



STATE OF
COLORADO

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San Luis Project M-1988-112 112d-3 Permit Application Amendment-Division's Rationale for Recommendation of Approval

1 message

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Tue, Jul 29, 2025 at 2:37 PM

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Good Afternoon All,

Please see the attached Rationale for Recommendation for Approval of AM-4 for the San Luis Project, Permit No. M-1988-112. A Notice for the Pre-Hearing Conference and Formal Board Hearing has already been sent. Please feel free to contact me if you have any questions.

Lucas

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Environmental Protection Specialist

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M-1988-112 San Luis Project AM-4 Rationale for Recommendation for Approval.pdf

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July 29, 2025

Devon Horntvedt
Battle Mountain Resources, Inc.
6900 E Layton Ave.
Denver, CO 802137

Re: San Luis Project, Permit No. M-1988-112, 112d-3 , Division's Rationale for Recommendation for Approval of a Reclamation Permit Amendment (AM-4) with Objections

Introduction

On July 29, 2025, The Division of Reclamation, Mining and Safety (Division or DRMS) issued a recommendation to approve the Operator's 112d-3 Reclamation Permit Amendment (AM-4) for the San Luis Project, Permit No. M-1988-112, over public objections. The Division's rationale document is intended to explain the process by which the Division arrived at its recommendation for approval and respond to the issues raised by the objecting parties. The Division reserves the right to further supplement, amend, modify or clarify this document and recommendation with additional details as necessary.¹

Summary of the Review Process for the Operator's Permit Application

Battle Mountain Resources, Inc. (Operator) submitted a 112d-3 Reclamation Permit Amendment application on April 11, 2025. The Application was deemed complete by the Division for the purposes of filing and review on April 16, 2025.

Currently, the San Luis Project (site) is a legacy open pit mine located four miles Northeast of San Luis, CO at approximately 8600 feet in elevation. The site was operated in support of the extraction of gold and silver resources from 1993 to 1996. During mining the open pit (West Pit) was dewatered. At the conclusion of mining, the site entered final reclamation, the West Pit was backfilled with overburden materials from 1995 through 1997 and mine dewatering ceased. Once dewatering ceased, groundwater began to saturate the backfill material within the West Pit. The groundwater surface is relatively flat across the entire West Pit due to the high hydraulic

¹ Herein, all references to the Act and Rules refer to the Colorado Mined Land Reclamation Act, C.R.S. 34-32-101 *et seq* (The Act), and to the Minerals Rules and Regulations of the Colorado Mined Land Reclamation Board for Hard Rock, Metal, and Designated Mining Operations (The Rules or Rule). Copies of the Act and Rules are available through the Division's website at <https://drms.colorado.gov/rules-and-regulations>.



conductivity of the backfill materials. In October 1998 seeps were observed along the north bank of the Rito Seco River south of the West Pit. These seeps were attributed to discharge of groundwater from the West Pit. In response to the development of the seeps the Operator began to pump and treat groundwater from the West Pit. The Operator has been conducting water treatment operations of groundwater resources since approximately 1999. Water treatment operations include pumping groundwater, at a rate of approximately 200 gallons per minute (GPM), from within the West Pit, treatment of extracted groundwater via Reverse Osmosis System and discharge into the adjacent creek, the Rito Seco, in compliance with their CDPHE Discharge Permit (CO-045675). The pumping rate prevents seeps from developing and discharging impacted groundwater.

