

STATE OF
COLORADO

Lennberg - DNR, Patrick <patrick.lennberg@state.co.us>

Gold Hill Mill - Adequacy Response 2

Ben Langenfeld <benl@lewicki.biz>

Tue, Aug 29, 2023 at 8:43 PM

To: "Lennberg - DNR, Patrick" <patrick.lennberg@state.co.us>

Cc: "West - DNR, Lucas" <lucas.west@state.co.us>, Jared Ebert - DNR <jared.ebert@state.co.us>

Patrick

At the link below is the second adequacy response documents. It contains a complete and up to date narrative document with all the appendices, both revised and unchanged. Separate files for updated maps and the adequacy response letter can be found in the same folder.

<https://www.dropbox.com/t/sDqit87aem9PdyEQ>

The County Clerk receipt will be provided as soon as I receive it back from Boulder.

Ben Langenfeld, P.E.

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August 18, 2023

Patrick Lennberg
Colorado Division of Reclamation, Mining, and Safety
1313 Sherman St, Rm 215
Denver, CO 80203

**RE: Gold Hill Mill 110D Conversion Application (M-1994-117, CN-1)
Adequacy Response 2**

Mr. Lennberg

Colorado Milling Company submits the attached response to the CDRMS adequacy questions posed in your July 7, 2023 letter. Each comment or questions is addressed directly, with revised documents referred to as needed. A set of revised exhibits is included to replace the exhibits from the original application in order to maintain a complete single document for reference.

In addition to all hard copies, a PDF of each document is being provided to your office to aid in Laserfiche uploads.

Please contact my office with any further questions or comments on this application.

Sincerely,



Ben Langenfeld
benl@lewicki.biz
(720) 842-5321, ex. 1

EXHIBIT C –Mining Plan (Rule 6.3.3):

7. *Please clarify what the stockpiles located south and west of the Mill Building are composed of.*

DRMS Follow-up

- 7a. *Do the ore stockpiles, consisting of 5,000 cubic yards, have any secondary containment and have they been placed directly on the existing ground surface?*

The existing ore stockpiles are placed on the existing ground surface of the Stockpile Area. These piles are from operations prior to the assignment of DMO status to Gold Hill Mill. They do not have secondary containment. Upon resumption of operations, the material removed from these piles for processing will either be directly loaded into the mill or placed on the designated ore pad. Prior to disturbance of these stockpiles, temporary sediment control such as silt fences will be installed at the stockpile toes to prevent sediment discharge from stockpile disturbance.

8. *Table U-3 on page U-13 does include the Synthetic Precipitate Leachate Procedure (SPLP) results however, it does not identify the location from which the sample was taken. Please identify the ore material the SPLP sample was collected and describe how the sample was collected. Please note the text on page U-12, last paragraph, needs to be updated as it incorrectly identifies Table U-2 as being the SPLP results.*

DRMS Follow-up

- 8a. *The table on page U-15 needs additional clarification. Are the results presented on this page still a combination of Cross Mine and Cash Mine samples or just Cross Mine sample results? Please identify the origin of each sample.*

The top three rows of the table identify the sample source. A dividing line has been added to the table to clarify which columns are the Cross Mine data.

10. *Has the Applicant collected any water samples from the Times-Wynona Mine pool to date? Please note the mine pool will need to be included into the quarterly sampling of groundwater and surface water at the site.*

DRMS Follow-up

10a. The Division was unable to determine where the water sample results were located within the submittal. Please provide the results of water samples collected from the Times-Wynona mine pool.

The water sampling from 2021 is in Appendix C-7.

12. *From materials provided by the Left Hand Ditch Company in their objection, part of the water right decree states that 20 acres of irrigated land will need to be dried up to allow for the Applicant to withdraw water from Left Hand Creek for any one year. Please state the current condition of those 20 acres, e.g. currently irrigated, developed or other? If the acreage is still irrigated the Applicant needs to propose a method of demonstrating compliance that the 20 acres are dry during any year that water is withdrawn from Left Hand Creek.*

The status of formerly irrigated land covered by a water court decree is outside the jurisdiction of CDRMS. Colorado Milling Company has a legal water right for diversions from Left Hand Creek. Any dispute of this water right should be conducted in Colorado water court.

