Data Submitted (UTC 11): 6/7/2024 6:33:12 PM
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Comments: June 6, 2024

Kerwin S. Dewberry, Forest Supervisor, Coronado National Forest
ATTN: Hermosa Critical Minerals Project
300 West Congress St.
Tucson, AZ 85701

Dear Sir:

I am writing to comment on the South32 Plan of Operations for the proposed Hermosa Mine project. Although I do not reside in Arizona, I am a frequent visitor to the state. More importantly, I spend considerable time in southeast Arizona, especially utilizing public lands for a wide range of recreational activities in the Patagonia Mountains and surrounding areas.

The South32/Hermosa Mine Plan of Operations contains important information relevant to evaluating its impact on the natural environment. However, given the depth, magnitude and complexity of the project, much more needs to be brought forward to fulfill the NEPA requirements of analyzing and mitigating negative impacts on forest lands that belong to all Americans.

The EIS needs to spell out specific actions to be taken by USFS and South32 to prevent or meaningfully reduce negative environmental impacts. Any document or instrument granting South32 permission to proceed with the project on public lands of the Coronado National Forest needs to be conditioned on such actions and/or revisions in project design.

Water Consumption

Underground excavation of the ore body would create a tremendous flow of groundwater into the resulting cavity. The Plan of Operations describes how this inflow would be removed to allow continued extraction of ore, and how it would be treated before discharge into nearby drainages or RIBs. However, there is no mention at all of how this movement of groundwater would affect natural seeps and springs in the area on which flora and fauna depend for survival.

At 3.4.2 (page 3-7), a discussion of groundwater and local geology/hydrology suggests a degree of existing knowledge about these factors. However, there is no accompanying discussion or quantification of mine operations on springs and seeps.
Specific concerns:

--Page 2-44 of the Plan of Operations explains the method by which treated water from the project would be discharged into Alum Gulch, Harshaw Creek and the various RIBs to, in part, recharge area groundwater. However, there is no quantification of the extent to which depleted regional groundwater would be restored.

--There is no inventory of springs/seeps important to local wildlife, nor any discussion of the spatial aspects and priorities of wildlife water needs. For example, how far can various species of wildlife tolerate moving between watering points? While many desert or dry land plant and animal species are adapted to limited water use, this fact only underscores the importance of understanding how springs and seeps are relied upon by flora and fauna of the area. Moreover, even desert flora has limits of tolerance to changing conditions in the ecosystem, and

there is no discussion of the potential impacts of reduced water groundwater supply (seeps, springs) along with increasing temperatures and reduced precipitation resulting from climate change. It is essential for the EIS to address this issue.

--There is no discussion or data on the likely success of project water discharge strategies specifically in restoring the viability of these critical springs/seeps. It is essential that the EIS address this issue.

--There is no discussion of prospective measures to mitigate temporary or permanent loss of critical springs and seeps resulting from mine operations in the event that groundwater recharge does not occur as hoped. For example, there might be sites where placement of a wildlife "guzzler" would be beneficial. Guzzlers are temporary portable tanks that are monitored and re-filled as needed. They are widely used on arid National Forest lands for wildlife, as well as for livestock where cattle and sheep grazing is permitted. There might also be sites where local terrain features might allow for creation of temporary "water holes" to offset loss of nearby springs or seeps. There might be any number of reasons why such strategies might not be feasible, but they must be considered along with other strategies to mitigate the impact of Hermosa Mine operations on the fauna of the Patagonia Mountains.

--On page 2-46, Table 2-2 puts forth the "Water Balance for the Project." This table does not include a projection of treated water that would be discharged into Alum Gulch from WTP1. Although page 2-47 states that WTP1 was designed for low flows, nonetheless discharges into Alum Gulch from WTP1 are stated to be part of the strategy for recharging regional groundwater (page 2-44). If, in fact, discharges into Alum Gulch will make only a negligible contribution to groundwater recharge, this should be acknowledged.

