

August 2, 2022

Jim Harrington
Colorado Legacy Land, LLC
333 W. Hampden Ave., Suite 935
Englewood, CO 80110

RE: Schwartzwalder Mine, Permit No. M-1977-300, 112d-2 Designated Mining Reclamation Permit Amendment Application (AM-6), Adequacy Review No. 4

Mr. Harrington:

The Division of Reclamation, Mining and Safety (Division) has completed its 4th adequacy review of your Amendment Application (AM-6) submitted for the Schwartzwalder Mine. All comment and review periods for the application began on July, 29, 2021, when the application was called complete for filing purposes.

The Division has identified adequacy items in the application requiring additional information or clarification. These items are identified below under their respective exhibit heading, and are numbered sequentially.

Exhibit E – Reclamation Plan (Rule 6.4.5):

- 1) The Division asked for a detailed reclamation plan for removing the water treatment plant, including a description of all components of the plant and associated infrastructure which would require demolition and/or removal for reclamation, and the anticipated disposal location(s) for these materials. This description must specify any materials requiring disposal in a facility that accepts hazardous and/or radioactive materials. Alternatively, the operator may provide a recent detailed bid from an independent contractor for completing this work. The operator stated in its July 21, 2022 adequacy response that a detailed bid for removing the plant was provided. However, the “bid” provided does not include the name of the independent contractor or the date the bid was prepared. It also does not provide enough details on the scope of work, including the type, quantity, and dimensions/volume of equipment and materials to be removed, and the anticipated disposal location(s). In order for the Division to accept the operator’s bid for the reclamation bond, it must include the information listed above. Alternatively, the operator must provide a description of all components of the plant and associated infrastructure which would require demolition and/or removal for reclamation, and the anticipated disposal location(s) for these materials, as previously requested. This information is needed in order for the Division to calculate the required financial warranty for decommissioning the water treatment plant.
- 2) Based on the results of the last two in-situ treatments of the mine pool, which showed less of a reduction in uranium concentrations than was observed after earlier in-situ treatments, the operator suggests the mine pool chemistry may have reached a point at which continued in-situ treatments may



not achieve substantially reduced uranium concentrations below the current concentrations of approximately 15 to 20 mg/L. This is attributed to calcium uranium carbonate complexes that effectively limit the rate and extent of uranium reduction and removal that can be expected by stimulating microbial activity (via in-situ treatments). Accordingly, the operator is now proposing to utilize in-situ treatments only for maintaining uranium concentrations at the current levels (rather than reducing uranium concentrations). Please clarify whether in-situ treatments are still expected to be conducted approximately every two years, as previously indicated.

- 3) The operator suggests that stability of the mine pool should be considered primarily on the effectiveness of the current pump/treat regime in keeping the mine pool below the regulatory limit (while producing water that meets discharge standards) and most importantly, in establishing a hydraulic gradient away from Ralston Creek. The operator compares observed quarterly groundwater elevations in bedrock wells MW-13, MW-15, and MW-18 to the mine pool elevation (below the regulatory limit) to demonstrate an inward hydraulic gradient is maintained. Quarterly groundwater elevation data collected from these wells from 2019 through 2021 is presented in Table E-3. Figure E-4 provides a bedrock groundwater contour map based on water levels measured in these three wells during the Q2 2020 sampling event.

While the Division believes the operator has demonstrated physical stability of the mine pool by keeping it below the regulatory limit of 150 feet below Steve Level (in accordance with the Modified Board Order, dated October 4, 2012), the Division believes there is insufficient data available to fully demonstrate that a hydraulic gradient away from Ralston Creek is maintained. The Division recommends the operator install an additional bedrock monitoring well south of the creek, in the area between the existing alluvial monitoring wells MW-7 and MW-12 (now inoperative due to the alluvial valley excavation project), and just northwest of the “groundwater divide” illustrated on Figure E-4. The Division believes the groundwater elevations observed in a bedrock well at this location would close the gap in the current dataset and better demonstrate whether an inward hydraulic gradient is maintained at the mine. Please provide a schedule for installing the requested well and incorporating it into the quarterly sampling program. Additionally, please commit to submitting a Technical Revision within 30 days of completing installation of the well, which includes a final construction report and an updated groundwater monitoring plan and map.