15. *On Map E-2 the ore processing area needs to be shown.*

DRMS Follow-up

15a. Ore Storage Pad the needs to include sumps to prevent potential acid generating material from leaving the pad due to water erosion. Please update Map E-2A to include a sump(s).

A sump has been added to the Ore Storage Pad to hold 140% of the 10-YR event runoff. See the revised Map E-2A.

Appendix C-2:

18. *Please provide a sampling and analysis plan (SAP) that addresses how various media samples will be collected, how monitoring will be done during sampling (groundwater and surface water), and what QA/QC protocols will be followed. The Division recommends developing Standard Operating Procedures (SOPs) to include in the SAP to insure samples are collected in a consistent manner over the life of the permit. Additionally individual tables need to be developed demonstrating what analytes each media is being sampled for and the analytes corresponding limit it is being compared to.*

DRMS Follow-up

18a. The Sampling Plan lacks sufficient detail and needs to be revised. There is no discussion in the sampling plan regarding Quality Assurance and Quality Control

(QA/QC) sampling (e.g., rate of collection of duplicate samples, rinsate blanks, and field blanks). Please update the sampling plan to address how QA/QC sampling will be conducted at the site for surface water, groundwater, and soil/sediment sampling. Additionally, the plan needs more detail to ensure that sampling can be completed in an accurate and repeatable manner throughout the life of the permit. Details such as collection of field parameters during monitoring well purging, which field parameters will be monitored, filtering of samples, recording of groundwater levels prior to purging, and use of field sheets to record field sampling data on, to be submitted along with sample results, on quarterly basis. Again, the Division recommends developing Standard Operation Procedures to aid sampling consistency during the life of the permit.

The sampling plan is based on EPA standards for surface water, ground water, and soil sampling. Additional detail has been added to Appendix C-2 as requested by CDRMS.

While the Applicant has stated the groundwater and tailing pond analytes are going to be the same as were approved in TR-9 and AM-1 the Division does not agree. In TR-9 the analytes were reduced because the mill was no longer in operation and AM-1 expanded the permit boundary. The application currently under review would allow for milling operations to resume and this is a fundamental change to the current conditions at the site. The Division will require the Applicant to analyze groundwater and tailings pond samples for the most stringent of the criteria contained in Tables 1-4 of the Water Control Commission (WQCC) Regulation No. 41 – The Basic Standards for Ground Water for a minimum period of five quarters, prior to start of milling activities, to establish baseline conditions at the Site. Once the five quarters concludes the Operator may submit a Technical Revision to reduce the analyte list with sufficient justification.

The DMO conversion is not a “fundamental change to the current conditions at the site”. No new process, component, or disturbance is proposed as part of the conversion application. Colorado Milling Company submitted the conversion application in order to bring the Gold Hill Mill’s already approved facilities inline with the contemporary CDRMS DMO regulations. Again, no new facilities, disturbance, and or process is proposed in this conversion application. Colorado Milling Company requests that CDRMS acknowledge that fact.

The substantial quantity of water data gathered at the Gold Hill Mill over the past nearly 20 years is more than sufficient to establish baseline conditions. Furthermore, since the mill has been in place since 1986, it is impossible to establish pre-mill water conditions with sampling.

However, Colorado Milling Company recognizes that CDRMS regulations have changed over the years and that the requested DMO conversion typically requires five quarters of baseline water sampling data prior to any operations. In light of the long history of the Gold Hill Mill and the current CDRMS regulations, the Colorado Milling Company proposes a compromise:

Beginning promptly, Colorado Milling Company will sample the four groundwater wells associated with the Gold Hill Mill (Wells W1 through W4) and the Tailings Pond surface water for an list of parameters based on *Tables 1-4 of the Water Control Commission (WQCC) Regulation No. 41 – The Basic Standards for Ground Water*. Not present in this parameter list are irrelevant parameters such as asbestos, coloiforms, cyanide, gross alpha particles, beta emitters, foaming agents, chlorophenol, corrosivity, phenol, cobalt, chromium, lithium, mercury,

and selenium. Most of these items are inapplicable (ex: asbestos is not present at the mill facilities, which would be its only source) or have never been detected despite frequent sampling (mercury, lithium, etc.). The revised sampling parameters list can be found in the updated Appendix C-2.