The Operator's Amendment Application proposes the installation of a Groundwater Intercept System or Slurry Wall to prevent alluvial groundwater from entering the backfilled West Pit Area thus reducing the volume of groundwater needing to be pumped and treated. The proposed slurry wall would be approximately 1500 feet long, extending to a maximum depth of 65 feet below ground level and keyed into bedrock formations along the Southeast portion of the backfilled West Pit. Modelling of the slurry wall indicates that it would divert approximately 173 GPM of groundwater from entering the West Pit to keep it in the shallow alluvial system and ultimately entering the Rito Seco without needing treatment. Diverting the groundwater around the West Pit would result in approximately 27 GPM of groundwater needing to be pumped and treated from the West Pit to maintain groundwater levels below the level of seep development. The Amendment does not include any additional mining, processing or other operations and would be conducted entirely within the already existing disturbed area of the site. Importantly, this Amendment makes no alterations to the current reclamation plan, or modifications to the current water treatment systems. The intent of the project is to restore the prevailing hydrologic balance to pre-mining conditions and keep alluvial groundwater in the alluvial system of the adjacent creek, the Rito Seco. The proposed timeline for installation is four months following the commencement of activity.

Pursuant to Section 34-32-112(10)(b) C.R.S. and Rule 1.6.5, the Operator published the required public notice for the Permit Application once per week for four consecutive weeks beginning on April 24, 2025, with the last date of publication on May 15, 2025. The public comment period closed on June 4, 2025. The public notices were published in the Costilla County Free Press Newspaper, a publication in general circulation in the vicinity of the mine site area. Additionally, all required notices prescribed in Section 34-32-112(10)(c) C.R.S. and Rule 1.6.2(e) were executed within ten days of the date the application was considered complete and filed. During the public comment period, two timely objections and one Agency Comment were received.

Timely Letters of Objection to the Amendment Application:

- Costilla County Board of County Commissioners, Received June 4, 2025
- Costilla County Conservancy District, Received June 4, 2025

Timely Commenting Agency

- Colorado Division of Water Resource, Received April 30, 2025

The Division forwarded copies of the objections to the Operator and scheduled the Pre-Hearing Conference and subsequent hearing before the Mined Land Reclamation Board (Board). The Division provided notice of the scheduled Pre-Hearing Conference and Board Hearing to all parties and interested persons on July 23, 2025. As a result of the timely objections received, the Division cannot procedurally render any final decision regarding the application but rather makes a “Recommendation” to the Board.

During the application review period, the Division generated one adequacy letter dated June 5, 2025. The applicant addressed all adequacy issues to the Division’s satisfaction in their response, dated July 17, 2025. Therefore, on July 29, 2025, the Division determined that the Amendment Application satisfied the requirements of Section 34-32-112 and 112.5 C.R.S. as well as the requirements of Rule 6.2 and 6.4 and issued its recommendation to approve the Amendment Application over public objections pursuant to Section 34-32-115(4) C.R.S. and Rule 1.4.9(1).

Jurisdictional Items Raised by the Objecting Parties:

All jurisdictional items raised by the Objecting Parties fall under the broader category of concerns regarding impacts to the prevailing hydrologic balance. Pursuant to Section 116(7)(g) C.R.S. and Rule 3.1.6, disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quantity or quality of water in surface and groundwater systems both during and after the mining operation and during reclamation shall be minimized. This section will address the specific concerns related to the prevailing hydrologic balance.

A. Concerns regarding an incomplete understanding of water inflow and lack of quantification

Active mining operations were conducted at the site between 1993 and 1996 by conventional open pit mining techniques. During that time, the pit was dewatered to allow the mining operations as approved by the Division. At the conclusion of mining, the pit was backfilled with material to establish the post reclamation topography. This provided an intimate understanding of the geology and hydrogeology of the West Pit Area. Since 1999, the Operator

has continued to monitor, treat and discharge waters at the site, in accordance with the approved Water Quality Monitoring and Management program, resulting in approximately 26 years of site specific hydrologic information, and data which has been provided to the Division and reviewed on a monthly, quarterly and annual basis.

