



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

August 6, 2021

Lance Barker
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Mineral Mountain Gold, LLC
P.O. Box 247
Cripple Creek, CO 80813

Re: Adequacy Review, Amendment AM1, Mineral Mountain Project, Permit M-2014-045

Mr. Barker:

The Division of Reclamation, Mining and Safety (Division) has completed its adequacy review of the Mineral Mountain Project, LLC (Operator) 110d Reclamation Permit Amendment Application (AM1). AM1 was submitted to address a portion of the corrective actions ordered by the Mind Land Reclamation Board after the Operator was found in violation of C.R.S. 34-32-124, for failure to comply with the conditions of an order, permit, or regulation for the unauthorized use of a gravity/floatation mill and the unauthorized use of a designated chemical. Specifically, the corrective actions of Violation MV-2020-021 required the Operator to address updates to the Mine Plan and the Environmental Protection Plan to describe current and proposed mining and milling activities at the site through an Amendment Application. Portions of AM1 were received between April 15, 2021 and May 11, 2021. The Division determined AM1 was considered filed for review on May 13, 2021. The Division also determined AM1 was complex in accordance with Rule 1.4.1(7) and set the decision date for the application to **August 11, 2021**. During the review of the material submitted, the Division determined that the following items need to be adequately addressed before AM1 can be considered for approval. Please also address the additional adequacy concerns within the attached July 23, 2021 AM1 Review Memo from Leigh Simmons.

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 review consisted of comparing the application content with specific requirements of the Hard Rock Act, 34-32-101 et seq., C.R.S. (the Act) and the Minerals Rules and Regulations of the Colorado Mined Land Reclamation Board for Hard Rock, Metal and Designated Mining Operations (Rules). The Division is formally requesting the Applicant provide a cover letter responding to each adequacy item as well as providing appropriate replacement pages/sections/exhibits/etc. for each response. Please title your responses "Adequacy Review Response AM1; M-2014-045".

GENERAL APPLICATION PROCEDURES

1. As required by Rule 1.6.2(1)(g), please submit proof of publication of a public notice in a newspaper of general circulation in the locality of the proposed mining operation.

On July 1, 2021, the Operator submitted proof of publication in accordance with Rule 1.6.2(1)(g). No further response is needed.

2. As required by Rule 1.6.2(1)(g), please submit proof that the public notice was provided to all owners of record of surface and mineral rights of the affected land and to the owners of record of all land surface



within 200 feet of the boundary of the affected land. Proof of notice may be return receipts of a certified mailing or by proof of personal service.

On July 1 and July 21, 2021 the Operator submitted proof of noticing in accordance with Rule 1.6.2(1)(g). No further response is needed

3. The Division received a comment letter from History Colorado regarding the application. The letter is attached for your review. Please acknowledge and address any comments noted in the letter and make changes to the application as necessary.

EXHIBIT C – Mining Plan (Rule 6.3.3)

4. In Exhibit C 1(e), the Operator states an additional shaft (Shaft II) will likely be needed in the near future and will be closed in the same manner as the first shaft (the Division assumes this will be known as Shaft I). Upon review of the original permit documents, although the Reclamation Plan describes the general closure of Shaft I, it appears the file lacks specific construction designs and details of Shaft I. In accordance with Rule 6.3.3(1)(e), please submit details and designs of Shaft I and Shaft II.
5. In Exhibit C 1(e), the Operator states “the facility remains a zero discharge facility, so the level of water use is, and will continue to be small.” Additionally, in Exhibit C 1(h), the Operator states “the site has required minimal dust control to date, but dust control typically consumes a few thousand gallons when dust suppression is necessary. Drilling has typically required the use of a few thousand gallons for lubrication and cooling, and the test milling requires a small amount of makeup water to replace the small amount that remains in the tailings sand following dewatering.” The use of these generalized statements regarding the consumption of water is not acceptable. As required by Rule 6.3.3(h), please specify how much water will be used in the operation. Additionally, please provide specific details regarding water storage at the site.
6. In Exhibit C, the Operator discusses the site is a zero water discharge facility and that mill processing water is recycled and reused. During the 2020 site inspection, the Division observed wet conditions on the decline tunnel adjacent to the tailings dewatering sump room and a small pool of water was observed against the face at the bottom of the decline tunnel. In accordance with Rule 3.1.6(1), please describe how the Operator will ensure water from the tailings is kept within the dewatering area and doesn’t flow down into the workings.
7. In Exhibit C 1(m), paragraph 2, the Operator states the tailing sand is dewatered to below saturation before placement on the waste rock pile. Please provide the percent water content of the tailings sand when it is transported to the surface for placement on the waste rock pile.
8. Within the 110(2) Permit Application, the Operator provided an August 6, 2014 Engineering Report titled, “Rock Testing for Acid Generation and Rock Buffering.” The 2014 Engineering Report included acid-base accounting (ABA) testing which was performed prior to permit issuance. This 2014 Engineering Report, which ultimately required the Operator to convert to a 110d permit, states that materials at the site were potentially acid-producing. Within the 110(2) to 110d Conversion Application CN1, the Operator committed to storing any potentially acid generating material inside the mine and to keep it isolated from outside precipitation. Within TR1, the Operator provided the results of ABA testing for the concentrate which showed the product extracted from the ore was acid generating. During the 2020 site inspections of the site, the Division observed ore being stockpiled at the surface prior to crushing as well as crushed ore stockpiled in the eastern half of a 3-sided structure at the surface prior to being hauled to the underground mill. The Operator states within AM1 Exhibit C 1(m), paragraph 2,

