COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

April 12, 2017

Mr. Jack Henris
Cripple Creek & Victor Gold Mining Company
100 N. Third Street
P.O. Box 191
Victor, CO 80860

Re: Project, Permit No. M-1980-244;
Technical Revision (TR-89) Preliminary Adequacy Review, Part II; and
Decision Date Extension Approval

Dear Mr. Henris:

On March 10, 2017 the Division of Reclamation, Mining and Safety (Division) received a request for a Technical Revision (TR-89) addressing the following:

Remove High Grade Mill flotation concentrate from the circuit for transportation offsite

The submittal was called complete for the purpose of filing on March 10, 2016. On April 10, 2017, the Division received a request via email to extend the decision date to April 27, 2017. The Division hereby grants the request. **The decision date for TR-89 is April 27, 2017**. 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 will deny this Technical Revision (TR).

The following comments are based on the Division's CC&V lead specialist review of the request for TR-89 and the supplemental Strength Assessment and Stability Evaluation Technical Memorandum received on March 27, 2017:

General Comments.

A) The High Grade Mill and related facilities are considered an Environmental Protection Facility (EPF) by the Division. The changes proposed in TR-89 modify the HGM, and add new facilities and structural fill. Pursuant to Rule 7.3.2(2), CC&V must submit a quality assurance test monitoring certification report signed by a professional engineer licensed in Colorado. Please commit to providing a certification report to confirm any placed fill and/or new constructed and /or modified facilities were constructed in accordance with any design plan approved by the Division. The submittal should include record drawings for: fill, secondary containment elevations, relocated water lines and manholes, and other appurtenances related to environmental protection. The report should also include final process flow diagrams.

B) Based on discussions this specialist had with CC&V personnel while on site on March 28, 2017, additional flotation tanks are being considered inside the HGM as part of this revision. Please clarify whether or not additional flotation tanks will be installed and provide drawings showing their physical location and where they fit into the process flow diagram.

C) The Division has received comments from Teller County (also sent to CC&V) raising local permit concerns. Pursuant to Rule 6.4.13, please provide a list of other permits that might be required or modified if this TR is approved by the Division.

Comments Specific to the Submittal.

D) Concentrate Stockpile Clarification – Drawing 20-647-002A indicates the maximum concentrate stockpile size will be 3,360 tons; whereas Drawing 20-647-003A and the TR request letter state the maximum concentrate stockpile size will be 3,000 tons. Please clarify the maximum intended concentrate stockpile size and outline the procedure planned to ensure the capacity is not exceeded, that would likely lead to spills outside the concentrate storage building.

E) Hazardous Material Discussion (p. 2, 5th paragraph) – The states no increases in existing or new chemicals/hazardous material will result from the changes proposed in this revision and discusses the use of a modified version of the EPA's toxicity characteristic leaching procedure (TCLP) to confirm the concentrate contains no cyanide (CN). However, the first row of Appendix B, Full Chemical Characterization of Solids Samples Prior to SWDC Procedure lists the AuCN as 21.9 ppm and 68.8 ppm respectively for "Rougher Concentrate" and "Cleaner Concentrate"; clearly indicating CN is present in the solids. If the claim of no CN is based on the results of Appendix A, Full Analytical Characterization of Leach Solution from SWDC Procedure, then CN is not listed in Appendix A, nor would it be expected as the SWDC procedure indicates the solids are "leached" with various acids (including acetic acid, nitric acid and hydrochloric acid). Based on the International Cyanide Management Code CN chemistry overview, if the pH is below seven, 99 percent of the cyanide will exist as HCN (a gas) and would not be expected in the leachate. Finally, CN is not the only hazardous chemical with which the Division has concerns. Please address the following:

   i. Clarify the rationale behind the statement that no CN exists in the concentrate sampled and how the modified TCLP test demonstrates that claim.

   ii. Please provide a Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for each of the process chemicals the concentrate is exposed to on the grind/flotation side of the circuit.

F) Secondary Containment for the Breezeway (p. 2, 6th paragraph) – Please explain the method of secondary containment of concentrates on the conveyor through the 8-foot breezeway and provide a drawing or diagram showing the secondary containment.

G) Pad Extension (p. 3, 2nd paragraph) – This paragraph states approximately 4,500 CY of fill will be needed to extend the HGM platform for the road and that the pad extension will be constructed in the same manner as the previous pad construction. Several modifications have been made to project specifications since the Mill Platform was completed about five years ago. TR-78 updated specifications for the Squaw Gulch VLF only. This paragraph also states the slopes will be graded to three different grades: 2H:1V, 2.5H:1V, or flatter. There is a gap

in the liner in the vicinity of the proposed pad extension, but no discussion with respect to HGM liner tie-in. Please provide the following:

i. A complete set of current specifications intended for the pad extension signed by a professional engineer licensed in Colorado.

ii. Rationale for why three different slopes are proposed.

iii. Discussion on whether or not additional liner is required to either bridge the existing gap or other reasons.

