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First name: Beth

Last name: Pirl

Organization: CALABASAS ALLIANCE

Title: board member chief education advisor

Comments: Thank you for the opportunity to comment regarding the South32 Hermosa project and its proposed expansion into and onto Public lands of the USFS.

I have several concerns and questions regarding this project and its environmental impact on the natural world as well as the communities in the region.

Given South32's (and original parent company BHP's) dismal environmental record around the world including the permanent damage done to seeps and creeks in Sydney water catchments, their public facing comments need to be further investigated and dissected and their MPO (Mine plan of Operations) needs to be much more detailed. You are stewards of these public lands and any irreparable damage done will be your legacy. Besides concerns about South32's integrity and their willingness/ability to stand by any "good Neighbor" agreement my specific concerns are outlined below. REGIONAL IMPACT STUDIES MUST BE DONE before any permits are issued.

South 32 problem areas from other mine sites:

1. 2015 Perth (S & P Global) South 32 COO quote, "The one area we didn't perform well at all as an organization was on safety." <https://www.spglobal.com/marketintelligence/en/news-insights/trending/rsamo25botstsniflban6g2>

2. 2015, 2018, 2022, Multiple accidental deaths at s32 mines: <https://www.miningweekly.com/article/two-dead-another-injured-at-mozal---south32-2022-11-08>
<https://www.south32.net/docs/default-source/media-releases/fatality-at-metalloys-manganese-smelter-south-africa.pdf>
<https://www.afr.com/companies/mining/south32-ceo-graham-kerr-docked-12m-pay-over-mine-deaths-20160908-grc2kx>

3. 2015 Brazil: (The Guardian & BBC) BHP South 32 former parent company woefully negligent in Collapse of tailings dam Killed 19 and sent a river of toxic waste . Effects felt for 600 KM downstream
<https://www.bbc.com/news/business-48194377>

4. 2016 NSW (S & P Global) South 32 chastized for poor safety record. COO admits they need to do better on safety. <https://www.spglobal.com/marketintelligence/en/news-insights/trending/rsamo25botstsniflban6g2>

5. March 2018: Cerro Matoso Mine Colombia (Reuters & France 24) South 32 must pay damages for waste emissions that damaged the health of nearby communities, <https://www.reuters.com/article/colombia-mining-cerromatoso/colombias-cerro-matoso-mine-must-pay-damages-to-local-communities-court-rules-idUSL1N1QY1ZF>

6. 2019 South Africa (S & P Global market intelligence report): South 32 committed "Gross violations" of their water use permits. <https://www.spglobal.com/marketintelligence/en/news-insights/trending/gWGt6t0nFKWUxmEQ4VHN0g2>

7. Feb 2020: South 32 fails to pay royalties of 181.5 million to Colombia (Reuters)
<https://www.reuters.com/article/south32-colombia-idLTAL8N2AJ4YT>

