



September 30, 2020

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

**Re: Project, Permit No. M-1980-244;
Supplemental Second Adequacy Review, Amendment Application (AM-13)**

Dear Ms. Harmon:

The Division of Reclamation, Mining and Safety (Division) has completed its review of your July 2020 (received August 3, 2020) responses to our April 3, 2020 preliminary adequacy review (PAR) letter for the Cresson Project 112d-3 Reclamation Permit Amendment Application (AM-13). The current **decision date for the application** is **October 7, 2020**. 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 application.

The following comments are specific to Comment Nos. 73, 75, 81, 82 and 86a not yet reviewed for our August 31, 2020 Second Adequacy Review and fourteen additional comments based on recent site observations related to the AM-13 amendment package, and the revised design presented in the July 2020 "Detailed Design for Permitting" document.

APPENDIX 1

73. Section 4.1, p. 7, 2nd paragraph. The response was not adequate. The Division noted the revised "Detailed Design for Permitting" document dated July 2020 has significant revisions, yet retains the original verbiage stating "mine placed pit backfill materials prior to construction of the VLF composite liner are considered to be out of the scope of this project". The Division considers any surface undergoing preparation for placement of an EPF to be within the scope of the project whether it is clearing, grubbing and grading as with the two existing VLFs, or grading as with the SGOSA material. Please remove the "out of scope" verbiage.
75. Section 4.4, method specification. The response was not adequate. Please see Comments C, G and K below for specifics. If CC&V wishes to maintain the "low compaction effort" approach, the Division may seek outside consultation review of the proposed approach.



81. Section 5.2, Schist Island Backfill Settlement. The Division has questions related to the settlement analysis related to boundary conditions. Please provide the following:

- a. Describe the model assumptions such as development length for strain (reference Appendix D.1 - Geomembrane Pull Out and the assumed 300 foot height of slope) and boundary conditions,
- b. Describe the finite element grid spacing and provide justification for the approach; and
- c. Why are the isolines near the surface of the stacked ore vertical?

If CC&V wishes to maintain the “low compaction effort” approach, the Division may seek outside consultation review of the proposed approach.

82. Section 5.2.3 Results & Section 5.2.4 Conclusion. The Division has questions related to the settlement analysis related to potential restricted movement of the geomembrane relative to the drain cover fill (DCF) above and the soil liner fill (SLF) below, based on the comments from the “multi-layer interface direct shear testing (ASTM D 6243)” notes 1 and 2 in Appendix B, Figure B-2. Please see Comment I below for specific questions.

86. Appendix F - Slope Stability Results. [Part a] The Division acknowledges the submittal of the additional requested stability analysis section. Please see Comment C below.

ADDITIONAL COMMENTS

- A. Exhibit F – Areas where Reclamation in not required. Drawings F-1, F-5, and F-6 (dated 7/30/2020) have an area labeled “East Cresson Mine (ECMC)” which the legend indicates is an “Area where Reclamation in not required”. As this area was disturbed under activities approved under M-1980-244 and/or previous permitted operations consolidated under M-1980-244, and a release request has neither been submitted nor approved for this area, it is still subject to meeting the approved reclamation plan. Furthermore, recent inspections have identified significant erosion and a drill pad requiring additional reclamation be performed prior to release from reclamation liability. Please revise Drawings F-1, F-5, and F-6 to depict this area differently from undisturbed areas.

DETAILED DESIGN FOR PERMITTING, REVISION 1

- B. Section 4.9. Reclamation/ Closure. Please clarify at what phase of the new VLF construction the vertical drill shafts to be extended through the composite liner surface to promote any flows into the diatreme zone will be installed.
- C. Section 5.1.3 Material Properties. Based on the expanded narrative in the revised report, it has become clear to the Division that inappropriate minimum Factors of Safety were set for the stability analyses. As the new VLF is a critical structure (as are the other two VLFs), the “Critical Structures” row of Table 1. Recommended Minimum Factors of Safety for Slope Stability Analyses for Operations and Reclamation in Section 30 of the “Policies of

The Mined Land Reclamation Board” apply; and as it has become apparent in the expanded narrative, the selected strength parameters are not based on Strength Measurements Resulting from Multiple Tests, but on generalized or assumed values. This approach requires the minimum factors of safety (FoS) be taken from the first column of safety factors. Therefore, the FoS for static conditions must be greater than or equal to 1.5 and the FoS for seismic conditions must be greater than or equal to 1.3. Based on Table 5.2 – Summary of Calculated Factors of Safety, Sections 1 and 4 do not meet these criteria. Furthermore, given the very loose specification for overburden backfill and the statement in the report that the material can come from different sources, different parent rocks, etc., it is unlikely only a few strength tests could provide confidence in a selected cohesion or friction angle. Please provide a revised slope stability analysis demonstrating compliance with the more conservative MLRB Policy, Section 30.