material that is potentially valuable is reduced in size in a small crushing plant that is currently located on the waste rock pile. Please provide details how the Operator intends to handle the mined ore prior to crushing, the crushed ore prior to milling, and the concentrate products produced from milling. Please update the EPP to address the requirement of Rule 6.4.21(6). Please note, as the Operator has already demonstrated, the ore is acid generating and therefore, if the ore is stockpiled outside of the mine and is exposed to precipitation, the Operator will need to propose additional Environmental Protection Facilities (EPFs) in accordance with Rule 6.4.21(7) for the control and containment of acid-forming materials.

9. In Exhibit C 1(m), paragraph 2, the Operator states any finished product produced will be stored in the mill room, in the warehouse, or at another suitable location in shelter and protected from weather. Please note, upon approval of AM1 the Operator is only authorized to store finished product within an approved EPF designed to contain the finished product and that “another suitable location” will need to be reviewed, approved, and certified as an EPF by the Division prior to its use. Please revise the proposed language in Exhibit C 1(m), paragraph 2.
10. In Exhibit C 1(m), paragraph 3, the Operator has generally discussed the milling process and provided a typical example flow sheet for those unfamiliar with the type of operation. The Division appreciates the general discussion and the example flow sheet, however, the Operator will need to provide the specific details of the current milling process and a detailed flow sheet to reflect the actual mill being utilized at the site. The Division is aware the Operator is in a “mineral testing stage” and changes may occur to the current process. As previously discussed with the Operator, if processing changes (other than minor tweaks) are proposed in the future, the Operator will need to inform the Division of the change in writing prior to implementation. The Division will then notify the Operator if the change is substantial enough to require a Technical Revision to the approved plan. This is a similar concept to Item #3 on the attached AM1 Review Memo from Leigh Simmons regarding changes to the list of chemicals. Please provide the specific details of the current milling process and a detailed flow sheet to reflect the actual mill being utilized at the site.
11. AM1 proposes the continued use of a surface crusher which may be moved underground. When the crusher is located on the surface, the Operator will need to utilize stormwater BMPs and periodically remove accumulated crusher fines. Please discuss how stormwater will be controlled near the crusher and provide a plan to periodically clean-up crusher fines.
12. As the Operator is “still in a prospecting and mineral testing stage” and “since the Earth’s rocks are not necessarily homogeneous, neither is the content and exact composition of the minerals in those rocks”, the Operator will need to propose a periodic waste stream characterization plan in accordance with Rules 3.1.5, 3.1.6, 6.4.21(6)(c), and 6.4.21(14). Results from this periodic characterization (tailings chemistry, SPLP, ABA, TCLP, etc.) will determine if the Operator is authorized for the continued placement of mill tailings sand on the unlined waste rock dump regardless of changes in the ore body or changes to the milling process.
13. During the 2020 site inspections of the site, the Division observed the Operator was placing tailings sand in an excavated trench within the western portion of the waste rock pile. Within the Attachment A, Plan to Handle Tailings submitted within TR1, the Operator stated that future tailings would be incorporated into the waste rock pile in the same manner as the existing tailings sand. Please provide details on how the Operator will ensure placed tailings sand is protected from wind and water erosion in accordance with Rule 6.3.3(1)(l), Rule 6.3.4(1)(e), and CRS 34-32-116(7)(i). Please describe how much freeboard will remain within the trench to ensure the sand is contained, to help prevent possible sedimentation off of the waste rock pile, and allow the tailings to be adequately covered and isolated from any future public in accordance with TR1.