Drawings.

H) Drawing 20-647-001A. Please show the liner extents on this drawing or a similar drawing. Please consider Item #6 of the Division's April 7, 2017 TR-89 Adequacy Review Memorandum (TR89ARM).

I) Drawing 20-647-002A. Based on the plan view, the labeled floor elevations are somewhat confusing. In addition to the cross section "C" requested in Item #4 of the TR89ARM, please provide a cross section perpendicular to cross sections "A", "B" and "C"; preferably along the B1 () axis line to help clarify grades and elevations.

Nonagglomerated Tailings Strength Assessment and Stability Evaluation.

J) The Technical Memorandum (TM) prepared by NewFields states they evaluated global stability of the VLF 2 (a.k.a. SGVLF) by determining the minimum shear strength of the leach material to achieve acceptable factors of safety for the VLF. The Division assumes that by "leach material", NewFields means tailings. The TM also states tailings are mixed with crushed ore at a ratio of 1 part tailings to 9 parts ore. The stated goal for the Factors of Safety: 1.3 and 1.15 for static and pseudostatic are acceptable to the Division. There is no summary of laboratory testing in the text, but a review of the Attachment A, Laboratory Data Sheets, Strength Testing, "Ore Blend 2W/Combined Tailings" showed a friction angle of 38.2 degrees. Section 3.3 (p. 6, under Table 4) of the TM states "the slopes are stable if the friction angle of the ore, or ore-tailings mixture is 38 degrees or greater". A difference of 0.2 degrees does not leave much room for a margin of error. Finally in Section 4.0, NewFields states the introduction of small amounts of nonagglomerated tailings (10% maximum) does not significantly alter the mobilized shear strength. There is no discussion on the sensitivity of this 10 % maximum. The Division is familiar with CC&V's method of adding nonagglomerated tailings to ore prior to hauling this material to the VLF. It is not an accurately measured process. Please provide the following:

i. A realistic assessment of the worst case ratio of tailings to ore using the current mixing process near the LOB. How likely is it that the tailings can exceed the maximum 10% fraction, and if it does how sensitive is the Factor of Safety to this ratio if the friction angle is only 0.2 degrees above the minimum of 38?

ii. A written commitment to follow NewFields' recommendation in Section 4.0 (last bullet) to "conduct routine characterization testing of the current and future primary ore types at the site", and report the results to the Division on an annual basis.

Supplemental Strength Assessment and Stability Evaluation Technical Memorandum.

K) The Technical Memorandum (TM) prepared by NewFields (dated March 8, 2017) states they evaluated global stability of the proposed configuration (site grading and building for the concentrate structure and stockpile loading area) of the HGM complex. Section 2.0 (2nd paragraph, p. 2) states the minimum Factors of Safety are 1.25 and 1.1 for static and pseudostatic conditions. This is incorrect because the Division considers the HGM area to be a critical structure, as it is an environmental protection facility (EPF). The stated goal for the Factors of Safety should be 1.3 and 1.15 for static and pseudostatic conditions, respectively. This means the FoS for Section A, pseudostatic condition (Table 2, p. 3) is unacceptable. NewFields provides a recommendation for the fill material specification in Table 3. Please provide the following:

   i. Revisions to achieve the required Factors of Safety and addressing the comments in Item L below.

   ii. The requested specifications in Item G(i) above should reflect NewFields recommendation for fill material and account for any changes necessary to meet Item K(i) above.

L) Slope stability analyses (Attachment A). A review of the two sections analyzed (Figure 1) and the graphic results raise the following concerns: 1) Section A does not appear to consider the weight of a fully loaded haul truck, or water/seepage that was observed previously when the fire suppression water system was leaking and seeps were observed at the HGM liner crest elevation; 2) Section B does not appear to consider static loading from the 3,000/3,360 ton stockpile, concentrate storage structure and concrete base, and/or a fully loaded haul truck. Please revise the analyses to include the following:

   i. Section A – fully loaded haul truck and seepage layer,

   ii. Section B - fully loaded haul truck and the 3,000/3,360 ton stockpile, concentrate storage structure and concrete base.

The request letter for TR-89 is four pages long and does not include page numbers. During the review process pages get shuffled several times. The Division would appreciate it if future documents more than two pages in length included page numbers. 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: Wally Erickson, DRMS
Amy Eschberger, DRMS
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Meg Burt, CC&V