

Donna Hutchinson-Muri

Dear Arizona Department of Environmental Quality,

I'm writing to 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 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 will lead to 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 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 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, and potential 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.

Although water in the desert is a rarity, and one would think that increased flow would help our streams, because of 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.

Having spent much time hiking and investigating on my own these areas I am certain without any doubt or hesitation, that the Hermosa Project will continue to rape the ecology of the Patagonia mountains and surrounding life in all forms. The destruction of plant life due to grading new and existing roadways, the abundant use of water to control dust and supply the "projects" so called exploratory mining goals will not only contaminate the underground waters, it will also inevitably

result in extreme loss of needed habitat springs and seeps. WATER is precious in our deserts, it is more precious than what potentially could be mined. The Patagonia area is a haven for wildlife due to the existence of water. People come from all over the world to view over 200 species of birds alone! It is past time that mankind take into account greedy actions that impact other creatures survival. The Hermosa Project is an example of such greed. I sincerely hope that AZ Dept of Environmental quality will live up to the name and reject this permit and any others that may follow. Use your conscience when making decisions.

For all these reasons, I urge you and the Arizona Department of Environmental Quality to deny the permit for this project.

Sincerely,

Donna Hutchinson-Muri