14. In Exhibit C 1(m), paragraph 2, the Operator states, since the tailings sand has been found to be suitable as plant growth media, the materials could be used as a supplement to existing soils for reclamation. This statement contradicts TR1 whereas the Operator stated the final concentrations of arsenic in the tailings sands is not known but if the Operator were to perfect his processing methods that it was possible it could be used for a growth media additive. The Operator stated testing for remnant arsenic concentrations would need to be performed prior to using it for this purpose. Please commit to submitting a revision to the permit if, in the future, the Operator will use tailings sand as growth media or as an additive to growth media for use in reclamation. The Operator will need to perform a characterization of the future tailings sand and will need to demonstrate the tailings sand would be beneficial as growth media or as a growth media supplement.
15. In accordance with Rule 6.3.3(1)(e), please provide a table to account for all existing structures (permanent and temporary) and mine-related refuse/debris which has accumulated at the site. In addition to the detailed accounting, the Operator may submit a signed and notarized letter from the landowner identifying which structures are requested to remaining after reclamation is complete for the landowners use. In accordance with CRS 34-32-109(6), the Operator will need to submit a demonstration (correspondence from Teller County) that structures requested to remain comply with local land use zoning and are compatible with the selected post-mining land use. The Division will utilize the information provided in the accounting to determine the costs associated with the removal and disposal of the items for the reclamation cost estimate.

EXHIBIT E – Map (Rule 6.3.5)

16. Both maps submitted with AM1, *Exhibit Map E* and *Onsite Chemical Storage Map* were not signed as required by Rule 6.2.1(2)(b). The *Exhibit Map E* labels the mill access route and mill room but does not show the outline of these features as depicted on the *Onsite Chemical Storage Map*. Please revise these maps accordingly.

EXHIBIT I – Proof of Filing with County Clerk (Rule 6.3.9)

17. Any changes or additions to the application on file with the Division, must also be reflected in the public review copy. Please submit proof that the public review copy has been updated or a copy of the response to this adequacy letter has been added to it.

EXHIBIT L – Permanent Man-Made Structures (Rule 6.3.9)

18. In Exhibit C 1(e), the Operator states there is an overhead powerline and a water supply line that is now in place and although the Operator can use these lines, they are a part of the underlying property and will stay with the property after mining ceases. These are considered permanent man-made structures and the Operator will need to comply with Rule 6.3.12 for these structures. Additionally, Exhibit E map needs to be revised to show the names of the structure owners in accordance with Rule 6.3.5(2)(b). Please note, there is a sample structure agreement form within the application packets available on the Division's website for compliance with Rule 6.3.12(a) or 6.3.12(b).

EXHIBIT U – Designated Mining Operation Environmental Protection Plan (Rule 6.4.21)

19. Multiple sections of the Exhibit U Addendum to the Designated Mining Operation Environmental Protection Plan (EPP) state “No Changes”, however, after a brief review of the original EPP and subsequent Adequacy Review Responses, several sections do need to be updated and revised based on the

changes proposed in AM1. Please submit a complete EPP for the Division to review. To reduce the potential for confusion in the permit file, if there are no changes to a particular section, please still include this information so there is one complete EPP instead of having multiple EPP versions and associated adequacy review responses.