While preparing this proposal, the Operator conducted and presented multiple geologic investigations, installed additional monitoring wells to better understand the flow, direction and velocity of the groundwater, and better understand the specific site hydrology in the West Pit Area. Aquifer properties were evaluated from a series of pump tests that were presented in Appendix B, Tables 4 and 5 as well as Exhibit G of the Amendment Application. Pump tests were completed in the surrounding Sante Fe aquifer, Precambrian Bedrock as well as the Rito Seco Alluvium. The pump tests were utilized to determine transmissivity, saturated thickness, hydraulic conductivity and hydraulic gradient. The findings of these investigations were provided to the Division in Sections 3.0, 4.0 and the supporting Appendices of the revised Exhibit G- Water Information in the application materials. The data provided in the application materials demonstrate that a total of 200 GPM is flowing into the backfilled West Pit. Of the total inflow, 173 GPM is from alluvial groundwater and 27 GPM is from Precambrian and Sante Fe inputs, as well as meteoric waters. The quantification accounts for lateral flows (alluvial groundwater), upwelling (Precambrian and Sante Fe Inputs) as well as inputs from precipitation (meteoric inputs). This is consistent with the pumping rate that has been maintained during the treatment operations to maintain the required elevation of the potentiometric surface as required by their approved Permits. It is the determination of the Division that the Operator has adequately demonstrated a comprehensive understanding of the hydrology of the site and has adequately quantified the data to support this proposal.

B. Concerns Regarding the Complex hydrology and geology of the area

The Objections state that “The hydrology/geology underlying the southern half of Costilla County is to a large extent unknown and at best only partially understood.” On a regional scale that is accurate, however, the site-specific knowledge has been adequately demonstrated. The Operator maintains approximately 50 wells across the site, presented in Table G-1 of the submitted Exhibit G that included lithologic logging during construction and are monitored monthly. Geologic investigations were conducted prior to mining (pre-permit), during mining and as part of the site-specific investigations in preparation for this proposal. Specifically, Section 3.0 and 4.0 of Exhibit G, Figure G-2 *Geologic Map of the Study Area*, Appendix A-*Hydrologic Investigation Results, Sante Fe Formation, Southeast Portion of the West Pit Area 2023* and Appendix B-*Hydrologic Investigation Results, Alluvial Window, Southeast Portion of the West Pit 2022* were presented in the Amendment Application. It is the determination of the Division that the data presented in these sections of the application adequately characterizes the hydrology and geology of the site and meets the requirements of Rule 6.4.7 and Rule 6.4.21(8) and (9).

C. Concerns related to the unsubstantiated reduction in treatment volumes

As stated previously, it is the Division's determination that the data presented in the application as well as the supporting documents provided are adequate to characterize the hydrology of the site. Section 4.3 *Aquifer Properties* show that the alluvial aquifer, that is responsible for approximately 173 GPM of inflow into the West Pit, has an average hydraulic conductivity of 9.1 ft/day. Appendix C-*Modeling Assessment of Potential Hydraulic Controls to Reduce Groundwater Flow to the West Pit 2019* Section 7.2.4 presents the results of the MODFLOW2005 groundwater model for estimated hydraulic conductivity of the slurry wall is 0.001 ft/day. MODFLOW or modular finite-difference flow model is a computer program developed by the United States Geological Survey. It is considered the industry standard for simulating and predicting groundwater conditions and groundwater-surface water interactions. It has been in use by professionals for nearly 40 years. The model was further refined and modifications to the design were made increasing the thickness of the slurry wall from one foot to three feet to increase its effectiveness. With those factors included, the simulation estimated that the treatment volume may be reduced from 200 GPM to 20 GPM. Based on the characterization, and the data presented from the various groundwater models, including the finalized MODFLOW2005 analysis, it is the determination of the Division that the presented reduction in treatment volumes is a defensible estimate of the actual performance of the slurry wall.

