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Off-site Sales of Mine Waste and the Idaho-Maryland Mine Final EIR

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Introduction

The Idaho-Maryland Mine Final Environmental Impact Report (FEIR) does not provide adequate information regarding the viability of the plan to dispose of mine waste through off-site sales and does not have provisions for adequate on-site temporary storage or permanent disposal of mine waste, leading to potentially significant impacts.

The project documents call for approximately 11 years of operations in which the mine waste will be disposed of on the Centennial and Brunswick sites as “Engineered Fill,” but the FEIR fails to resolve uncertainties affecting the viability of that plan. Due to inadequate testing information in the FEIR, the mine waste could not be classified as Group C mine waste by the Regional Water Quality Control Board as needed to allow dumping onto these two sites. In addition, due to inadequate testing of mine drill cores for asbestos to establish a reasonable assessment of the potential hazards due to airborne asbestos, numerous management issues regarding the safe handling and placement of asbestos-bearing rock as “Restricted Materials” remain unresolved.

Worse still, for the remaining 65 or more years of operations, even if the issues of potential water and asbestos impacts are resolved, significant issues remain as to how and where the mine waste will be disposed.

Mine Waste Disposal Plans

The mine operations will require disposing of 1500 tons/day of mine waste 365 days/year for approximately 75 years. Five hundred tons/day of sand tailings are to be returned underground in the form of cemented paste backfill. The remaining 1000 tons/day, consisting of 500 tons/day of barren rock and 500 tons/day of sand tailings, will be exported from the containment structures of the processing facility.

The mineralized rock (ore) and barren rock will be removed from the mine by hoisting and dropping the materials into the silos on the surface at the New Brunswick shaft. The silos will have a capacity of 1000 tons for the ore and 400 tons for the barren rock. This means that the silos will have a maximum capacity of just under the daily production of 1500 tons. The 1000 tons/day ore will then be run through the processing facility and the sand tailings for export will be loaded into haul trucks with a front-end loader from within an enclosed structure. The barren rock will be loaded directly into haul trucks from the silo.

Market Demand

The FEIR states that after the Centennial and Brunswick sites are full, "...hauling of engineered fill (barren rock and sand tailings) would shift entirely to be utilized in local and regional construction markets." (FEIR Page 2-59). The market demand for this mine waste (barren rock and sand tailings) has not been established.

The FEIR mistakenly assumes that the aggregate market is analogous to the market for mine waste rock (or barren rock) and sand tailings. The FEIR then argues that there is substantial market demand for aggregates in the region. (See FEIR Master Response 11, "Evidence for Market Demand", Page 2-61, 62)

The FEIR notes that the Sacramento County aggregate production-construction area has less than 50% of its 50-year aggregate demand currently permitted, and also lists the annual demands for Nevada County, Placer County, and Yuba City/Marysville. The FEIR then concludes, "This master response demonstrates that there is sufficient market demand for engineered fill (barren rock and sand tailings)". This is a false conclusion based upon selectively excerpting data from the California Department of Conservation Mapsheet 52, 2018, (https://www.conservation.ca.gov/cgs/Documents/Publications/Map-Sheets/MS_052_California_Aggregates_Map_201807.pdf)

In fact, the Department of Conservation data shows that Sacramento County has 327 million tons of aggregate supplies already permitted, enough to meet 21 to 30 years of demand. In addition, it is entirely reasonable to expect that within the next 20 to 30 years, more permits may be issued in Sacramento County. In addition, the aggregates map also shows that surrounding counties already have more than enough surplus aggregate supplies to provide for the needs of Sacramento County. Placer County has more than double the estimated 50 year aggregate demand already permitted (387 million tons vs 188 million tons needed), Nevada County has 125% of the 50 year aggregate demand already permitted (52 of 41 needed), and Yuba City-Marysville has almost 200% already permitted (679 of 344 needed).

A realistic view of the market for aggregates is that there are abundant aggregate supplies in the region, the aggregate market is very competitive, demand varies significantly by season, and most importantly, the mine waste is ill-suited to compete in the aggregate market.

Mine Waste versus Aggregate Demand

The FEIR addresses the market viability for off-site sales based upon assumptions of annual mass volume demand of aggregate and erroneously assumes that the mine's barren rock and sand tailings would be suitable for meeting that aggregate demand.