- 4) While the alluvial valley excavation project is estimated to be approximately 95% completed, the current approved underground disposal locations for contaminated soils encountered during this project have reached capacity. In its July 21, 2022 adequacy response, the operator proposes to place additional contaminated soils excavated from the valley at the southeastern edge of the existing South Waste Rock Pile (SWRP). This material would be tied into the Black Forest Mine backfill area (approved in Amendment No. 5), capped with three feet of cover material (sourced from within the permit area), and seeded with the grass/wildflower mix provided in Table E-1. The Division has the following comments on this proposal:
 - a. Please describe the type of cover material to be used as a “cap” on the contaminated soils.
 - b. Early documents in the permit file indicate material placed into the two waste rock piles consisted of approximately 50% mine development rock mixed with approximately 50% ore sorter reject. While the ore sorter reject had higher levels of uranium (up to 0.06% U_3O_8),

mixing this material with the development rock (average of 0.01% U_3O_8) was expected to produce a final weighted average of approximately 0.03% U_3O_8 in the waste rock piles. Please describe how the uranium content of the proposed expansion material compares to that of the existing material in the SWRP. Could the expansion material have an increased potential to contaminate the alluvial groundwater system and/or creek, compared with the existing material in the SWRP?

- c. It appears the proposed SWRP expansion will be situated below two natural drainages. Please describe how water in these drainages will be managed in order to prevent erosion damage to the pile (especially before a sufficient vegetative cover has been established) and also to minimize infiltration into the pile (thus minimizing the potential for water contaminated by this material impacting the creek system).
- d. Because creek flows are currently routed around the mine site via the bypass pipeline, surface water monitoring locations along the section of the creek within the mine area are typically dry, including location SW-A001, which was intended to monitor for impacts to the creek from the SWRP. Based on the water quality data observed in existing alluvial monitoring wells near the SWRP (MW-0 and MW-19), the Division has some concerns about the existing SWRP being a potential contamination source to the creek. An extension of the footprint of this pile, especially if the additional material has higher levels of contaminants per volume, creates additional concerns. Therefore, the Division believes an increased monitoring frequency of the surface monitoring locations will be necessary after creek flows are re-established across the mine area, at least on a temporary basis, to better monitor for potential impacts to the creek. Please commit to sampling all approved surface water monitoring locations on a monthly basis after creek flows have been re-established across the mine area. The required sampling frequency will be reassessed after the Division has reviewed the monthly monitoring data submitted.

Exhibit L – Reclamation Costs (Rule 6.4.12):

- 5) The Division has the following comments specific to the Water Treatment Plant Operations section:
 - a. For the Discharge Permit Sampling task, the total cost was reduced from \$238,584.00 to \$198,820.00, for 100 months of sampling rather than 120 months of sampling, as previously stated. In this application, the operator is proposing to operate the water treatment plant on a seasonal basis, up to 6 months per year. The costs associated with operation of the water treatment plant must cover a 20 year period. Therefore, please revise this task to include costs for sampling the plant discharge for a total of 120 months.
 - b. For the Demolish Water Treatment Plant task, the total cost was reduced from \$55,000.00 to \$52,016.00. This adjustment appears to be based on the “bid” provided with the operator’s last adequacy response. As noted above, the bid provided is not acceptable for a number of reasons, including it does not have the contractor name, date prepared, or the appropriate level of detail for the scope of work. If the operator is not able to provide an acceptable bid from an independent contractor for removing the water treatment plant, the Division will require additional information on the plant (detailed above) in order to calculate a sufficient

bond amount for this task. Based on its experience reviewing and calculating demolition/removal costs for similar facilities, the Division expects the amount provided for this task will increase.