Sampling will be conducted for five quarters. **Colorado Milling Company requests that the development of EPFs, site maintenance, installation of necessary infrastructure such as the bulkhead and waterline, may take place during the sampling period.** No ore will be processed prior to authorization from CDRMS that the necessary baseline sampling is complete.

Please update the analyte tables to show the corresponding regulatory limit for each analyte and provide separate a separate table for each media to be sampled at the Site.

Regulatory limits are now listed for each parameter. Water sampling parameters are collected in Appendix C-2, section 3. Ore and tailing sampling parameters are collected in Appendix C-2, section 10.

EXHIBIT F – List of Permits and Other Licenses Required (Rule 6.3.6):

- 30.** *Please provide an update on the status of the Plan of Operations with the BLM and USFS for relevant areas of the permit.*

The USFS and BLM processes continue without comment from either agency.

- 31.** *On February 24, 2023 the Boulder County Community Planning and Permitting Department provided the Division with a comment letter that was subsequently forwarded to the Applicant. In the letter it states the site may not be in compliance with County Land Use Code. Please provide more information on this subject and what steps are being pursued to determine whether the site is in compliance or not.*

Colorado Milling Company continues to work with Boulder County on this matter and will keep CDRMS advised of its progress.

EXHIBIT L – Permanent Man-made Structures (Rule 6.3.12):

- 32.** *Exhibit L states there are structure agreements attached, however the Division was unable to locate the structure agreements. Please provide the missing documents.*

DRMS Follow-up

- 32a.** *Pursuant to Rule 6.3.12(b) where such an agreement cannot be reached, the applicant shall provide an engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation. The Applicant should be prepared to provide the appropriate engineering evaluation for structure agreements that have not been signed.*

Slope stability analysis of the tailings facility is provided in Appendix C-5. Engineering analysis of the waterline can be found in.

EXHIBIT U - Environmental Protection Plan (EPP) (Rule 6.4.21):

- 33.** *On page U-2 the Applicant states groundwater samples are collected and analyzed for the analytes listed in Table U-4. However in Appendix C page C2-2 Table 2 the listed analytes are different. Please clarify this discrepancy and note comments made for Appendix C above.*

Sampling discussion has been consolidated to Appendix C-2 for simplicity and clarity. Analytes sampled for are standardized as much as possible, i.e. sampling for lead in both soil matrix and water matrix but only sample acid generating potential in a soil matrix.

33a. *Please see comments in 18a above.*

See the response to Item 18a.

36. *Adequate, however the Division has requested additional information that is relevant to this item.*

Noted.

37. *Please provide the missing information pursuant to Rule 6.4.21(13)(a) and (b).*

DRMS Follow-up

37a. *Pursuant to Rule 6.4.21(13)(a) the Applicant is to provide adequate climatic data representative of the site to perform an acceptable "water balance" for all liquid containment systems open to the environment and intended to contain designated chemicals or acid mine drainage, and demonstrate that the amount of evaporation required to maintain reserve facility capacity will occur, or that there is sufficient reserve capacity to compensate for the uncertainty associated with the data. Please provide the missing data and perform an acceptable "water balance" for the site as indicated by the Rule.*

For Rule 6.4.21(13)(b) please clarify if the data provided is for a five year period? The data indicates it is only for a three year period from 2020 to 2023. Also, one set of data for the wettest year on record for the area is missing. Please provide a discussion on specific evaporation and sublimation rates for the Site.

Refer to the revised Section 5 of Exhibit B provided with this letter for the requested additional information on the climatological data of the site.

Objections and Comments:

38. *The Division received a timely objections and comments, in accordance with Rule 1.7.1(2)(b), from The Watershed Center, Stephen Strand, Left Hand Canyon Residences, Town of Gold Hill, Boulder Watershed Collective, Gold Hill Fire Protection District, Boulder Flycasters and St. Vrain chapters of Trout Unlimited, Norman Skarstad, Amy Fotunato, Left Hand Ditch Company, John Daspit, and Pine Brook Water District. Please respond to the objections and comments. Please inform the Division if the Applicant does not have a copy of the comments or objections from the parties listed and they will be resent. Additionally the Division received an untimely letter of objection from the Four Mile Fire Protection District and a letter of support from Rene Murphy.*

Noted.

New Items:

NOTE: Page numbering in Exhibit U has been fixed. Therefore page number references within the CDRMS comments are no longer accurate in all cases.

