

COMMENTS ON UNION MILLING'S REGULAR 112(d) DESIGNATED MINING RECLAMATION PERMIT, LAKE COUNTY, COLORADO (M1990-057 conversion to 112d-1 Designated Mining Operation)

Submitted On April 1, 2024

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Specific Permit Application Issues – Permit M1990-057 conversion to 112d-1 Designated Mining Operation – January 2024

Mining Plan-Section 4.0: There is no mention of dust control for the transfer of bulk cyanide contained in supersacks into the cyanide mixing tanks in Section 4.2.7 or elsewhere. Information on dust controls should be provided. Dust deposition may occur in the cyanide mixing area. Cyanide dust which is not cleaned up could be considered abandonment of a hazardous waste (P032) subject to Resource Conservation and Recovery Act (RCRA) enforcement.

Reclamation Plan – Section 5.0: Sections 5.1.2 and 5.2.3 appear to discuss closure activities at the site once the facility ceases operations. Post-closure activities, that could include monitoring of groundwater, monitoring of FTD cap integrity, stormwater diversion controls, and revegetation monitoring as well as implementing necessary corrective actions as needed are not discussed or included as costs in Fig. 12-1. The Applicant appears to use closure and post-closure interchangeably. There do not appear to be any “post-closure” activities following seeding/reseeding (Table 5-3). Can it be that there will be no long-term monitoring of the site? True post-closure activities should be addressed and included as costs in Figure 12-1.

The closure activities outlined in Section 5.2.3 are problematic for several reasons and as described do not appear comply with RCRA hazardous waste requirements. It appears that the first activity is to purge the process of mineral feedstock and make it amenable to disposal at the FTD. At this point processing operations have ceased. The next step is to remove reagents and solutions. Opened reagent containers (cyanide) are to be mixed in respective mix and day tanks, directed to leach tanks, detoxified (treated) and drained into the ECS. Since the gold reclamation process is no longer operational, and there is not an onsite wastewater treatment facility, treatment of the cyanide would be a RCRA-regulated activity. Also at closure various purged process streams, leftover reagents and laboratory chemicals are destined to be treated and ultimately discharged to the WCS where spray

evaporation will be implemented to reduce the contents. Spraying onto the exposed liner will result in concentrated solids being generated. As a part of the closure plan sampling should be required for influent liquid streams and evaporated solids residues to demonstrate that neither are hazardous wastes. Sampling costs should be included as costs in Figure 12-1.

Options would be to conduct onsite RCRA treatment and meet RCRA Land Disposal treatment standards or ship the streams to an offsite hazardous waste treatment and disposal facility. Treated P032 (cyanide) wastes are not eligible for onsite disposal without a hazardous waste permit as treatment residues retain the P032 designation. To be conservative reclamation costs in Figure 12-1 should reflect costs for offsite disposal of hazardous wastes.

Reclamation Plan Map – Section 6: Whether inadvertent or intentional, the depictions of the FTD (Fig. 4-17, Fig. 4-22, Fig. 6-1, Fig. 6-2) are simplistic and misleading. Although the information can be found elsewhere, this figure does not have numbered topographic contours or any indication of their contour interval, there is no scale on the FTD schematic section (Fig. 4-22) drawing, the trees shown for scale do not appear to be Lodgepole pines and there is no indication of their height or distance from the base of the FTD. Proper perspective renderings of the final contours of the FTD as viewed from Highway 24 and nearby residents should be required. There does not appear to be any discussion of locating the FTD at an alternate site rather than along the southern entrance to Leadville. The Applicant, in an adjacent parcel, seeks to beautify the entrance to Leadville by removing and processing slag piles while at the same time diminishing the view scape by building the FTD which ultimately will contain a minimum of 500,000 tons of filtered mill wastes and be 43 feet tall. A commitment that the FTD will not exceed 43 feet should be required as it appears that there would be sufficient area at the depicted top elevation (9784') to build higher.

Reclamation Costs - Section 12.0: Regarding Figure 12-1 (Reclamation Costs). Although DRMS will independently evaluate these costs and reach its conclusions, the total cost to fully decommission the Plant and close the FTD and ECS appears to be low (\$158,429). There are some technically dubious assumptions particularly if a default requiring a third-party cleanup is considered.

- 1) The labor rates (\$35-50 per hour) for third-party operators appear low. There will also need to be third-party project management oversight.
- 2) A third-party reclamation manager is unlikely accept liability for “giving away” left over reagents and solutions or expend the effort to broker them. For reclamation cost purposes these materials should be considered waste materials for disposal.

In any event, \$1875 to remove and transport nearly 24 tons of 13 different materials appears to be low, particularly when hazardous materials (e.g., cyanide) are involved.

- 3) Reagents in opened containers are proposed to be treated through the process train. This would be after the plant is no longer processing feedstock. Without a wastewater treatment system, this would not be a RCRA-exempt activity and would be considered RCRA-treatment that triggers additional requirements including classification as a Large Quantity Generator of hazardous waste (if not already classified in that manner) and compliance with RCRA Land Disposal Restrictions. Wastes derived from the treatment of P032 (cyanide) hazardous waste will require offsite disposal at a RCRA-permitted facility. DRMS should require that costs for offsite disposal of all RCRA-regulated decommissioning wastes be included as potential reclamation costs.
- 4) There are no costs for post-closure monitoring and maintenance of the site after “closure.”