8. 2020 South Africa PHOLA (Macua.org) South 32 causes destruction and devastation . Blasting recklessly, polluting ground and water so that it is unfit for agricultural purposes <https://macua.org.za/2020/11/05/1682/>
9. 2021 South Africa (Market Screener) South 32 informs: Mr Desmn Mienies contractor at Hotazel Manganese mine was fatally injured. <https://www.marketscreener.com/quote/stock/SOUTH32-LIMITED-22327156/news/South32-Fatality-at-South-Africa-Manganese-37174812/>
10. Dec. 2021 GEMCO Mine NSW (ABC Australian Broadcasting Corp) High levels of manganese detected in communities living within 20 KM of South 32's GEMCO mine <https://www.abc.net.au/news/2021-12-07/manganese-mine-indigenous-community/100676998>
11. Oct 2022 :Journalist Rafael Moreno murdered after exposing corruption and crime linked to illegal extraction at Cerro Matoso <https://www.france24.com/en/americas/20230418-results-of-assassinated-colombian-journalist-rafael-moreno-s-investigations-revealed>
<https://www.occrp.org/en/daily/18139-new-evidence-validates-findings-of-murdered-colombian-journalist>
12. Feb 2023: This Australian island is constantly covered in a fine layer of dust. Now locals want answers <https://www.abc.net.au/news/2023-02-15/groote-eylandt-manganese-mine-dust-fears/101969728>
13. June 2023 South Africa & NSW (Washington Post)South 32 Manganese mine workers complain of memory loss and other neurologic damage <https://www.washingtonpost.com/world/interactive/2023/ev-mineral-manganese-south-africa/>
14. July 2023 Dendrobium Mine NSW (ABC Australian Broadcasting Corp) South 32 fined 2.9 million for diverting drinking water for 5 years without a permit <https://www.abc.net.au/news/2023-07-11/south32-agrees-to-record-payout-over-sydney-water-supply-take/102586374>
15. <https://protectourwateralliance.org/2023/04/04/media-release-new-south32-report-details-permanent-damage-to-swamps-and-creeks-by-dendrobium-mine/>
- 16.. Oct 2023: S32 Board chair Karen Wood. " Our safety performance is still not where we need it to be." https://www.south32.net/docs/default-source/exchange-releases/2023-annual-general-meeting-chair-and-ceo-addresses-0xaad646f20c371322.pdf?sfvrsn=a7e61f59_0

Further areas of concern, given the above information are as follows:

1. Water: the very lifeblood of this region is our aquifer. It must be protected at all costs. Given the problems and lack of respect South 32 has shown for water rights and water usage in their home country, we must be particularly vigilant. The water usage of 1.8-3.2 million gallons daily coupled with the treated discharge of 6.48 million gallons daily for the foreseeable future is of concern. The plan of discharging into Harshaw and Alum gulch and the Rapid infiltration basins on USFS land leaves many unanswered questions that should be investigated fully.

- a) Will the aquifer recharge using this model?
- b) What about erosion and downstream contamination from already impaired creek beds?
- c) How will seeps and springs and local wells be affected?
- d) Projections for long term water quality and availability in the region?
- e) How will the backfill of tailings and cement affect the hydrogeology of the region?
- f) Self monitoring is unacceptable. Independent monitoring of the water at multiple sites must be done.
- g) The 7 mile (diameter) cone of depression threatens 38 sq miles of forest. This is unacceptable
- H) Mega projects like this that affect the long term water availability and quality of an entire region need a thorough, deep, unbiased environmental impact study.

1) The mine closure plan needs to include permanent, pre-funded, water guarantees. The human right to safe clean water is fundamental and a basic tenet of Environmental Justice.

2. Air:

A) All of the air pollution studies done by ADEQ are model based and NOT SITE SPECIFIC. This needs to be adjusted and these studies need to be redone to be site specific.

B) The models (Especially in the PM 2.5) show contaminants very close to the upper allowable limit for several toxins. If the models are off by even a fraction, the mine will be out of compliance. This needs to be addressed and contingency plans put in place for the protection of public health and the health of the flora and fauna of the region.

C) Manganese is not addressed adequately. With the understanding it is not currently federally regulated, it is still classified as a toxin and must be included in the modeling to protect the health of all in the region. It also must be included in monitoring data.

3 Soil and Rock:

A) Acid mine drainage needs to be addressed.

B) Further study is needed to determine the detriment/toxicity the paste backfill will have to the underground chemistry.

C) A seismic study has not been done and needs to be . Southern Arizona has had earthquakes. EPECIALLY the 1877 7.2 EARTHQUAKE: A similar quake today would cause a massive problem for the Hermosa project. How will the blasting, lateral tunnel drilling and other mine activity affect the stability of the area?

D) The project straddles the Harshaw Fault. For the safety of all in the region a seismic study needs to be done taking into account ALL of the proposed activity.