- 6) The Division has the following comments specific to the Alluvial Valley Excavation section:
 - a. As requested, the operator has added costs for removing and disposing of the upstream cutoff wall and bypass pipeline. These costs are based on the costs that were calculated in association with Technical Revision No. 18 (TR-18), which was approved in 2011. Given the cumulative rate of inflation of 31.7% that has occurred since the time of TR-18 approval, the Division will be adding an additional \$30,928.00 ($31.7\% \times \$97,565.10$) to the total costs provided for these tasks. This will bring the total costs for these tasks to \$128,493.10.
- 7) The Division has the following comments specific to the Environmental Monitoring section:
 - a. For the Groundwater Monitoring task, the total cost was reduced from \$404,544.00 to \$144,480.00, for sampling 4 wells and 1 spigot, rather than 13 wells (one well is only monitored for water levels) and 2 spigots on a quarterly basis over a 10 year period, as previously stated. The total number of samples was reduced from 560 to 200. The Division realizes that some of the alluvial groundwater monitoring wells at the site have been rendered inoperative due to the ongoing alluvial valley excavation project (which removed the soils surrounding these wells). However, the operator has not yet submitted a revised water monitoring plan and map to incorporate these changes. Therefore, the bond estimate must continue to include costs for sampling all approved monitoring locations on a quarterly basis over a 10 year period, until the approved monitoring plan has been formally updated (through AM-6 or a subsequent Technical Revision). Please revise this task accordingly. [Please note, if the operator chooses to update the water monitoring plan and map in AM-6, more than one section of the application may need to be updated to reflect these changes.]
 - b. For the Monitoring Well Abandonment task, the total cost was reduced from \$50,220.00 to \$25,120.00, for sealing a total of 1,256 linear feet of monitoring wells (at \$20/foot), rather than 2,511 linear feet, as previously stated. It is not clear why the linear footage and associated cost were revised, as the notes for this task still state that 13 monitoring wells totaling 2,511 linear feet will be abandoned. The bond estimate must continue to include costs for abandoning all approved monitoring wells until the monitoring plan has been formally updated and/or a copy of the final abandonment report for any sealed wells has been provided to our office. Please revise this task accordingly.

Additional Item(s):

- 8) Please remember that, pursuant to Rule 1.6.2(1)(c), any changes or additions to the application on file in our office must also be reflected in the public review copy which was placed with the County Clerk and Recorder. Pursuant to Rule 6.4.18, you must provide our office with an affidavit or receipt indicating the date this was done. This “proof” should be submitted with your adequacy response.

This concludes the Division's 4th adequacy review of AM-6. As the operator is aware, the review period for this application has exceeded 365 days from the filing date (after July 29, 2022), and per Rule 1.4.1(9), an extension of the review period beyond this date cannot be approved on the Division staff level. Therefore, your request for a 60 day extension (received on July 29, 2022) has been scheduled for consideration by the Mined Land Reclamation Board (MLRB) at their August 17-18, 2022 meeting. In the meantime, the Division will continue reviewing the application with the expectation that a retroactive extension will be granted by the MLRB, giving a new decision date of September 27, 2022.

If you have any questions, you may contact me by telephone at 303-866-3567, ext. 8129, or by email at amy.eschberger@state.co.us.

Sincerely,

A handwritten signature in blue ink that reads "Amy Eschberger". The signature is written in a cursive, flowing style.

Amy Eschberger
Environmental Protection Specialist

Cc: Paul Newman, Colorado Legacy Land, LLC
Eric Williams, Colorado Legacy Land, LLC
Elizabeth Busby, Ensero Solutions US, Inc.
Billy Ray, Ensero Solutions US, Inc.
Michael Cunningham, DRMS