- 43.** *In Exhibit D the Applicant states that mulch stockpiles are shown on Map E-2. The Division was unable to locate the indicated stockpiles on the map. Please revise the map to show the indicated stockpiles.*

Mulch stockpile locations will be determined at the time of need. The reference has been removed from Map E-2.

- 44.** *Please provide a justification for leaving the monitoring wells in place after the five quarters of monitoring following final reclamation at the site, page D-5 section 1.9. If sampling shows that impacts to the hydrologic balance have been minimized and the permit is eligible for release the monitoring wells should be plugged and abandoned according to relevant statutes. Please note costs associated for plugging and abandoning wells needs to be added to the reclamation cost estimate for the site.*

The reference to monitoring wells staying has been removed. Monitoring well plugging has been included in the reclamation cost for the site.

- 45.** *Table U-2 is incomplete as the Ore Pad Status cell is blank, please fill in the blank cell.*

Table U-2 has been updated.

- 46.** *On page U-5, section 4.1 it is stated that no Boulder County permits or land use approvals are required. However in section 5 on page U-6 it states that Boulder County land use approval is needed. Please clarify this discrepancy and update the sections as needed for consistency and clarity.*

Section 5 has been corrected to eliminate the Boulder County reference.

- 47.** *On page U-6, section 4.2, there is no mention of the Plan of Operations needed from the US Forest Service, please update this section.*

A reference to the USFS permit has been added.

Additional Comments from Lucas West

Please see the responses below regarding Mr. West's comments.

Appendix C-5; Tailings Storage Facility As-Built

- 1.** *Appendix C-5 of the Adequacy Review Responses contained a new set of Factor of Safety calculations as performed through Galena Analysis and the results are noted to be mostly above the minimum required Factor of Safety of 1.5. However the Factor of Safety calculation conducted at the time of construction were considerably less. Please provide a narrative interpreting the Galena Analysis results and address the significant difference in calculations between the two sets of data.*

Following discussion with CDRMS staff, it was determined that a more comprehensive evaluation of both the 1998 as-built and the current tailings storage facility embankment slope stability would be appropriate. Lewicki & Associates has developed a more comprehensive slope stability analysis that compares the 1998 analysis to current conditions on both the inslope and the outslope of the embankment. This new analysis also provides context to the slope stability factors of safety and current CDRMS policy on slope stability evaluation. This new Appendix C-5 completely replaces the previous version; the previous Appendix C-5 is defunct.

Exhibit U- Environmental Protection Plan (EPP) - Rule 6.4.21

2. *There appears to be a Page number discrepancy, the numbering begins for several pages then begins again. Please correct this discrepancy moving forward.*

Exhibit U page numbers have been corrected.

3. *On Pg. U-1 of the revised Exhibit U it is stated that “These tailings will be stored in the Tailings Storage Facility to allow for dewatering and then stored in a permanent embankment on-site or used as part of Paste Backfill Operations.” The Division infers the “permanent embankment” to be the Tailings Storage Facility after reclamation is complete, however there is no other details anywhere in the application nor the approved permit that allows for paste backfill. If paste backfill operations are contemplated a significant amount of detail will be required, as well as possible permitting the the US EPA’s UIC Class V Program. Please provide more details regarding paste backfill operations such as, deposition method including the use of binders, location, volume, geologic information of the deposition location, correspondence with EPA indicating permitting requirements through the UIC program, etc. Alternatively, please clarify if paste backfill is not contemplated at this time. Please note, that if paste backfill operations would like to be pursued at a later date, it will need to be addressed through the Division’s Revision process.*

The reference to paste-backfill has been deleted. If the applicant wishes to pursue paste-backfill operations, relevant permits will be secured, including EPA and CDRMS approval.

4. *Sections 1.5.1 and 1.5.2 on Pg U-2 give general details regarding liner and pipe installation however it is unclear what liners and pipes this specifically applies to. Please clarify the EPF(s) that sections 1.5.1 and 1.5.2 apply to.*

Sections 1.5.1 and 1.5.2 are minimum construction standards for liner and pipe installation at Gold Hill Mill. The text has been revised to point this out.

