



April 11, 2024

Nick Michael  
Union Milling Company, LLC  
P.O. Box 620490  
Littleton, CO 80162-0490

**RE: Leadville Mill, Permit No. M-1990-057, Conversion Application No. 3 (CN-3),  
Groundwater and Surface Water Specific Adequacy Review**

Mr. Michael:

On February 8, 2024, the Division of Reclamation, Mining and Safety (Division/DRMS) received your Conversion Application No. 3 (CN-3) to convert the current 110(d) to a 112(d)2 operation. The Division is in the process of reviewing the above referenced application in order to ensure that it adequately satisfies the requirements of the Colorado Mined Land Reclamation Act (Act) and the associated Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for Hard Rock, Metal, and Designated Mining Operations (Rules).

Please note that this is a preliminary adequacy review and the items listed below will take significant time to complete. A more detailed review of the application and corresponding adequacy review will be sent under a separate cover. After reviewing the materials submitted, the Division has identified the following adequacy item(s) specifically related to groundwater and surface water that must be addressed to the Division's satisfaction:

1. Pursuant to Rules 6.4.21(8)(b) and Rule 6.4.7(2)(b) please identify all known aquifers and related subsurface water-bearing fracture systems within two (2) miles of the affected lands. Description of the aquifer shall include characteristics such as transitivity, saturated thickness, stratigraphic units and other hydrologic characteristics.
2. Per Rule 6.4.21(8)(c) please describe all geologic media down to and including the uppermost aquifer under the proposed permit boundary. Description should be detailed enough to identify any impermeable layers in alluvium.
3. Per Rule 6.2.21(8)(d) please identify and locate on a map all known major fracture systems that affect rock formations under the permit boundary that have the potential to be impacted by proposed processes at the site.



4. Per Rule 6.4.21(8)(e) please provide an in-depth description and illustration of the groundwater hydrology within a two mile radius of the permit. The description and illustration should include at a minimum a hydrologic model (e.g. ModFlow) that clearly shows how groundwater flows through and around the proposed permit boundary and a prediction of where contamination would go should there be loss of containment at the site. Additionally, it should include maps and cross sections that depict geologic strata and fracture systems. The model shall be able to demonstrate the proposed point-of-compliance well, LW-MW-3, is suitable and meets all the requirements under Rule 3.1.7(6).
5. Please provide a discussion of how groundwater and surface water moving downgradient of the site will interact and potentially affect California Gulch which is approximately 600 feet from the permit boundary and Outfall #1.
6. In Section 21.9.1 the Applicant states there are 510 domestic wells within a 2-mile radius and 11 wells are within 0.5 miles of the Mill. For all domestic groundwater wells downgradient of the site please provide a summary of construction information identifying which aquifer each well is utilizing. Please highlight the wells which are screened in the same first aquifer found immediately under the proposed permit boundary.
7. Pursuant to Rule 6.4.21(9)(a) please clearly state what are the existing and reasonably potential future groundwater uses on and within two (2) miles down-gradient of the affected lands.
8. Please provide additional information regarding the light red shaded background in Figure 21-1 indicating potentially contaminated groundwater and how it impacts groundwater quality results at the site and down gradient from the site. Additionally, how does this impacted groundwater affect the Applicant's ability to detect, or not, if there is a release of toxic material or designated chemicals at the site.
9. Pursuant to Rule 6.4.21(12) please provide a sampling and analysis plan (SAP) that addresses how groundwater and surface water samples will be collected, how monitoring will be done during sampling (field parameters), and what quality assurance and quality control (QA/QC) protocols will be followed. At a minimum QA/QC protocols need to include the rate of collection of duplicate samples, rinsate blanks and field blanks. The Division recommends developing Standard Operating Procedures (SOPs) to include in the SAP to ensure samples are collected in an accurate and repeatable manner throughout the life of the permit. Additionally, individual tables need to be developed detailing what analytes each sample will be analyzed for and that samples corresponding regulatory limit for comparison.

Details such as collection of field parameters during monitoring, 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, will have to be submitted along with sample results, on quarterly basis. Please commit to providing the quarterly water monitoring reports by the following deadlines:

- First quarter report due by May 1<sup>st</sup> of every year.
- Second quarter report due by August 1<sup>st</sup> of every year.
- Third quarter report due by November 1<sup>st</sup> of every year.
- Fourth quarter report due by February 1<sup>st</sup> of the following year.