20. The proposed EPFs within AM1 require more detailed descriptions, including actual capacities, construction details dimensions and drawings, materials, linings, and permeabilities, and that those facilities designs are supported by engineering certificates. Pursuant to Rule 6.4.21(7)(e) a description concerning the release response procedures, redundancies and back-up measures to control, prevent, and mitigate releases of the designated chemicals from the containment facilities is required. All EPFs are required to be designed and constructed in accordance with Rule 6.4.21 and certified in accordance with Rule 7.3. Pursuant to Rule 7.3.1(5), no chemicals used in the extractive metallurgical process or toxic or acid-forming materials shall be placed in constructed facilities until the Board or Office accepts the certification of the facility.
21. The mill includes the processing of acid-generating material as well as the use of designated chemicals, therefore pursuant to Rule 6.4.21, an expansion of the proposed EPF 1 or a proposed additional EPF to include the entire mill facility is required.
22. The Operator proposes the Mill Room as EPF 1 within Section 7 Facilities Evaluation in the EPP. The Operator states, since the room had to be excavated out of solid rock with low permeability, any spills will be retained until cleanup can be conducted. It is unclear if the Mill Room contains any faults, cracks, fractures, or fissures that are either natural or created by the blasting involved to excavate the room. Please describe how the Operator intends to verify and certify containment of EPF 1 pursuant to Rule 6.4.21 and 7.3.
23. The Operator proposes the Warehouse-Storage Building as EPF 2 within Section 7 Facilities Evaluation in the EPP. The Operator states EPF 2 is a steel shipping container with an impermeable floor and impermeable walls. Please discuss if the integrity of the steel shipping container could be compromised if a spill of any of the proposed chemicals or a mixture of multiple chemicals that are identified on the Chemical List and stored within the facility. Please provide details on if a sealant or epoxy coating has been or will be applied to the floor and or walls of the containment structure pursuant to Rules 6.4.21(6) and 6.4.21(7).
24. The Operator states that should a spill occur in EPF 2, it would pool and then migrate towards the door, where if the pool became deep enough and should the door seal leak, fluid would reach soils. Although Adequacy Item #16 requires the Operator to submit more specific details of the EPFs, please provide the containment capacity and describe how containment is achieved in EPF 2 (for example, door curbing/lips).
25. For both proposed EPFs, the Operator states all chemicals are to be stored in their original containers, or in labeled reagent containers, in designated areas on the floor, on pallets off of the floor level, and with spill trays underneath the containers as applicable. This statement requires additional clarification; please acknowledge if the Operator is committing to storing all chemicals on/within secondary containment pallets/trays located on the floor of EPF 1.
26. The AM1 Chemical List shows the maximum total quantity of chemicals listed 5,625 gallons of liquid and 5,800 pounds of dry chemicals. The AM1 Chemical List also contains a note which states “Column 4 of the Table shows maximum amount of any one chemical that might ever be on hand. As very few chemicals listed will be used past testing stage, the total volume of chemicals on hand at any one time will

be less than 1,000 gallons”. The contradiction between the list and the note is not acceptable. As required by Rule 6.4.21(5) and Rule 8.3.2(3), please clearly identify the maximum quantities of each chemical which will be stored on site at any one time. This information will also need to be incorporated into the Emergency Response Plan (Adequacy Item #31). The Division will use this information to calculate a reclamation cost estimate for the disposal of the maximum total quantity of all listed designated chemicals and other chemicals that will be stored and used on site at any given time. Please provide the actual proposed quantities in column 4 of the Chemical List that will be stored on site at any one time.