D. Concerns regarding treatment plant and tailings facility closure

Alterations to the approved reclamation plan, the current treatment configuration or the Water Quality Monitoring Program are not proposed in this Amendment. In the application materials, including the Appendix D –*West Pit Model and Remediation Simulations*, it is made clear that the treatment plant will remain in place and operational to ensure groundwater elevations are maintained to their required levels. This serves as a contingency plan should the slurry wall not be successfully installed or has less of an effect on the groundwater than anticipated. Importantly, both the treatment plant and tailings storage facilities will remain in their current operational state. Also, as shown in Section 8.0 of Exhibit G, the Operator has proposed a modification to the Groundwater Monitoring Plan including additional monitoring wells and pressure transducers to more accurately monitor the effectiveness of the slurry wall, and how the entire groundwater system in the project area responds. The results can then be compared to the predictions of the model. This will be in addition to the current monitoring program that monitors water levels as well as quality and is reported to the Division on a monthly, quarterly and annual basis. With the existing groundwater monitoring program and the modifications including additional monitoring it is the determination of the Division that the effects of slurry wall installation on both water quality and quantity will be adequately monitored. Additionally, with the treatment plant and tailings facility remaining operational, water treatment operations at the current scale can resume should the need arise. Any proposed

future changes to the water management and treatment will be handled through a separate revision process, ensuring that all applicable statutory and regulatory timeframes and possible comment periods are followed.

E. The need for better quantification and further study including the advancement of the RGDSS model as well as an independent engineering evaluation on behalf of the Objecting Parties

The Rio Grande Decision Support System (RGDSS) is a collaboration between Colorado Water Conservation Board (CWCB) and Division of Water Resources (DWR) that uses historical and current surface and groundwater data sources to inform State managed hydrologic modeling to aid interested parties in making decision in water use, consumption, and planning. The RGDSS has been updated several times, most recently in 2025 and before that in 2016. The modelling that is done in support of RGDSS is for use as a tool in administrative procedures to determine withdrawal amounts and what needs to be augmented for those withdrawals. The RGDSS model boundary ends to the west of the site and there are no plans to expand the model boundary to include the site. Lastly, the site is located in the foothills, and the model does not include foothills or mountainous areas. The RGDSS is used as a tool by Water Courts in their decision-making process. The amendment application under consideration has gone through several site-specific investigations to refine the groundwater flow models and presented the data throughout the application. The models were calibrated to best match conditions observed at the site and refined to account for fracture flow and upwelling into the bottom of the pit area. Therefore, it is the determination of the Division that the data presented in these sections of the application adequately characterizes the hydrology of the site and meets the requirements of Rule 6.4.7 and Rule 6.4.21(8) and (9) and awaiting the advancement of the RDGSS Model is not required.

F. Concerns regarding the lack of approval from the Colorado Department of Public Health and Environment (CDPHE)

On April 16, 2025, as part of the completeness notice sent to various agencies by the Division, notice of the application was provided to the CDPHE's Water Quality Control Division. During the Public Comment Period outlined above, no written comments were received from CDPHE. The Operator has, however, corresponded with CDPHE which included Division involvement and confirmed that Discharge Permit CO-0045675 remains in effect and no modifications or actions are required regarding that permit at this time.

Conclusion

After conducting a thorough technical review of the application, as defined by Section 34-32-101, et.seq. C.R.S. and as outlined in the discussion above, on July 29, 2025, the Division has determined that Battle Mountain Resources, Inc.'s Amendment Application has satisfied the

requirements of Act and Rules, (specifically C.R.S 34-32-115(4)), and issues its Recommendation to the Board to approve the 112d-3 Designated Mining Operation Reclamation Permit Amendment (AM-4) for Permit No. M-1988-112, over objections.

If you have any questions you may contact me. Direct contact can be made at the Division's Grand Junction Field Office, by phone at 303-919-2997 or by email at lucas.west@state.co.us.

Sincerely,



Lucas West

Environmental Protection Specialist

Division of Reclamation, Mining and Safety

CC: Travis Marshall, DRMS
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Jeff Fugate, DRMS AGO Counsel
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EC: All Interested Parties