Thank you for the opportunity to comment on the application for the Leadville Mill.

I have approximately 40 years of experience working in the engineering field supporting public works projects, including construction management, stormwater, domestic water, hydrogeology, hydrology, and public works infrastructure including such as road asset management and public safety. I have thoroughly reviewed the current and prior applications submitted by CJK and have worked directly with mining consultants to gain insight into mining-specific technical and regulatory issues associated with this application.

I have reviewed many of the submissions supporting or opposing the project and note that the vast majority address issues such as trucking, general water cleanup from source material removal, economic impacts to the community, and other topics not within the review criteria of DRMS. These are legitimate issues for which I have concerns; however, they fall largely outside DRMS's permitting jurisdiction. Accordingly, the comments below are limited to matters squarely within DRMS review authority, including operational design, waste management, water sourcing, and long-term environmental risk at the mill site.

Issues Summary

This summary identifies permit-relevant technical and environmental deficiencies in the December 2025 Leadville Mill application. While the switch from cyanide leaching to flotation reduces certain chemical toxicity risks, the application remains incomplete with respect to project scale, water sourcing, tailings management, and long-term stability, preventing a full and defensible regulatory review.

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1. Critical Technical Incompleteness

The current application does not include a comprehensive plan for the full lifecycle of the project, instead deferring essential engineering elements and omitting long-term waste management provisions required for permit evaluation.

Timeline Mismatch (15 Months vs. 10 Years) / Inadequate Tailings Storage

The application provides tailings storage capacity for only approximately 12 to 15 months of operations. However, the project is described as a ten-year operation, and the application contains no permitted design, location, or operational plan for managing the remaining tailings generated over the life of the project. This omission precludes DRMS from evaluating long-term

environmental risk and compliance and constitutes an independent and sufficient basis for permit denial.

If a revised application is submitted that addresses full-term tailings management for the approximately 500,000 tons of material proposed, public notice and comment should be required, given the magnitude of risk and potential consequences associated with long-duration tailings storage failure.

Deferred Engineering Designs

Key environmental control systems are deferred until after permit issuance, preventing DRMS from determining whether the facility can be constructed and operated in compliance with regulatory requirements. Examples include:

> "The final locations of these **sheet-flow control features** will be designated… prior to plant commissioning" (Page 2-21).
>
> **"Details of the sediment retention pond design** will be completed prior to final permit approval" (Page 2-27).
>
> **Fluids are recovered from the pond via a pump**, installed inside of a pipe riser, or in a floating barge, the final configuration of which is still under consideration (Page 3-64).

Deferral of these elements renders the application non-deterministic at the time of review and prevents meaningful evaluation of environmental performance and failure modes.

Incomplete Waste Characterization

Geochemical characterization of the source material from the Penn Mine Dumps is still listed as "in progress," meaning the permit is being sought before the chemical and leaching behavior of the processed material is fully characterized. Table 3-18 (Tailings Characterization Testing Outline) explicitly states that testing was **"still in progress"** at the time of reporting. Permitting prior to completion of this testing is premature, as it prevents accurate assessment of water quality risk, liner performance requirements, and long-term management needs.

Offsite Crushing

The application proposes an alternative in which crushing may occur offsite from the Mill. It is unclear whether this offsite activity would fall under DRMS review as part of the milling process, and whether that site would be required to demonstrate compliance with applicable regulations. This ambiguity must be resolved prior to permit consideration.

Alternative Option – Reagents

Under the alternative crushing option, no reagents are added at the Mill. Instead, mine development material (MDM) would be crushed and lime-treated at the Penn Mine prior to transport. This approach would require a Technical Revision, subject to approval, to the Penn Mine Reclamation Permit (Page 3-13). The interdependence of these permits is not addressed in the application, preventing a complete regulatory review.