- 27.** The AM1 Chemical List shows sodium silicate as a liquid but specifies a maximum quantity of 1,000 pounds. All of the other 25 chemicals provided on the Chemical List use gallons when identifying the quantity of a liquid chemical and pounds for dry chemicals. Please revise the table to accurately describe the state of sodium silicate and the maximum quantity that will be on site.
- 28.** The Operator compiled all of the Safety Data Sheets (SDS) for chemicals stored on site and listed on the AM1 Chemical List. Upon review of these SDS sheets the Division found:
- The Potassium Amyl Xanthate SDS sheet is missing from AM1 materials. Please provide the SDS sheet for Potassium Amyl Xanthate per Rule 6.4.21(5)(c).
 - The Polyfroth H57 SDS sheet is illegible. Please provide a new SDS sheet for Polyfroth H57 per Rule 6.4.21(5)(c).
- 29.** The Operator has provided a Chemical List with AM1 which specifies one designated chemical (Potassium Amyl Xanthate) in Table 1 and 25 “General Chemicals” in Table 2. As defined by Rule 1.1(19) designated chemicals are toxic or acidic chemicals used within the permit area in extractive metallurgical processing, the use of which, at certain concentrations, represents a potential threat to human health, property or the environment. Based on the Division's review, any chemical with an NFPA (National Fire Protection Association) health hazard rating of 2 or higher, and/or physical hazard of 2 or higher, or a chemical that carries a significant hazard to human health, property or the environment is considered a designated chemical. Staff review has determined several chemicals proposed in Table 2 are considered designated chemicals, will need to be shifted to Table 1, and the EPP needs to be updated to reflect the addition of these designated chemicals. This list includes but is not limited to:
- | | |
|---------------------------|------------------------------|
| 1) Danafloat 233 | 11) Orfom MC9747 Collector |
| 2) Clariant EF NA-77 | 12) Polyfroth W31 |
| 3) Clariant EF NA-78 | 13) MIBC |
| 4) Kemtec 2044 | 14) Copper Sulfate |
| 5) Orfom C0210 Collector | 15) Pine Oil |
| 6) Orfom MC2 Collector | 16) Soda Ash |
| 7) Orfom MC8 Collector | 17) Aluminum Sulfate |
| 8) Orfom MC17 Collector | 18) D-Limonene/ Orange Oil |
| 9) Orfom MC37 Collector | 19) Methyl Isobutyl Carbinol |
| 10) Orfom MC100 Collector | |
- The Division is currently reviewing Sodium Silicate and Tennafroth 250 as these two chemicals are possibly considered designated chemicals.
 - The Division may consider Polyfroth H57 a designated chemical once the SDS sheet is provided and reviewed.
- 30.** Please provide an evaluation of each of the chemicals stored together in proposed EPFs, or any other area or spill situation where there is a mixing potential, including a discussion of the potential bi-products,

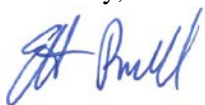
including safety or environmental hazards that may be created if the chemicals were to mix in accordance with Rule 6.4.21(5). Please also discuss the ventilation systems of the chemical storage areas.

31. Please provide the anticipated or known residual concentrations of chemicals in the tailings and concentrated ore, pursuant to Rule 6.4.21(5)(b) and 6.4.21(6)(c).
32. Pursuant to Rule 6.4.21(6)(b)(i), please commit to only storing chemicals within designated EPFs as described in Exhibit U. Specifically, chemicals will be immediately offloaded from the transport vehicle into its designated storage space. Chemicals may not be stored in common areas awaiting future handling or putting away. Additionally, please provide details regarding how chemicals will be moved (forklift, dolly, by hand, etc.) from the mill room or the warehouse to their desired location, pursuant to Rule 6.4.21(6)(b)(i). Please discuss how the Operator will ensure chemicals are contained during this transport and include a plan to handle spills during transport between EPFs.
33. Pursuant to Rule 6.4.21(6), please describe how equipment that comes into contact with the chemicals in Table 1 will be detoxified and/or disposed of. Specifically, discuss the following:
 - a. Personal protective equipment
 - b. Replacement of equipment, flowlines, etc.
 - c. Empty chemical containers or disposable mixing containers.
34. Pursuant to Rule 6.4.21(6), please discuss the decommissioning process with regards to mixed or diluted chemicals contained within tanks and flowlines. Please provide the maximum volume of mixed and diluted chemicals that would need to be disposed of during a forfeiture situation.
35. In accordance with Rule 8.3, please submit an Emergency Response Plan for Designated Chemicals proposed to be stored on site.

This concludes the Division's adequacy review of AM1. Subsequent to receipt and review of the Operator's response to these items, the Division may identify additional items. As a reminder, please be advised that AM1 may be deemed inadequate, and the application may be denied on August 11, 2021, unless the above mentioned adequacy review items are addressed to the satisfaction of the Division. **If more time is needed to complete the reply, the Division can grant an extension to the decision date. This will be done upon receipt of a written waiver of the Applicant's right to a decision by August 11, 2021, and the request for additional time. This must be received no later than the deadline date.**

If you have any questions, please contact me by telephone at 303-866-3567 x8132, or by email at elliott.russell@state.co.us.

Sincerely,



Elliott R. Russell
Environmental Protection Specialist

Attachments: History Colorado Comment Letter
July 23, 2021 AM1 Review Memo from Leigh Simmons

Ec: Jason Musick and Leigh Simmons, DRMS
Art Braun, Braun Environmental, Inc., braunenv@msn.com