

Michael Day

Dear Arizona Department of Environmental Quality:

I urge you to deny the South32 Hermosa permit (#AZ0026387) for discharge of mine water into Harshaw and Alum creeks.

If you approve this permit, I expect two major negative environmental impacts will occur; both are unacceptable:

First, dewatering, dropping the groundwater level, and creating a cone of depression in this area would be highly destructive. The change in hydraulic gradients around the mine would change where current springs emerge, permanently drying existing natural springs. It would also lead to significant loss of many upland trees that rely upon the existing underground water. The death of surrounding trees will decrease the landscape's overall resilience and could lead to the present ecosystem's radical transformation and potential collapse.

Second, expected harms from the water discharges are also deeply concerning. Up to 6 million gallons of water per day could be forced down Harshaw Creek and up to 172,000 gallons per day down Alum Creek. These volumes are way higher than current flows. This will lead to severe 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 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. The Springs Stewardship Institute estimates 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.

Further, such intense flooding will lead to reduced tree recruitment for riparian species like cottonwoods and sycamores — over time, altering the landscape. Because the water discharges would be ongoing, the surrounding landscape will be more water-logged. This means a reduced capacity to absorb water during rains, which could cause downstream flash flooding.

And finally, the quality of the water being 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.

Water in the desert is a rarity, and one might think that any increased flow would help; however, a change in flow regime this drastic could permanently alter the character and species composition of these areas, because of the sensitive ecological balance of these riparian ecosystems.

For all these reasons, I urge you — I URGE YOU — to deny the permit for this project.

Sincerely,

Michael Day