

# Cheryl Barnds

Dear Arizona Department of Environmental Quality,

Thank you for accepting public comments on South32's Hermosa permit (#AZ0026387) for discharge of mine water into Harshaw and Alum creeks. I am writing to implore you to deny this permit, due to unacceptable impacts on precious water and related systems of life. The unacceptable impacts would include extreme de-watering due to the "cone of depression" around the mine and extreme disturbances from dramatically changed flow rates in nearby creeks.

As you know, dropping the groundwater level in an area like this 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 could lead to the present ecosystem's radical transformation and potential collapse.

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 significantly higher than current, intermittent, base flows. This would cause severe erosion upstream, 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 such 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 refuges 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).

Such intense flooding would cause 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 would be more water-logged. This means a reduced capacity to absorb water during rains, and potential downstream flash flooding.

Moreover, 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.

Although water in the desert is a rarity, and one might think increased flow would help our streams, but this is not the case. Due to the sensitive ecological balance of these riparian ecosystems, a change in flow regime this drastic could permanently alter the character and species composition of these areas.

For all these reasons, I urge you and the Arizona Department of Environmental Quality to deny the permit for this project. We cannot mine our way out of the climate emergency and we should not compromise precious water, and the lives depending on that water in an ecologically rich and sensitive area, to support profits for a foreign company.

Southern Arizona's Patagonia Mountains, traditional homelands of O'odham and Yaqui Peoples, are an incredibly diverse and important habitat for hundreds of species of birds, bees, bats and butterflies, as well as the unique Madrean Pine-Oak Woodlands. Please deny South32's Hermosa permit (#AZ0026387) for discharge of mine water into Harshaw and Alum creeks.

Sincerely,