The Applicant is required to analyze groundwater samples for the most stringent of the criteria contained in Tables 1-4 of Reg.-41 (see Attachment 1 this attachment would be the Hard Rock Table from the Groundwater Monitoring Guidance doc). Surface water samples will be analyzed for the specific surface water standards listed in Colorado Regulation Number 32 – Classification and Numeric Standards for Arkansas River Basin (Reg. 32) and Table Value Standards (TVS) in Colorado Regulation Number 31 – The Basic Standards and Methodologies for Surface Water (Reg. 31) for a minimum period of five quarters, to establish baseline conditions at the Site. Note the Division is expecting the Applicant to perform the necessary calculations to determine the TVS value, from Reg. 32, for comparison. Please include the hardness value used for each sample.

At the end of five quarters the Applicant may submit a Technical Revision to reduce the analyte list with sufficient justification.

10. Pursuant to Rule 6.4.21(9)(b) the Applicant is to submit, at a minimum, groundwater quality data collected during five (5) successive calendar quarters to adequately characterize baseline conditions. This baseline data shall be sufficient to provide for the proper design of facilities, to serve as a basis for the evaluation of reclamation performance standards, and to ensure the adequacy of Environmental Protection Facility design, maintenance and operation. In Appendix 21-4 the Applicant provides the sample results for wells sampled beginning in the fourth quarter 2022 through the fourth quarter 2023, five total quarters. However, the results reported are for the total recoverable portion of the sample. This error should have been recognized by the Division before data collection began. The Division recognizes the oversight, however, requires groundwater sample results to be directly comparable to the Water Quality Control Commission's Regulation 41 - The Basic Standards for Ground Water (Reg. 41), specifically the most stringent criteria of Tables 1 through 4. The analytes listed in those tables are both total and dissolved with all of the metal analytes being dissolved. The data, as provided in Appendix 21-4, is insufficient to adequately characterize baseline conditions at the site. In conjunction with Item 9 of this review please commit to providing groundwater quality data collected in accordance with the requested SAP.
11. Pursuant to Rule 6.4.21(11)(a) the Applicant needs to provide a clear statement indicating the existing surface water receiving stream standards within two (2) miles, down-gradient of the affected lands. In Section 21.11 of Exhibit U the Applicant only provides the standards for California Gulch to the Arkansas River. The Arkansas River is within 1.4 miles of the proposed permit boundary and there are two different stream segments, one above and one below the confluence with California Gulch. In addition, please provide a map that clearly shows what other

stream segments may be within 2 miles of the permit boundary. The standards provided should be sufficient enough to meet the requirements of Rule 6.4.21(11)(c).

12. The Applicant did not submit any surface water data for locations that may be affected by operations at the site. Upon acceptance of the SAP requested in Item 9 of this review, and pursuant to Rule 6.4.21(11)(b) the Applicant needs to submit surface water quality and flow data collected during a minimum of five (5) successive calendar quarters and such other additional data as may be necessary to adequately characterize baseline conditions.
13. Please commit to providing the Division a written report within five (5) working days when there is evidence of groundwater discharges exceeding applicable groundwater standards or permit conditions imposed to protect groundwater quality, in accordance with Rule 3.1.7(9). Please be advised, this notice requirement would apply to any exceedance of the groundwater monitoring standards set for monitoring wells. However, enforcement actions would only be pursued for exceedances at the approved point of compliance well.

This completes the Division's preliminary adequacy review of the conversion application materials specifically related to groundwater and surface water sample collection to determine baseline conditions. The Division reserves the right to further supplement this document with additional items and details as necessary. Please respond to the above listed items in writing, no later than Wednesday June 19, 2024 to allow the Division sufficient time to review. If more time is required please provide a Decision Date Extension Request to the Division prior to your current Decision Date of July 10, 2024. If no response is received nor Decision Date Extension Request received your Conversion application may be denied.

If you have any questions, comments or concerns, you may contact me by telephone at 303-919-2997, or by email at [lucas.west@state.co.us](mailto:lucas.west@state.co.us). Direct contact can also be made at the Division's Grand Junction Field Office.

Sincerely,

Lucas West  
Environmental Protection Specialist

cc: