

Rebecca Craft

Dear Arizona Department of Environmental Quality,

I urge you to deny South32's Hermosa permit (#AZ0026387) for discharge of mine water into Harshaw and Alum creeks. The proposed impacts are unacceptable and fall into two main categories: 1) dewatering due to the "cone of depression" that would be created around the mine, and 2) disturbances that would come from dramatically increased flow rates in nearby creeks.

First, dropping the groundwater level in this area would be highly destructive. The change in hydraulic gradients around the mine would change the "paths of least resistance," where current springs emerge, permanently drying natural springs. It would also lead to significant loss of upland trees. The death of surrounding trees will decrease the landscape's overall resilience and would likely lead to this ecosystem's radical transformation and potential collapse.

Expected harms from water discharges are also deeply concerning. Up to 6 million gal/day of water could be forced down Harshaw Creek and up to 172,000 gal/day down Alum Creek. These volumes are significantly higher than current, intermittent flows. Thus, the increased water discharges will cause severe upstream erosion, excessive sediment loads downstream, and the burial of several important water sources such as the seven rheocrene seeps and springs known in Harshaw Creek and the nine rheocrene seeps and springs known in Alum Creek. These harms are particularly concerning because desert springs are unique ecosystems with high biodiversity. Their destruction will affect endemic species to an unknown degree because the sites haven't yet been adequately surveyed. Some estimates suggest that refugia like these support more than 20% of endangered and threatened species, despite making up a much smaller proportion of the land surface area (Springs Stewardship Institute).

What's more, such intense flooding will reduce tree recruitment for riparian species like cottonwoods and sycamores — over time altering the landscape. Ongoing discharges will also water-log the surrounding landscape, reducing capacity to absorb water during rains, and potential downstream flash flooding. Finally, the quality of the water discharged in such high quantities is a concern. Its source will be deep underground in the Hermosa project, and although the mine has promised to treat the water before release, its quality could change unexpectedly over time.

Although water in the desert is a rarity and one would think that increased flow would help our streams, the sensitive ecological balance of these riparian ecosystems means that a change in flow this drastic could permanently alter the character and species composition of these areas.

For all these reasons, I strongly urge you and the Arizona Department of Environmental Quality to deny the permit for this project. I appreciate your respectful consideration of public feedback as well as scientific knowledge re: environment impact of this large proposed project.

Sincerely,