It is not clear if the lack of hydrologic data relative to groundwater use and recharge in the Plan of Operations is an oversight, an implicit statement of ignorance on the subject, or considered beyond the scope of the Plan. In any case, it is imperative that USFS address this issue in the EIS. The analysis must include the most robust discussion possible of local hydrology and how it is likely to be affected by mining activities. If data is limited or lacking, making it impossible to project hydrologic impacts, this needs to be acknowledged so it can be considered in the broader analysis of project suitability and viability.

Cemented Paste Backfill

Another concern related to groundwater and spring/seep viability is the use of cemented paste backfill for underground stability. If this material is not permeable, it is clear that as mine development proceeds it will be permanently altering the hydrologic structure of the area, effectively blocking potentially critical channels by which natural groundwater movement might expect to be restored over time. This negative outcome might be unavoidable, but it is precisely the kind of permanent or long-range environmental impact that EIS analyses are intended to address forthrightly so that the public can evaluate the trade-offs being made.

It is understood that CPB ingredients/components may vary, and that sufficient cementing properties are needed to address the potential for subsidence. However, the issue of cemented paste backfill permeability is not addressed in the Plan of Operations and needs to be covered fully in the EIS.

Wildlife

Aside from the likely impact on wildlife from the potential destruction of springs and seeps alluded to above, the EIS needs to provide an inventory of wildlife in the affected area, including but not limited to endangered species and species of concern. The extent to which life cycles, movements and habitat of fauna will be disrupted needs to be analyzed, and measures devised to offset those impacts.

Page 3-11 mentions South32's collection of baseline data on wildlife over a period of years. It would be helpful to know how this data can be accessed, and how exactly it has been utilized in project design. Also, this page does not seem to mention larger mammals. An ecosystem approach to analyzing wildlife impacts from mining activities is necessary to fully appreciate the ecological interdependence of flora and fauna and their vulnerability to long-term or permanent damage. Successful mitigation measures for such a large and complex project will depend on this ecosystem perspective.

The EIS also needs to consider how adverse project impacts would aggregate with other environmental disruptions in the local area and the region such as the border wall, as well as new and projected residential development around Rio Rico, Nogales and other communities which could affect the viability of certain species. It also needs to address climate change as an additional, critical ecosystem stressor that could well exacerbate the negative impacts of border wall construction and other factors.

Of particular concern is the jaguar. It is difficult to know with certainty the number of resident and transient jaguars who may be using the Patagonia Mountains and neighboring areas as permanent or transitional/migratory habitat. However, the renewed or continued presence of jaguars in the region based on solid scientific evidence is well established. A key challenge for the future of the jaguar in the United States is whether, over a period of time, a breeding population can become established. This is especially critical if the border wall is completed, blocking further natural movement of jaguars from Mexico into the US. The EIS for the South32/Hermosa Plan of Operations needs to examine this issue and determine if adjustments in the plan can be made to reduce the level of disturbance to the habitat and secure movement of jaguars in the Patagonia Mountains.

Wildfire Risk

Wildfire risks and response strategies are addressed at pages 2-74, 2-75 3-17 of the Plan of Operations. Although brief, this discussion is a good start and covers most contingencies, including possible ignitions from lightning. A couple of additional suggestions are offered:

--Besides suppression, training for managers and shift employes should include at least some basic information on fire behavior for the terrain and vegetation types encountered in the vicinity of the mine. For example, understanding terrain factors in the rate of spread (such as fire burning more rapidly uphill, or through a draw or saddle), can help employes avoid or escape hazards that can develop quickly. Similarly, understanding fire behavior in flashy fuels (grass) and certain plants with resinous vegetation can better prepare people to deal with wildfire.

--With the potential for volatile fire behavior in dry country, it would make sense to develop contingency plans with escape routes and safety zones for personnel moving in and out of the area, and between the several intended points of mine activity.