5. *Section 2.7 provides that the Mill Building with three working levels has a containment capacity of 200,000 cubic feet. To support the narrative, please provide a table showing the volumes in gallons of all tanks, lines and slurry bearing equipment including the thickener within the building compared with the containment volume in gallons to demonstrate adequate containment capacity. Additionally please provide a profile view drawing of the mill building with its three working levels.*

Map E-2C shows a profile view of the mill. A table has been added to Section 2.7 outlining the volume of tanks and slurry lines within the mill. during operations.

6. *Table U-3 on Pg. U-2 gives the amount of chemicals to be stored on site as well as dosing information. At the provided rate of consumption, it appears that there excesses and deficits of chemicals on site. i.e. soda ash would need to be delivered nearly daily at the given rate of production and consumption. Please clarify if the given amounts and dosing in Table U-5 are correct, if they need to be adjusted please revise the table and any other applicable sections of Exhibit U.*

Soda ash stored onsite has been updated. See Table U-3.

7. *Additionally, Table U-3 and Map E-7 do a better job discussing and showing reagent storage onsite, however no volumetric demonstration was provided. Please provide the volumetric demonstration that both the interior and exterior containment structures, including segregated internal sections of the containment structures are adequate.*

Maximum storage volume in both the indoor reagent cells and outdoor reagent storage has been added to Table U-3. The capacity of the storage areas are more than sufficient.

8. *Section 1.4 references Table U-2 as the reference on where to find the requested information regarding the Environmental Protection Facilities, however the details requested for the Mill Building, Chemical Storage, Tailings Transport system and Ore pad were not provided. For the Mill Building please provide and as-built package with drawings in both plan and profile view, certified and stamped by a licensed P.E. pursuant to Rule 7.3.2(2). For the Chemical Storage Areas, Tailings Transport System and Ore Pad, please provide detailed construction drawings, construction schedule, proposed incremental inspection points with QA/QC checks during construction pursuant to Rule 7.3 and 7.4. Please note that certified as built packages will be required upon the completion of construction to be accepted, and no EPF may be used until certification documentation is provided by the Division.*

All EPFs will be built and refurbished in the following manner:

1. Designs for the EPF will be developed.
2. A technical revision will be submitted to CDRMS containing the designs and a construction plan.
3. The construction plan will contain a detailed schedule of construction, inspection stages, and QA/QC checks.
4. Upon successful construction, a Colorado registered professional engineer will certify the EPF and certify an as-built that will be submitted to CDRMS.
5. Upon CDRMS approval of the professional engineer certification and as-built, the EPF will be considered active.

No ore processing will take place prior to the certification of all EPFS and the approval of all EPF as-builts by CDRMS.

Language has been added to Section 8 of Exhibit U to reflect the above commitment.

9. *Section 7 beginning on Pg. U-7, which is supplemented by appendix U-1 discusses the various chemicals to be used. However the narrative nor supporting documents discusses the chemicals known potential to affect human health, property of the environment, or the fate of designated chemicals to be used in the extractive metallurgical process. Pursuant to Rule 6.4.21(5) please provide this information for each chemical covered in section 7 of the application. Additionally please provide more detail regarding mixing and delivery into the mill systems are requested in the Division's Preliminary Adequacy Review.*

A summary of the potential to affect human health and the environment has been added to Section 7 for each designated chemical. The point of usage of each chemical in the process is also described as well as its ultimate fate. A description of the mixing and dosing controls is also included in Section 7.

10. *Section 8, Facilities Information only discusses the Reagent Storage Area and fails to address the other Environmental Protection Facilities. The Division understands that most of the information may be found elsewhere, however at a minimum a summary of each facility that addresses the requirements of Rule 6.4.21(7) should be included. Please provide a narrative that addresses the requirements of Rule 6.4.21(7) of **each** of the EPF's listed in Table U-2.*

A summary for each EPF has been added to Section 8 to address this comment. It should be noted that the designs and details for EPFs are detailed repeatedly throughout the permit application and no single portion of the permit application should be depended on as a single source for EPF designs and operation.

11. *Section 7 is stated to pertain to Designated Chemicals only, however when compared with Table U-3 and the MSDS sheets found in the Materials Containment Plan, Section 7 failed to address Methyl Isobutyl-Carbinol (MIBC) which is considered a designated chemical by the Division. Please revise Section 7 and Table U-4 to address MIBC as a Designated Chemical.*

MIBC has been added to the table and section as requested.