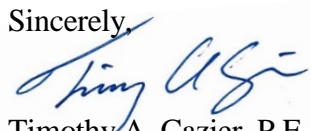
- D. Table 5.1 – Stability Evaluation Material Properties. There were significant revisions to the Design Report with some sections completely re-written and others essentially the same. The verbiage supporting Table 5-1 was not significantly revised, but the moist unit weight changed for every material but the composite liner interface. The ore weight was reduced by 4%, the foundation backfill weight was increased by 4% and the intact foundation material weight was increased by 25% when compared to the Table 5.1 values from the December 2019 report. No explanation for the difference was provided. Similar discrepancies are found in Table 5.3 – Material Properties. Furthermore, there is an inconsistency between Table 5.1 and 5.3 in that different densities are proposed for the low and high compaction zones in Table 5.3, but not in Table 5.1. If CC&V wishes to maintain the “low compaction effort” approach, the stability analysis should reflect the different densities and provide a rationale for each selected material density as it has changed between December and July without any discussion. Please revise Tables 5.1 and 5.3 to be consistent and provide rationale for the selected material densities. The stability analyses will need to be revised accordingly.
- E. Section 5.2.2 Back Analysis of Mill Platform Fill. In the third paragraph, the narrative states “The difference between the as-built survey from 2016 and the 2018 survey, approximately 0.41 feet across the area that was excavated”. Elsewhere in the submittal, it indicates the 0.41-foot settlement is an average. The Division recalls informal discussions related to the recertification of the liner near the mill indicating the settlement was at least a foot in areas. Please provide the maximum and minimum settlement depths and discuss whether the difference correlated well with the depth of ore placed on the area where the top of the soil liner fill was resurveyed in support of your back analysis.
- F. Section 5.2.4. Material Properties. The seventh paragraph on p. 19 discusses varying the Poisson’s ratio between 0.2 and 0.4, finally selecting 0.3 for the model. Please address the sensitivity in the results using the range between 0.2 and 0.4.

- G. Section 5.2.7. Conclusion. In the fourth paragraph on p. 20, Newfields states they believe they can achieve 95% standard proctor, similar to that achieved at the mill pad where 2 to 2.5-foot lifts were used (and hydraulic machinery was used to break up rock greater than two feet in size), using 5-foot lifts with a material meeting a very loose specification (all material smaller than 5 feet, with 0 to 25% fines). How is a proctor optimum density to be evaluated/determined with a material that is 75 to 100 percent rock greater than 3 inches? With such large rock and potentially large voids, how does Newfields propose to demonstrate a 95% standard proctor compaction is achieved?
- H. Appendix B, Borehole BH-05. The log for BH-05 indicates groundwater was encountered 35 feet below ground surface. Please comment on how this water may be perched and based on the surrounding geology whether or not the area might be fed from the unlined area to the southeast of the new VLF pad, potentially necessitating an underdrain.
- I. Appendix C.2 – 2019 Interface Shear Test. Figure B-2 notes 1 and 2 indicate shear stresses of 1,000 psf and less resulted in “Shear failure at the interface between the aggregate [DCF] and shiny side of Agru 80-mil Microspike”, whereas of 7,500 psf or greater resulted in “Shear failure at the interface between the low perm soil [SLF] and dull side of Agru 80-mil Microspike.” Please comment on theories as to why the demarcation for stresses between 1,000 and 7,500 psf and how that might help or hinder the slippage of the geomembrane over long distances of developed strain resulting from differential settlement.
- J. Appendix D.1 – Geomembrane Pull Out. Does the 300 foot “Height of Slope” input parameter indicate the uniform development of strain over the 600 or 750-foot length of liner (depending on 2H:1V or 2.5H:1V slope) or just provide an input for the weight of ore providing stress on the anchor trench?
- K. Appendix E - Technical Specification 02200. Section 3.6.B.3, proposes a developing a specification for method compaction of Overburden Fill. Given the very loose size specification (100% passing a 5-foot sieve, with 0 to 25% fines), it seems unlikely to successfully develop a method specification that would result in any significant level of confidence that any consistent level of compaction could be achieved. The potential for significant voids into which up to 25 percent of the fill could eventually settle into appears to be beyond this approach. Please provide some discussion how such a method specification could be developed to any significant level of confidence.
- L. Appendix F – Slope Stability Figures F.1 and F.2. The south “leg” of Section 1 runs over the area where the six boreholes presented in Appendix B were drilled. Those boreholes indicate the majority of the subgrade is not competent bedrock, yet no stability analyses were provided for this section. Please provide a slope stability analysis for the south “leg” of section 1.

- M. Appendix F.2 – Stability Graphics. The pdf version of all the stability graphics which include a “Composite Liner Interface” shows “jschmidt” added this blue line to each figure. Please explain why this was added after the software generated the graphic results.
- N. Appendix G – Settlement Analysis. Please explain why the isolines near the surface of the orestack in the Phase 3 Valley Leach Facility Settlement Analysis graphics figures are perpendicular to the surface.
- O. Follow-up. During a conference call with CC&V and Newfields personnel on September 29, 2020 it was stated Newmont had used similar construction techniques at the Yanacocha and Peñasquito mines. If these sites are to be referenced as successful implementation of this approach, please provide: type of facility involved; material specifications; material placement details; indicate whether or not liners (and what type) were involved; configuration of the liner with respect to prepared subgrade and backfill; long term monitoring used to confirm continued success; and any other details that might support this approach for the current proposed VLF construction. There was mention of a site where the proposed compaction effort was verified. It was not clear to the Division if this was at Yanacocha or Peñasquito, but providing the documentation and details supporting this verification effort would be helpful.

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
Brock Bowles, DRMS
DRMS file

Justin Raglin, CC&V
Justin Bills, CC&V
Katie Blake, CC&V
Wendy Conley, CC&V