Aggregate production is a business which requires the delivery of specific rock sizes and grades depending on the nature of the customer's project. A producer must be able to produce and deliver rock that meets the specifications - such as those noted below - in the specific tonnages required by the customers. Regional market demands for aggregates are wildly varied in grade and size and producers must comply with aggregate specifications. Consequently, aggregate producers have to produce and stockpile numerous specific products, which have different production inputs, screening, crushing, and washing needs.

The mine will be exporting 500 tons/day of “sand tailings” and 500 tons/day of “barren rock.” The sand will be a mix of medium and fine sand, down to very fine silt that has limited market value (300 - 0.044 mm). The barren rock will be crushed to “approximately 6 inches maximum dimension.” (DEIR appendix H4, p14) These two products fulfill only a small portion of the aggregate market.

At the very least, in order to compete in the aggregate market, significant processing of the mine waste would be required, and the Idaho-Maryland Mine project does not include any of the facilities needed for that processing. The mine waste material may only be suitable for fill, while the majority of aggregate sales in the region are for specified aggregate types.

Example Aggregate Products *

Crushed Aggregate – No Fines		
Crushed Aggregate (3/8" Hot Plant)	3/16" x 7/16"	Black & white river rock used for pathways landscaping and underdrains.
Crushed Aggregate (1/2" Hot Plant)	7"/16" x 5/8"	Black & white river rock used for pathways landscaping and underdrains.
Crushed Mine Rock	1" x 2"	1" x 2" Good rock in muddy areas. Lays down well, very angular.
Crushed Mine Rock	2" x 5"	very angular rock good for very muddy and wet locations.
3/4" Clean Crush	5/8" x 1"	Crushed angular rock with very few fines is popular for parking areas and driveways.
Permeable Class 1 Type B (1/4" x 1/2")	1/4" x 1/2"	round river rock used for underdrains.
Trench Fill, Crushed certain NID jobs	3/16" x 5/8"	This aggregate has been designed to meet fill material specifications for
Crushed Aggregate With Fines		
Aggregate Base 3/4" Class II	1" minus	State spec. product. Compacts well use under driveways, roads, etc
Limestone Base Rock 3/4"	1" minus	Blue-gray angular rock with fines. Packs very hard.
Road Rock 1/2"	1/2" minus	Crushed black & white rock with fines.
Road Rock 3/4"	1" minus	Crushed black and white rock with fines.
3/4" AB II Ridge Rock slopes	1" minus	This very angular blue/green-gray rock packs well on driveways and is good on slopes
Crushed Mine Rock 1 1/2"	2" minus	Very angular blue/green-gray to brown rock, packs very well.
Recycled Base Rock 3/4"(ClassII)	1" minus	Base rock made from 100% recycled asphalt, concrete and aggregate products.
3/16" x 5/8" Clean Crushed	3/16" x 5/8"	This angular crushed product is made at our Ridge Rock Quarry.
Sand		
Crushed Sand	1/4" minus	This sand packs very well. Used for backfill under pipes and culverts and pathways.
Masonry Sand	1/8" minus	Fine washed sand used for stucco, mortar & horse arenas.

Fill Sand, PG&E Spec.	1/8" minus	This economical sand packs well. Used as fill in trenches over pipe and gas lines.
Pond Sand/Silt	1/16" minus	Very fine unwashed product, typically used as affordable fill material.

*Partial Aggregate List From Hansen Bros. Enterprises, <https://www.gohbe.com/index.php/rock-masonry> . See also <https://teichert.com/materials/aggregate-products/>, <https://unionquarries.com/crushed-stone-sizes-for-construction/>

The FEIR speculates that the project can meet the specific business needs of the aggregate market without providing a plan for how to actually produce the aggregates needed to meet the actual aggregate market demands. In addition, the FEIR does not provide any market demand data for the rock and sand tailings that will actually be produced by the mine.

Seasonal Demand

Furthermore, the market for aggregates is seasonal. There is little demand for aggregate in the winter months, as little construction is taking place due to weather restrictions. In addition, winter weather can shut down any ongoing operations. How will the mine waste be managed during long winter shutdowns? There is no provision for temporary stockpiling of output materials anywhere on the project sites.

Asbestos Bearing Mine Waste

The FEIR does not provide adequate testing to assess the potential impacts of asbestos bearing rock and air pollution hazards, utilizing samples from just 3 drill cores. The few tests that were conducted represented only approximately 2/10,000 of the mine rock volume planned for excavation. This is inadequate.