Other Permits & Licenses - Section 13.0: CJK Milling’s application for a CDPHE Discharge Permit (Appendix 13-7) is technically incorrect in a few areas.

Comment: The Applicant is subject to RCRA regulation since hazardous waste will be generated at the facility. For Item 12(d) of the Discharge Permit Application a “NO” is indicated in the check box. See previous comments recommending the submittal of a comprehensive Hazardous Waste Management Plan. It is correct that a RCRA Permit will not be required unless CJK fails to comply with the conditional exemption criteria that preclude the need for a RCRA permit, however the facility will still be regulated under RCRA. If the facility generates more than 2.2 pounds of P032 (cyanide) hazardous waste per month it will be regulated as a Large Quantity Generator (LQG) of hazardous waste. A RCRA Facility ID Number issued by CDPHE will be required. Just the residues remaining in the 24 Supersacks containing cyanide briquettes that are needed monthly, not to mention filters, respirator cartridges, cleanup rags that may contain cyanide reagent, will likely trigger RCRA LQG requirements (see 6 CCR 1007-3 & 40 CFR Section 262.17.) Each woven polypropylene Supersack would only need to have 1.47 oz (less than 3 level tablespoons; 0.0046% of its contents)) of residue adsorbed onto the interior surface area of 50 square feet to trigger RCRA LQG management requirements. Unless there is a mechanism to triple rinse supersacks to render them RCRA-empty¹ and

¹ Rinseate generated from triple rinsing would also be a hazardous waste unless introduced back into the cyanide process. See 40 CFR 261.7.

therefore not subject to regulation as a hazardous waste, Supersack residues are likely to exceed the 2.2 lb. monthly threshold and the bags would need to be shipped offsite as hazardous waste.

- 1) Clarification: Item 15 of the Discharge Permit Application indicates that there will be no wastewater treatment at the facility. With no wastewater treatment system, RCRA wastewater treatment exemptions are lost and any material that is not recycled back into the process as substitutes for virgin processing chemicals and qualifies as hazardous waste must be managed as hazardous waste. The Applicant at closure intends to direct leftover reagents (e.g., cyanide) into a treatment train (cyanide destruction) after processing of mine waste has ceased. Arguably, this will be RCRA treatment. Testing of purges, rinses, treatments effluents and residues will be needed to determine if they are hazardous waste, and if so, what RCRA Land Disposal (LDR) treatment requirements are applicable and whether they can be discharged into the ECS. Once in the ECS, evaporation of water by spraying onto the side embankments of the impoundment will concentrate residues and that may also require testing. Compliance with RCRA is complex and much more than the statement in Section 2.1.1(l) of the Storm Water management Plan (Apx. 21-1), “Hazardous Waste materials will be disposed under the direction of the Mill Manager in the manner specified by federal, State and local regulations and by the manufacturer of such products.” A comprehensive Waste Management Plan (including hazardous waste) should be prepared and included in the Permit Application.
- 2) Clarification: Please note that the U.S. Army Corps of Engineers determination (Appendix 13-11) does not address “Monitoring Well Permits” as it is titled. The determination addresses only discharges of dredged or fill material is not justification for “a no discharge facility.”

Environmental Protection Plan - Section 21.0: An Air Quality Permit (Section 21.4.1) is currently “underway” so no details are available. DRMS should ensure that emissions to air from the spray evaporation of purge waters and reagent treatment waters onto the liner within the ECS at facility closure has been contemplated as part of this application, or DRMS should require an Air Quality Permit be pursued prior to the commencement of spray evaporation. If to be pursued later, its preparation cost should be a reclamation cost included in Figure 12-1.

Lists of Permits, Licenses, or other Formal Authorizations – Section 21.4.1

The permit application requires permits and authorizations applicable to plant operations be listed (see Table 21-1 and 21-2.) The Applicant through careful hazardous waste management can avoid the need for a RCRA Storage Permit [40 CFR 261.4(g)(3).] A Waste Management Plan should be included as a part of this permit application prior to its approval. The Waste Management Plan should include hazardous waste management during operations and at closure. There is a real possibility that the facility will be a Large Quantity Generator of hazardous waste and will need to apply for a RCRA Facility ID Number from CDPHE. This is an “authorization” that should be included in Tables 21-1 and 21-2.

Since Sodium Cyanide is a P-listed (acute) hazardous waste (P032) when disposed it is subject to stringent regulation. Generation of more than 1 kg (2.2 lbs.) per calendar month of cyanide contaminated materials such as residues remaining in/on the supersacks, dust filter media, respirator cartridges and other personal protective equipment (PPE) and spill cleanup materials (i.e, rags to wipe up cyanide reagent) will trigger the LQG management requirement. There is a significant potential from the cyanide reagents alone to cause the facility to be a Large Quantity Generator (LQG) of hazardous waste triggering requirements for notification to CDPHE, maintenance of a <90-day hazardous waste accumulation area, weekly inspections, initial and annual refresher hazardous waste management training, preparation of a contingency plan and biennial reporting of waste management activities.

