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Title:

Comments: Kerwin S. Dewberry, Forest Supervisor

Coronado National Forest

ATTN: Hermosa Critical Minerals Project

300 West Congress Street

Tucson, AZ, 85701

June 7, 2024

Subject: Letter of Support and Scoping Comments for South32's Hermosa Critical Minerals Exploration and Mine Plan of Operations

Dear Mr. Dewberry,

My name is Misael Cabrera, and I serve as the Director of the School of Mining & Mineral Resources at the University of Arizona. Before this appointment, I served as Director of the Arizona Department of Environmental Quality (ADEQ) longer than any other Director in the department's history. During my tenure at ADEQ, we dramatically increased environmental outcomes and were recognized 28 times by local and national organizations. Before serving in Arizona State Government, I held various environmental leadership roles in three international engineering firms.

In this letter, I am not speaking on behalf of the University. My comments are based primarily on nearly 30 years of experience as an environmental professional. With my two hands, I have collected hundreds of environmental samples and designed treatment systems that have removed hundreds of thousands of pounds of pollution from soil and groundwater. I have overseen the drafting of state rules to protect air, water, and soil and advocated for the passage of historic state legislation to protect the environment. I have also led environmental enforcement efforts, working with the Arizona Attorney General's Office to bring the largest environmental lawsuit in Arizona state history against a recalcitrant party, as well as criminal charges against two others.

This career-long commitment to the environment has led me to understand that minerals and mining are prescient in decarbonizing the energy and transportation sectors, which is critical to saving the planet. Recycling and circularity are important components of the mineral supply chain and should be encouraged and incentivized wherever possible. Unfortunately, there is no evidence that recycling and circularity can be socialized, scaled, and implemented with sufficient speed to address the urgent mineral demand necessary to achieve national and global climate goals. Further, future demand estimates for certain minerals exceed the current supply; thus, recycling alone could not meet demand. This understanding is the basis for my comments and strong support for South32's Hermosa project. This letter is organized into two sections: Hermosa's commitment to environmental stewardship and comments regarding scoping under the National Environmental Protection Act (NEPA).

HERMOSA'S COMMITMENT TO ENVIRONMENTAL STEWARDSHIP

When I became Director of ADEQ in 2015, I discovered that a previous and unrelated mine operator had settled with the US EPA during bankruptcy, leaving the environmental liability of multiple mine sites to the State with insufficient resources to effectuate clean-up. The State was fortunate that the Hermosa Project took interest in one of those sites. Hermosa dried and moved more than 2 million tons of old tailings material that was sitting on bare land to a modern, lined, and permitted impoundment. Hermosa also channeled stormwater run-off and tailings underdrain collections to a state-of-the-art water treatment plant. The total cost of remediation is reported

as \$30 million. The Hermosa project has transformed a state environmental liability into an economic opportunity that will also produce two federally designated critical minerals - manganese and zinc - both of which are essential minerals for powering the nation's clean energy future.

Hermosa's sustainability efforts are not limited to voluntary clean-up of past operators' impacts. They are committed to biodiversity, water stewardship, and renewable energy.

South32 has set a strategy for no net loss of biodiversity at Hermosa, with the intention to avoid potential biodiversity impacts whenever possible rather than simply mitigating or offsetting impacts. For over a decade, Hermosa has implemented a robust program for biological monitoring. This program is the cornerstone for comprehending the spatial and temporal distribution of sensitive assets surrounding the Hermosa. Biological monitoring entails surveys for more than 10 flora and fauna species annually and observing diverse habitats and water sources. From these surveys, Hermosa is meticulously designed to avoid impacts on sensitive plant and animal species and critical habitats.

Furthermore, South32 recognizes the critical importance of water in Southern Arizona, where extreme drought and rising temperatures exacerbate scarcity, and water stewardship is paramount for residents of the region. Through innovative underground mine design, advanced monitoring systems, and the introduction of state-of-the-art dry-stack tailings facilities, Hermosa aims to reduce its water footprint by 75% compared to traditional methods.

Hermosa has also proposed the installation of Rapid Infiltration Basins (RIBs) to facilitate the recharge of groundwater extracted from the orebody to mine safely. This water will be treated before being returned to the environment within the Patagonia Mountains. By strategically locating a network of RIBs in the Patagonia Mountains, Hermosa aims to facilitate the infiltration of treated water into the ground, thus maintaining water within the ecosystem. The RIBs will play a vital role in sustainable water management by accelerating groundwater replenishment, ensuring a more resilient water supply, mitigating drought effects, and preserving ecosystems reliant on groundwater sources.