Management of asbestos bearing rock is described in the “Asbestos, Serpentine, and Ultramafic Rock Management Plan” (ASUR Plan) in DEIR Appendix E.2. Due to the potential for the occurrence of asbestos-bearing rock in the Idaho-Maryland Mine, which is in an Ultramafic Rock zone, all materials extracted from the Idaho-Maryland Mine are considered “Restricted Materials” under the California Air Resources Board (CARB) asbestos Airborne Toxic Control Measures (ATCM). (ASUR Plan, p18). This requires written documentation to accompany any handling, transport and application of the materials, including testing information, amounts, dates, etc. Reportedly, area aggregate suppliers avoid using Restricted Materials because there isn’t a market for them.

In addition, the North Sierra Air Quality Management District (NSAQMD) requires that the 3-month rolling average of asbestos levels in all mined materials that leave the enclosed project facilities must not exceed 0.01% asbestos by weight. Concerningly, there are multiple deficiencies in the ASUR plan which could fail to determine exceedances of this 0.01% rolling average threshold until after the materials have already been shipped out.

The ASUR Plan does not adequately safeguard against exceeding the toxic thresholds that are established for this project. These safeguard deficiencies are identified in “MineWaste_Asbestos_Impacts_Comments_Final.pdf” (https://www.cea-nc.org/wp-content/uploads/2023/03/MineWaste_AsbestosImpacts_Comments_Final_3-14-23.pdf)

Contaminated Mine Waste and Water Impacts

As mentioned, the FEIR has not adequately determined that the mine waste can be disposed of by off-site sales (see above). Nor has it been adequately determined that the waste can be disposed of by dumping it as Engineered Fill because of its potential to pollute ground and surface waters by the leaching of hazardous chemicals. This inadequacy falls under the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB, or Water Board).

The Water Board classifies mine waste by Groups A, B, and C. Only Group C, which has relatively low levels of contaminants, is clean enough to be used for off-site sales. Groups A and B require more stringent controls. The Water Board requires sufficient mine waste testing to determine its classification. In its response to the Draft EIR, the Water Board states: “The applicant shall not sell or utilize waste rock and tailings from the Project for construction aggregate or fill purposes offsite unless such material has been tested and confirmed to qualify as Group C mining waste...” (FEIR Page 2-61).

In the DEIR, the Water Board and numerous other parties identified that there was insufficient testing to determine whether the mine waste would be classified as Group C. Therefore, its suitability for off-site sales is in question. Per the Water Board comments: “...the alternative scenario that the mining waste is not suitable for off-site use should be examined.” The Water Board goes on to state that Rise should assess any constraints or challenges associated with waste disposal, in case they can’t do off-site sales for construction aggregate. They conclude with: “The Draft EIR should be revised to address this comment” (FEIR Page 2-233, 234). The FEIR does not address the Water Board’s comment. This is unacceptable, especially given that Rise Gold could easily have done an adequate amount of testing to accommodate the Water Board’s requests, given the plethora of drill cores and samples to which Rise Gold has access.

Rise Gold acquired a collection of drill cores and samples from Emgold Mining when they purchased the mine. In addition, they did over 67,500 linear feet of exploratory drilling, themselves. Yet, from all those samples, they chose to test only 11 feet – of the 67,500 - to characterize what will be over 25 million tons of mine waste that will be produced over the life of the mine (1000tons/day x 365days/year x 75years = 27 million tons).

Disposal of mine waste is a critical element of the project with the potential for causing significant, negative, long term impacts if it is inappropriately stored or disposed of. Yet, in spite of the wholly inadequate testing represented in the DEIR, the fact that no further testing of the drill cores was required by the FEIR is inexplicable and unacceptable.

The FEIR response uses speculative, unproven assumptions stating that the mine rock “...would not be mined until mine waste characterization has been performed to ensure the rock will be suitable for off-site sale. Rock types that are not suitable for off-site sale would likely not be mined, and if mined, the waste rock would be placed underground,” (FEIR Page 2-60).

Mine waste classified as Group A or Group B requires specific management that must be determined by the Water Board and cannot automatically be placed underground. Backfilling with waste rock and tailings is the exact scenario which has led to polluted ground water discharges in so many mines in our area. This new project element, the placement of Group A or Group B mine waste underground, was

not included in the Draft EIR and if not addressed adequately has a high potential of creating the same type of long-term toxic mine water discharge again.