Uncertainty of Tailings Placement Method

The following statement confirms that the tailings placement methodology has not yet been finalized and will be determined after startup through field trials:

> **At the start-up of surface placement operations, a series of field trials will be carried out** to allow for a method specification to be finalized that ensures general compliance with the field requirement of placed filter cake (visual capability of mechanical handling with light earth moving equipment from the internal delivery stockpile). This effort will be applied in the assembly of the final CQA plan for placement of waste above the maximum top of waste limit defined at the exterior boundaries of the existing DTL liner system (i.e., 2 ft. minimum below the crest of the existing exterior liner berm). (Page 3-63)

This language indicates that a compliant placement method does not yet exist at the time of permitting, and no alternative methods are identified should field trials fail. Reliance on post-approval experimentation is inappropriate for a high-risk waste facility.

Construction Quality Assurance Plan Not Submitted

A Construction Quality Assurance Plan (CQAP) has not been submitted with the application. Absent a CQAP, DRMS cannot verify that critical systems—including tailings placement, liners, underdrains, piping, and access roads—will be constructed as designed and approved.

The application states that:

> A final CDPHE-approved Construction Quality Assurance Plan (CQAP) will be prepared… prior to commencement of construction.

Deferring the CQAP until after permit issuance eliminates meaningful regulatory and public review and is inconsistent with standard permitting practice for facilities with long-term environmental risk.

Inadequate Reclamation and Post-Closure Planning

The Reclamation Plan does not include post-closure monitoring requirements. Specifically, it omits provisions for:

- underdrain system inspection and maintenance

- long-term stormwater and erosion control
- groundwater and surface-water monitoring
- criteria for determining when post-closure obligations may be terminated

In addition, the plan lacks contingency provisions addressing phased reclamation should filtered tailings exceed the area authorized under this permit, despite language implying potential expansion.

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2. Undefined and Unsecured Water Sources

The project's water demand is substantial, yet the application does not demonstrate legal, physical, or operational access to a reliable water supply.

Conflicting Water Source Options

The application identifies three potential water sources—an on-site well, Leadville Sanitation, and Parkville Water District—but provides **no executed agreements, capacity confirmations, or permitted volumes** for any source.

> Section 2.5.4 acknowledges that sourcing options are still being developed and will be finalized "prior to beginning plant operation" (Page 2-30).

Absent a defined and secured water source, DRMS cannot evaluate operational feasibility or environmental impact, and permit issuance would be premature.

Local Aquifer Risk

The proposed on-site well is not supported by sufficient hydrogeologic analysis to determine whether pumping could impact the approximately 510 domestic wells within two miles of the site.

The hydrogeologic deficiencies identified in Dr. Stephen Emerman's review of the prior application—including unsupported groundwater flow assumptions, inadequate monitoring well placement, and dry compliance wells—remain largely unaddressed and continue to limit DRMS's ability to assess groundwater risk.

> The application lists seven monitoring wells that are classified as either "Up Gradient" or "Down Gradient" either in a regional sense or with respect to the filtered tailings deposit (FTD) or the emergency containment sump (ECS). The classification assumes that all

> groundwater is flowing to the southwest without any justification. **The application does not include any information about local and regional hydrogeology, including no information about groundwater flow directions, the potential pathways for contaminants resulting from the remining operation, or the characteristics, locations, and depths of aquifers, or the aquifers that are penetrated by the various monitoring wells**. Based on a detailed stream map alone, the groundwater flow directions at the locations of the monitoring wells could be completely different (even perpendicular to) the assumed uniform flow to the southwest, especially for local, shallow groundwater flow. Although the application indicates monitoring well LM-MW-2 (southwest and outside of the permit boundary) as the point of compliance, a more appropriate point of compliance could be due south of and within the permit boundary. **Without further information about the hydrogeology, it is impossible to determine the appropriate depth of the point of compliance or the aquifer over which the point-of-compliance well should be screened. The application also shows, without justification, a plume of contaminated groundwater moving to the southwest (at an unspecified depth and in an unspecified aquifer), but does not discuss any means for distinguishing between future groundwater contamination by the remining operation and the preexisting contaminant plume.** Additional evidence that the current groundwater monitoring network is inadequate is that monitoring wells LM-MW-2 (the point of compliance) and LM-MW-3 were persistently dry during the period of collection of baseline data, so that groundwater samples could not be collected.