E) Topsoil removal and loss. The project will move and disturb the thin layer of topsoil we have here. It is vital to native plants and must be protected. This has not been addressed and needs to be studied

4 Transportation: The road situation is problematic.

A) Danger to passenger vehicles, bicyclists on Scenic HWY 82, especially at entrance/exit from mine access roads

B) Danger to Hikers, mountain bikers, Off roaders, horseback riders and other recreators on public land from increased mine traffic has not been adequately addressed. A regional impact study needs to be done in this area.

C) Track in (invasive/non native plant species and other toxins/pollutants) and track out (on mine vehicles including ore trucks and personal vehicles) of manganese dust, lead dust and other toxins/chemicals/contaminants has NOT been adequately addressed in the MPO. Public lands need to be protected from environmental toxins and this problem needs to be studied more carefully.

D) The "temporary " closure (meaning for the entire life of the mine) to over 300 acres of public land is unacceptable. Alternative sites need to be considered.

E) The coming and going of 200+ ore trucks daily is unacceptable on scenic HWY 82 and the forest service roads. The environmental damage and pollution caused by these vehicles has not been adequately addressed.

5. Biodiversity: The sky islands, Cienega Grasslands, the Santa Cruz River , Lake Patagonia and the entire Santa Cruz County region must protect its biodiversity. The mining activity of South 32 on private and public lands threatens. Again a thorough study of the effect the Hermosa project will have on the biodiversity of the area is imperative.

A) One of the most biodiverse places on earth. Over 110 federally endangered species.

B) Large mammal migration routes including Jaguars (with 25 miles of the mine site) Ocelots, Mexican Wolves, among others. How will the mine affect these precious creatures? The habitat destruction and the water and air contamination needs to be addressed

C) Birding. Flyway, nesting: Birders come from all over the world to catch a glimpse of a Yellow-Billed Cuckoo, A Mexican Owl, an Elegant Torgon, the plethora of Hummingbirds, Hawks, and the hundreds of other birds that make their home here or migrate through. Not enough information has been given as to how this 24/7 mining

activity (NOISE, BLASTING, LIGHTS, POLLUTION OF AIR AND WATER) will affect birding and bird populations in the area. This needs further study.

6. Dark Skies: Given that this area is home to the Whipple Observatory, Our dark skies MUST be preserved and protected. The 24/7 mining operation has not addressed this. Further study needs to be conducted in coordination with scientists from Whipple Observatory and representatives of the Smithsonian/center for Astrophysics. Scientific advancement must come before extractive industries if we are to survive as a species. The hundreds of millions of dollars in investment into the observatory must be protected and the countless hours of scientific research for the betterment of humankind must continue without being disrupted or limited by the mining activity

7. Mine tailings: The dust abatement of the Dry Stack Tailings has not been adequately addressed. To say we will spray with water is unacceptable. This is an arid region and as such, there are unique problems with dry stack tailing (even when compressed) South 32 has not adequately explained their plan or process for mitigating the danger of airborne contaminants from the tailing stacks. It is essential to be proactive and have a plan BEFORE permitting goes forward.

8. Mine closure and reclamation: This is an area of great concern that has not had adequate study.

a) The current bond sits at 13 million. This amount is laughable and needs to increase SUBSTANTIALLY.

b) What safeguards are in place to ensure South32 will not just declare bankruptcy and walk away?

C) Tax payers should in no way bear the financial responsibility of restoration and reclamation clean up.

D) South 32's financials need to be thoroughly investigated to ensure their ability to cover the costs of the mine closure and guarantee clean up, restore any damage to the environment, and remediate any community health issues and community damage to homes, businesses, roads, wells, etc. even if they choose to end operations before becoming profitable.

E) At present all inquiries into the amount of bonds, (to the State, ADEQ and the USFS) the guarantees the community has regarding mine closure and land restoration have received differing responses and vague platitudes at best. The USFS needs to thoroughly investigate and understand where the funds will come from and how much South 32 will pay to restore the land destroyed by their activity.

9. Nature Based economy: A complete assessment needs to be undertaken to determine the effect the Hermosa Project will have on the nature based/ ecotourism economy of the area. How will guest ranches, working ranches, the hummingbird center, wineries, Kayak and bike outfitters, among others, be affected by the water/ air soil contamination, truck traffic, dust, blasting, and environmental chaos caused by the mine? This has not been considered and a regional impact study that includes a conversation with stakeholders is warranted.