Even disposal of mine waste on the project sites for Engineered Fill (Centennial for 5 years, Brunswick for 6 years) requires testing and will have to meet the Water Board's approval. Quoting the Final EIR: "The barren rock and sand tailings would undergo testing as part of obtaining WDRs [Water Discharge Requirements] for use in the Engineered Fill pads, and compliance with water quality objectives will need to be demonstrated to the CVRWQCB prior to that placement," (FEIR Page 2-59, 60). This is further detailed in Mitigation Measure 4.8-1 (e) (FEIR Page 3-37,38,39).

The FEIR Master Response 11 makes false and misleading assertions. The discussion makes the false claim that "...the historic mine waste has been determined to be Group C mining waste from which any discharge would be in compliance with the applicable water quality control plan, including water quality objectives other than turbidity," (FEIR Page 2-59). In fact, the historic mine waste has not been determined to be Group C by the Water Board. The site is currently undergoing a cleanup under the Department of Toxic Substances Control (DTSC) and was conditionally deferred from being processed as a superfund site provided the cleanup is completed. See "IMM_TRANSMITTAL_Signed.pdf" at https://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=29100007&enforcement_id=60472136. The DTSC does not need to do cleanup on sites that have only Group C mine waste.

In any event, the legacy tailings on the Centennial site cannot be used to determine the likely classification of the mine waste from the proposed project because:

1. The tailings on the site have been subject to over 67 years of oxidation and leaching, reducing the presence of soluble hazardous chemicals which may pollute the surface and ground waters.
2. The geology varies in the Idaho-Maryland Mine.
3. The samples provide by the DEIR were for selected areas and did not undergo examination and testing to the satisfaction of the Water Board to warrant its classification as Group C.

However, the Centennial site does serve as a cautionary tale of the hazards associated with dumping mine tailings.

The FEIR fails to provide information necessary to assess the potential impacts to surface and ground waters from the leaching of contaminants from mine waste. The mine waste must be classified as Group C mine waste in order to be used for off-site sales. The Water Board requested additional testing to be done and the DEIR to be recirculated to provide adequate data for review. The FEIR provides no additional testing. The FEIR provides no viable plan for storage or disposal of those materials. Instead, the FEIR suggests that "Rock types that are not suitable for off-site sale would likely not be mined, and if mined, the waste rock would be placed underground," (FEIR Page 2-60). Mine waste classified as Group A and B requires specific management that must be determined by the Water Board, and cannot automatically be placed underground. The FEIR fails to provide adequate information to reasonably determine how to characterize the mine waste for safe disposal.

Conclusion

The FEIR Master Response 11 states:

"If the Project's proposed engineered fill sites and the Brunswick and Centennial Industrial Sites were complete and there was low demand for barren rock or sand tailings, or the material was unsuitable for construction use, the operation would by necessity reduce or halt generation of these materials

until an appropriate market, such as fill material or other use of rock material for which the material met appropriate specifications, could be identified.”

As this statement demonstrates, rather than following the requirements of CEQA, the FEIR chooses to ignore the need for assessing the potential impacts of the disposal of mine waste. Instead the FEIR assumes, without substance, that an appropriate market would be found to provide a solution. In addition, the FEIR fails to address a potential that the mine waste may not be suitable for dumping on the project’s two Engineered Fill sites, or provide a mechanism for managing the reduction or cessation of operations. Who would make the determination to halt, and under what authority? How would the contaminated materials that are in process be managed? This is a recipe for a failed project leaving yet another toxic problem.

In summary,

- No evidence was provided that an adequate market for Restricted Materials in the form of barren rock and sand tailings exists.
- Most aggregate sales require rock ground to specifications that require an aggregate processing facility. No facilities or other provisions to produce those materials were provided.
- No temporary stockpiling capacity is included in the project description or FEIR to deal with a lack of market demand, or even to accommodate variations in demand. The applicant apparently envisions starting and stopping mining operations as individual orders come in from unknown sources.
- The FEIR does not provide adequate testing to determine the potential impacts of the mine from airborne asbestos.
- The FEIR does not provide adequate testing to determine if the mine waste will qualify as Group C.
- The viability of the critical operational plan to dispose of mine waste is not demonstrated.

CEQA requires that the EIR “**...give the public and decision makers the most accurate and understandable picture practically possible of the project’s likely near-term and long-term impacts.**” (CEQA 15125) This Final EIR fails to meet that requirement.