Just considering used Supersack disposal, unless there is a mechanism to triple rinse supersacks to render them RCRA-empty² and therefore not subject to regulation as a hazardous waste, dust residues are likely to exceed the 2.2 lb. threshold. With at least twenty-four (24) sacks requiring emptying per month, each sack would only need to have 1.47 oz of remaining residue (0.0046% of its contents) adsorbed onto an estimated 50 square of the bag’s interior surface area to trigger RCRA LQG management requirements. Other cyanide-contaminated items that could count against the 2.2-pound monthly threshold include PPE, respirator cartridges, dust filter media, and clean-up rags.

The process of preparing the liquid cyanide mixture is vague. The permit indications that introduction of cyanide briquettes into the Mixing Tank will be “manual” or “by hand”. The equipment list (Table 4-23) does not include equipment to safely transfer cyanide from 1-ton supersacks into the mixing tank. There is no mention of dust control for cyanide introduction into mixing operation. Any cyanide dusts that are not captured and are allowed to settle on nearby could be a “spill” that if not cleaned-up could represent an

² Rinseate generated from triple rinsing would also be a P032 hazardous waste unless introduced back into the cyanide process. See 40 CFR 261.7.

abandoned material that would become a P-listed hazardous waste (P032) subject to RCRA enforcement.

Section 21.6 appears to contemplate liquid reagents being disposed offsite at closure but solid reagents being placed in the FTD. Only solid reagents that are not hazardous waste should be directed to the FTD. At closure, any reagent cyanide mixtures for disposal and fluids that is used to rinse tanks, piping and equipment that have held sodium cyanide upstream of the leaching tanks will be P032 hazardous waste and must be disposed offsite at a RCRA permitted facility.

Section 21.7.3: Any contaminated debris and debris and fluids to be placed in the FTD must be determined to be non-hazardous. No free liquids should be placed in the FTD.

Geotechnical Stability – Section 22.0: The information provided is technically inadequate to meet the requirements of Rule 6.5. Of concern is the long-term geotechnical slope stability of the FTD waste pile. The assertion by Applicant that conservative design parameters were used based on the ECS, surface impoundment is insufficient.

Emergency Response Plan – Section 23: To be useful in an actual emergency, this plan should be standalone and easily accessible. Safety Data Sheets (SDS or MSDS) should be physically included within this plan, and not by reference to another section of the permit application (Apx. 21-2.)

Cyanide Management Plan-Section 24.0: The Applicant speaks only in conceptual terms about a Cyanide Management Plan committing only to prepare one that will consider the principles and standards of practice of the International Cyanide Management Code prior to the start of operations. The applicant references the “International Cyanide Code” and commits to “...following the Cyanide Code Principles and implementing its Standard of Practice...” The applicant does not state that it will become a signatory to the Cyanide Code. Commitment is one thing, verification through audits is another. The applicant should commit to becoming a signatory to the to the Code which would then require triennial third-party audits of cyanide handling and operations by certified inspectors.

When discussing Cyanide Management Procedures (See Section 24.5) there is discussion of secondary spill containment but no mention of overfill prevention devices such as automatic level indicators or high-level fluid alarms for cyanide process and storage vessels. There is mention of protective clothing and the use of respirators but no mention of personal HCN monitoring devices. Other sections of the permit application indicate that introduction of cyanide into the reagent mixing tank will be “manual” or “by hand” but

without specifics of the feed equipment or how workers conducting the operation will be protected during the operation. For instance, will there be dust controls? The lack of information about the “manual” handling of cyanide reagent would appear to be a technical inadequacy.

Section 24.3 lists regulatory requirements applicable (or not applicable) to cyanide including OSHA, CAA, CERCLA, SARA, TSCA. Not mentioned is RCRA which governs disposal of sodium cyanide as a listed (P032) hazardous waste.

Section 24.5.5 (Closure) should clarify that decommissioning of cyanide equipment, tanks, and piping contacting cyanide upstream of the leach tanks must include treatment to remove P-listed hazardous waste (cyanide) prior to reuse or as scrap metal. Rinseate must be disposed offsite as a hazardous waste or onsite if shown not to contain the hazardous waste. In the absence of a CWA-equivalent wastewater treatment system, any treatment (destruction) or disposal of cyanide reagent or reagent-contacted equipment will be subject to RCRA hazardous waste management requirements. To be conservative, third-party costs to dispose of P032 hazardous waste or contaminated equipment offsite should be reclamation costs included in Figure 12-1.

Because of the acute toxicity of sodium cyanide, the promised Cyanide Management Plan should be provided in the permit application as a standalone document. Section 24.5 is only an outline; the complete plan promised only prior to the start of operations. The lack of a detailed Cyanide Management Plan should be called out as a technical deficiency and required before permit approval.