South32 is also being designed to enable the use of renewable energy from Unisource/Tucson Electric Power. In fact, Hermosa is targeting a 100 percent renewable energy supply. This goal isn't unique to the industry; what is unique is Hermosa's clear steps to achieve it.

SPECIFIC COMMENTS RELATED TO SCOPING

1)The Spanish materials distributed during the May public scoping meetings were exquisite. As a native Spanish speaker, I am often disappointed with the quality of technical translations - not so with these Forest Service handouts. The population of Santa Cruz County is over 80% Hispanic [1], and these materials were accurate and accessible to those who only read Spanish. Please keep up the good work.

2)The scoping process should consider the impacts of current zinc and manganese supply chains versus the Hermosa proposed project in the context of global greenhouse gas emissions. As of 2023, the US is 100% reliant on foreign sources for manganese and produces just 6% of the world's zinc [2]. Distant sources like Gabon and South Africa account for 86% of the US supply of manganese; transporting manganese from these far-off geographies results in carbon emissions that the Hermosa project would avoid.

3)Human health is a function of the entire natural and man-made ecosystem surrounding us: air quality, water quality, nutrition, shelter, and access to health care. Congress acknowledged this in the National Environmental Policy Act's declaration of purpose:

"The purposes of this chapter are: To declare a national policy which will encourage productive and enjoyable

harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality [emphasis added] [3]."

There is a robust and well-documented relationship between socioeconomic status and physical and mental health [4]. With this in mind, it is important to consider the poverty-induced health impacts of no action. Santa Cruz County is an underserved area that has the highest proportion of minorities [5], the second-highest unemployment rate [6], and one of the lowest average household incomes in Arizona [5].

Hermosa aims to revitalize and expand the local economy, generating well-compensated employment opportunities that encourage the next generation to remain in Santa Cruz County. The project is expected to yield over 800 jobs that provide sustainable income, averaging \$90,000 annually-significantly surpassing the current average household income.

4)As a former regulator, I am quite familiar with public notice periods and the frequent request to extend them, sometimes as much as possible. This is a delicate matter as officials must weigh the need to provide sufficient time for the public to comment against the need to proceed expeditiously to the next step.

While it is likely that a request for an extension of the public comment period will occur for this project, I believe a comment period of 30 days is sufficient as part of the scoping process. The NEPA process provides an additional comment period for the draft EIS and the ability to object to the ultimate Forest Service decision. Public comments are also received on most, if not all, of the eight other state and federal permits and registrations the project must secure before operations begin. Many of these permit and registration processes also provide the public with the ability to appeal the decision of the state or federal agency. In short, the Hermosa project has received and will continue receiving appropriate public scrutiny. It is unnecessary, in my view, to entertain a request to extend the public comment period at this stage of the process.

Sincerely,

Misael Cabrera, PE
Former Director
Arizona Department of Environmental Quality

CITATIONS

[1] AZ Counties Demographic and Environmental Dashboard, Arizona Department of Environmental Quality <https://adeq.maps.arcgis.com/apps/MapSeries/index.html?appid=cc0da69679c74b8ca25125c15651805a>. Accessed on June 6, 2024.

[2] U.S. Geological Survey, 2024, Mineral commodity summaries 2024: U.S. Geological Survey, 212 p., <https://doi.org/10.3133/mcs2024>.

[3] 42 U.S.C. § 4321

[4] COUNCIL ON COMMUNITY PEDIATRICS; Benjamin A. Gitterman, MD; Patricia J. Flanagan, MD; William H.

Cotton, MD; Kimberley J. Dilley, MD; James H. Duffee, MD; Andrea E. Green, MD; Virginia A. Keane, MD; Scott D. Krugman, MD; Julie M. Linton, MD; Carla D. McKelvey, MD; Jacqueline L. Nelson, MD. *Pediatrics* (2016) 137 (4): e20160339. <https://doi.org/10.1542/peds.2016-0339>.

[5] AZ Counties Demographic and Environmental Dashboard, Arizona Department of Environmental Quality <https://adeq.maps.arcgis.com/apps/MapSeries/index.html?appid=cc0da69679c74b8ca25125c15651805a>. Accessed on June 6, 2024.

[6] Arizona's Economy. "Arizona Unemployment Rate." Accessed June 6, 2024. www.azecconomy.org/arizona-unemployment-rate/