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3. Tailings Management and Stability Hazards

The proposed Dry Tailings Landfill (DTL) represents a permanent waste repository that will pose ongoing risk to California Gulch and the surrounding area until stability is achieved and leachate generation ceases.

Section 3.5.1 indicates that filter cake will contain 75–80% solids (20–25% water by mass). However, the application does not define enforceable criteria for stockpiling duration, maximum volume, or verification of moisture uniformity prior to placement in the DTL.

The assumption that stockpiled material will consistently drain to 75% solids is not demonstrated, and no protocol is provided for confirming compliance prior to final placement.

> Tailings should only be delivered to the DTL transfer conveyor when the drum filter is producing filter cake within 3% of the target acceptance lower limit of 75% solids (25% water content). Filter cake that has water content above this limit (i.e. >28%) could be acceptable for placement if it passes the Paint Filter Test and **may be placed in the DTL stockpile on a temporary system upset basis** and **allowed to drain down to water content that allows for effective spreading and compaction**. (Page 3-63)

Post-Closure Leachate Management

The application lacks a definitive plan for managing leachate following mill closure, despite ongoing precipitation infiltration into the permanent waste pile. **Time-based projections of post-closure leachate volumes are necessary to evaluate long-term environmental performance.**

> In the case of the typical solid waste landfill, these leachates are regularly reapplied to the surface of the landfill (via irrigation) to be lost through evaporation or for dust control in the active waste placement areas. This option **could be implemented** at Leadville prior to placement of the final reclamation cover **until very small amounts of leachate are being recovered which would signal appropriate timing for the placement of the final cover. (Page 3-64)**

Moisture-Content Compliance Fallback

The following language allows under-specification material to be placed through blending:

> **One potential option for placement of under-specification filter cake** is to provide a mechanism for blending with fine slag as a means of reducing relative water content and improving the strength of the delivered final waste stream to allow for mechanical handling and placement. This option should only be considered after other options for improving filtration plant effectiveness have been exhausted, as the slag admixture essentially consumes valuable lair space in the landfill, and increased management costs.

This approach should not be incorporated into an enforceable permit condition, as it lacks defined blending methods, locations, verification criteria, and assurance that resulting material would meet moisture specifications. It also introduces additional material into the landfill, reducing available capacity without analysis.

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4. Stormwater and Groundwater Monitoring Gaps

Inadequate Storm Design Basis

Stormwater controls are designed using a 100-year, 24-hour storm event. For facilities with a high consequence of failure, **this standard is insufficient to evaluate worst-case risk**, and the application does not assess system performance under more extreme precipitation scenarios.

> To provide an assessment of the anticipated volumes of surface waters that will emanate from and be controlled within Subcatchments 4, 6 and 8, analysis of surface flows from

the design 100-yr., 24-hr. storm was applied as a worst-case example for illustration. **(Page 2-21**)

Ineffective Groundwater Monitoring

While Section 2.5.2 states that depth to groundwater exceeds 80 feet, Table 2-7 shows monitoring wells completed at depths of 42–52 feet (LM-MW-2) and 56–66 feet (LM-MW-3) (Page 2-28). **These wells may not intersect groundwater at all**, rendering them ineffective for leak detection and compliance monitoring.

Closing

Taken together, these deficiencies prevent DRMS from determining whether the proposed facility can be constructed, operated, reclaimed, and closed in compliance with applicable regulations. Permit approval should be deferred until these issues are fully resolved through a revised and complete application.

Craig H. Gooch
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