provide the date of the image in your response to this adequacy letter.

- 2) Liner: The narrative on page 1 does not provide any specifics on the liner. Please describe the material being used for the liner. This information will be critical to the analyses required in Comment 5 below.
- 3) Stacking: The “Stacking” discussion on page 1 of the TR request states “Approximately 18,000 tons of ore will be placed on top of the crushed ore” discussed in the “Liner” portion of the TR request. The “Stacking” narrative further explains a combined 36,000 tons of test pad materials will be the total amount of material placed on the leach cell liner and be stacked a maximum of 35 feet in height above the cell liner. The “Liner” narrative indicates the 3-foot depth of previously processed, crushed ore is also 18,000 tons. Despite the variable thickness (between 2 and 32 feet, averaging roughly 17 feet), this suggests the ore to be placed on the 3 feet of crushed ore has the same weight despite being about 5 times the thickness. Please explain why the ore has roughly 20 percent of the density of the previously processed, crushed ore.
- 4) Solution Application: Please discuss whether there is any difference in the leach solution being applied to the study cell and that used elsewhere on VLF 1 and 2, specifically whether there is a difference in cyanide concentration or any other designated chemicals.
- 5) Geotechnical Stability: The narrative on page 2 references a geotechnical memo in Attachment 1. Based on the information provided in the submittal, the DRMS is concerned with the potential for the liner to act as a slip plane (i.e., geomembrane(?)) on a 10 percent slope, with solution present to potentially act as a lubricant, as well as a significant portion of the liner being above the frost depth) and what the ultimate disposition of the 36,000 tons of ore and crushed ore might be were it to slide down the 10 percent lubricated liner slip surface. Pursuant to Rule 6.5(2) and (3), please provide a slope stability analysis performed by a registered professional engineer in the State of Colorado addressing the aforementioned concerns, accounting for reduced friction on the wet liner surface. Please be aware depending on your response to Comment 6a below, the DRMS may also require seismic loading be considered in this analysis. Please ensure the slope stability analysis conforms to Mined Land Reclamation Board 30.0, available on our website: <https://mining.state.co.us/SiteCollectionDocuments/MLRB%20Policies%20Revised%20May%202018.pdf>.
- 6) Implementation Schedule: The narrative on page 2 does not discuss the duration of this project, nor when reclamation will begin. Please provide the following:
 - a. Expected duration of the test,
 - b. Expected criteria for initiating reclamation and how long CC&V expects reclamation to take.

- 7) Financial Warranty: The narrative on page 2 briefly outlines a reclamation plan for the leach cell for the purpose of estimating reclamation liability. As there is not a section in this TR request specifically addressing reclamation for this leach cell, comments related to reclamation are included under this section. The DRMS intends to perform its own reclamation liability estimate for the leach cell. As such, we require the following additional information:
- a. How will the liner be dealt with in the reclamation plan? Please be aware the DRMS will not allow it to be left in place as it would preclude rinsing of the VLF below it as currently approved in the site reclamation plan. Also indicate the haul distance for disposing the liner.
 - b. The DRMS requires a typical haul distance for material to be moved in order to estimate earth moving costs. Please indicate where the stacked ore and previously processed crushed ore is expected to be hauled in order for the DRMS to estimate number of trucks, haul distance and grade.
- 8) Figure 2: The dimensions on Figure 2 indicate the cell is 210 feet by 348 feet (73,080 sqft., assuming a rectangle). Figure 2 also indicates the area is 67,049 sqft., a near 10 percent difference. The DRMS acknowledges the cell is not a perfect rectangle, but requests confirmation the cell area is 67,049 sqft.

If you have any questions or need further information, please contact me at (303)866-3567 x8169.

Sincerely,



Timothy A. Cazier, P.E.
Environmental Protection Specialist

ec: Michael Cunningham, DRMS
Elliott Russell, DRMS
Patrick Lennberg, DRMS
Amy Eschberger, DRMS
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