--Although the Plan indicates that a lightning tracking system will be in place, it is not clear how data from the tracker will be used to modify shift schedules or other aspects of operations to enhance worker safety and provide for rapid and effective fire suppression.

--If not already addressed in existing company policies, it is recommended that smoking be prohibited except in designated areas near established facilities.

While South32 seems to have a basic handle on fire risk, it will be up to USFS in the EIS to explain the agency's

posture towards this risk, not only through prospective permit stipulations, but the disposition and possible prepositioning of its own resources. If the project mores forward, wildfire prevention and suppression will be a shared responsibility between the company and the agency. The EIS needs to recognize this reality and provide assurances to the public that a solid wildfire plan is in place regardless of whether fire results from mining activities, mine personnel transiting the area, forest users recreating near the mine, or lightning.

Monitoring and Oversight

The EIS needs to lay out not only the stipulations and expectations of South32 on which permission to proceed will be predicated, it needs to lay out a detailed plan for robust monitoring of impacts and fulfillment of permit requirements by the company. Self-enforcement by the company of permit requirements for a project of this magnitude and complexity would be completely contrary to the public interest.
Besides a schematic and schedule for resource monitoring, the EIS needs to demonstrate that the USFS has or will have the fiscal resources to carry out a rigorous enforcement plan.

Reclamation Financial Assurance

Page 5-7 of the Plan of Operations acknowledges the company's responsibility for reclamation but indicates it awaits guidance from USFS in order to work up reclamation cost estimates, which would then be the basis for a required bond posting. The EIS needs to address this issue in detail. As a general proposition, both resource agencies and mining companies share responsibility for public skepticism about their shared commitments to reclamation. Thoughtful and detailed treatment of reclamation costs and parameters in the EIS will provide some badly needed reassurances in the event this hugely impactful project goes forward.

Employe Housing

The Plan of Operations does no indicate whether mine workers will be housed at the mine site, or commute from nearby communities. Since an EIS is required to evaluate the intersection of socioeconomic issues and environmental concerns, the question of housing would seem to be relevant. Housing at the mine site increases the intensity of the footprint impact, while workers commuting generate other kinds of impact, both locally and regionally. It is not clear from the Plan whether or how the company or USFS view this issue.

Need for the Project

It is understood that the project proposes making certain tradeoffs which would essentially compromise the integrity of local ecosystems in order to achieve a greater, national environmental payoff, particularly with regard to facilitating growth of the electric vehicle industry. However, it must noted that there has been growing concern, amply covered in national media, that as a country we have bet too much too soon on this one strategy for meeting climate change goals to the exclusion of other options that might carry less environmental impact.

Notwithstanding this growing skepticism, the Hermosa Mine project is targeting minerals of strategic importance and concern. For this very reason, and because the mine would affect other resources of national interest and concern, a full discussion of the project need must be part of the EIS. Such a discussion must include:

--Projected need/demand for the minerals by relevant manufacturing sectors;

--The degree to which Hermosa Mine would contribute to meeting this demand;

--Other locations in the US where such minerals are, or are projected to be, extracted and the extent to which other sites are, or might contribute to, meeting demand;

--Assurances that none of these minerals of critical strategic concern are going to be exported outside the US.

--It is obvious that the impacts of this project, if permitted, would extend far beyond the immediate area of the mine's location. How would this immense volume of ore be transported from southeast Arizona to other sites for reduction and entry into the manufacturing process for which it is intended? How will this volume of traffic affect local, regional and national highway and rail systems?

Conclusion

It is crucial always to bear in mind that the lands adjoining the privately held mining claims are not "USFS lands." They are public lands that belong to all Americans, and the agency is entrusted to manage the lands with careful and respectful attention to competing resource values. This responsibility includes requiring mitigation of negative environmental impacts, close monitoring of extractive activities and robust environmental restoration.

Sincerely,

Jeffrey Richardson