10. Transmission line: The proposed transmission line has many problems:

A) The potential for fire danger needs to be adequately understood and investigated.

B) The aesthetics of an above ground line of public lands needs to be reconsidered. The line should be buried.

C) It is a "Merchant Line" All future operation, maintenance, repair and removal costs must be born by South 32 NOT the other ratepayers in the county.

D) The 67 MW of back up generation power in Nogales cannot support a mine. The MPO initially uses over 50 gas turbines to provide power. the Environmental impact of these turbines is not known and has not been addressed.

E) The mine's peak electrical usage will be over 90 MW 24 hours/day for 60 years. That is more than all of Santa Cruz County combined, yet they pay a lesser rate than other ratepayers. The economic impact on ratepayers was not considered or addressed and needs to be investigated.

F) The effect of the transmission line on human health, animal health, aesthetics, property values, and public enjoyment of PUBLIC LANDS and especially fire danger needs to be more thoroughly investigated before permits are issued.

11. Public Health: the Hermosa project threatens public health and its effect on the community must be further investigated.

A) Mining activity on public lands deters from the enjoyment of those lands and jeopardizes the mental health of the community.

B) Worry and stress about environmental damage caused by mining activity in the region causes mental health concerns. These concerns MUST be evaluated and addressed.

C) The VERY REAL threat of environmental exposure to dangerous toxins including lead, zinc, cyanide, and manganese among others in soil, air and water is a potential Public Health disaster and needs further investigation and independent scientific review as to the safety of this proposed mining activity...both for the general community and those working at the mine site specifically.

D) The right to a healthy environment and clean water, air and soil and access to public lands is a basic human right and must not be denied to the residents of Santa Cruz County

E) Manganese levels MUST be regulated and monitored

F) Battery grade Manganese processing MUST NOT occur in Santa Cruz County. This needs to be studied and addressed and ultimately rejected because of its threat to public health.

12 Environmental Justice: The EPA states: "Environmental justice" means the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people: are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices

A) Santa Cruz County has many risk factors for experiencing Environmental racism or becoming an environmental sacrifice zone; rural, small, disadvantaged, heavily Hispanic (Spanish speakers: 78.8% of the county).

B) We must ensure BEST PRACTICES of environmental justice be followed. Including ALL written materials regarding the MPO be available in English and Spanish.

C) An impact study must be done from an independent organization to ensure Environmental Justice issues are addressed and best practices followed.

D) Safeguards must be implemented to ensure no people group is exploited by the mine or the process

E) Community engagement must be facilitated including public forums to INFORM and EDUCATE residents of the dangers/risks/ environmental concerns of the project...NOT JUST mine sponsored propaganda events.. These events must be bilingual.

13: Archeological/sacred site protection: The concern for the preservation and protection of sacred sites and archeological sensitive areas needs to be addressed in a more scholarly fashion. What exactly will be done to preserve sites? What about future sites? Will an entire area be off-limits? How will run/off, erosion or flooding from the water discharge affect sensitive areas? How will these areas be protected? Especially those on public lands of the National Forest? These treasures belong to humankind and must not be mined away.

Thank you for your careful consideration and study of each of these areas. Regional Impact Studies are vital. SITE SPECIFIC modeling data is essential. The Mine Plan of Operations is woefully lacking in detail and must be rewritten in a way that addresses all of the "Known Unknowns" and it must be made available in both Spanish and English. Public lands must remain useable by the public. Extractive industry is not the highest and best use of the land in the 21st century. We can no longer be slaves to the 1872 Mining Act We cannot sacrifice the future of the region putting our trust in a mining company that has shown themselves to be untrustworthy. Water, air, soil, public health, biodiversity, dark skies, highway safety and the inhabitability of the region are all at risk.

Please remain proactive in you efforts to be true to your mission; " to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations."