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I am writing to provide my objections and responses to the Final Environmental Impact Statement (FEIS) and draft Record of Decision (ROD) for the Rosemont Copper Project by Supervisor Jim Upchurch. The area of concern is in the Coronado National Forest outside of Tucson, AZ.

The proposed adoption of the Barrel Alternative admits essentially a wide array of deleterious impacts to various resources: Ground Water Quantity; Surface Water Quantity; Surface Water Quality; Seep, Springs, and Riparian Areas; Biological Resources; etc. The wide range of the studies involved and the extent of the Forest Service efforts should be applauded, but the final result still falls short of a reasonable response to the mine itself, and in choosing an alternative, commits the same sort of fundamental scientific error that I did when I was in my first chemistry lab in college. The FEIS documents significant damage to the various resources addressed, yet it stays consistently with the idea that the mine must be approved. The Forest Service began the review process with a public meeting at which it stated that it must approve the mine. Yet the NEPA procedure that the Forest Service is supposedly following in producing the FEIS requires it to consider the no action alternative. The FEIS itself reiterates the Forest Service concept of the review process: "The Coronado may impose reasonable conditions to protect surface resources but cannot materially interfere with reasonably necessary activities under the General Mining Law that are otherwise lawful." In effect, the Forest Service goes through the motions of applying NEPA procedures, but never gives serious consideration to the one reasonable action in response to the proposed mine on the site in question. It produces data that negates its own conclusion, but selectively interprets it to achieve the desired result. In doing this it failed to correctly apply the scientific method. It selectively interpreted the data in order to reach the conclusion that it feels is the correct one.

To my understanding of the laws that bear on the mining proposal, there are reasons why mining cannot be approved. It reaches the point of being ridiculous to document environmental damage, to consider the effects on water resources, endangered species, and other legally protected resources, and then discuss the concept of mitigation. With its selection of the preferred proposal, the Forest Service may be choosing the path that the resource managers feel is their only possible choice, but to my limited knowledge of the laws, they are not responding to the letter, nor to the spirit of the conservation laws that have come into play since the General Mining Law was written. There are times when the no action alternative is the only reasonable choice, by law, even if the resource management plan in place does not provide adequate emphasis on conservation, water resources, or recreation.

Additionally, the studies and models described by FEIS are flawed, especially in interpretation. A large number of studies were performed to detail various potential impacts, but many of them depend on the accuracy of the models involved, which the report itself admits are limited in accuracy. Groundwater is considered less important than the surface flow in the lower Davidson Canyon and Cienega Creek area, and they minimize the importance of the surface water effects from mining on this critical area, but the size of the expected impact is really smaller than the range of error for their determinations. **The impacts in the upper Davidson Canyon near the mine are substantial, according to their studies, but they minimize their impacts because they are not part of the more precious lower canyon, which may be a point of**

**optimism, except that as a wildlife and plant-life corridor, the water resources throughout the wash are likely to be important.**

Similarly, the authors of the studies make obtuse references to climate change, in estimating long-term climate effects to substantially outweigh the effects on surface water flow to the lower Davidson Canyon and Cienega Creek area: "Furthermore, the fluctuations in groundwater due to climactic conditions and other sources of withdrawal (e.g., pumping for residential water) could overwhelm the < 0.0015m/year groundwater declines predicted to occur over the next 1000 years (see TetraTech 2010b). Thus, little mortality of mesoriparian vegetation can be expected as a direct result of the predicted groundwater withdrawal." **A more critical consideration of the impacts of climate change and the attendant drought and higher temperatures would bring the realization that surface water flows of any amount may be critical to the survival of species suffering the loss of viable habitat.** There is no way one can determine how the many diverse impacts on water levels will affect migrating animals and plants. **The surveys of plant and animal and species are limited in value and reflect a relatively small period of time.** Given the variability in the appearance of plants and in the movements of animals in response to conditions, a static survey seems limited in applicability. Additionally, ground water levels may affect surface water levels, and surface water levels may affect ground water levels. **In the FEIS, ground water and surface water are handled largely as separate considerations, but they may well interact to produce impacts different from what the study suggests.**

So much of the data and conclusions in the FEIS depends heavily on models that are necessarily limited in reliability. They are based on a limited time frame of observation and would need constant updating to be at all useful. There is no way for me, as a data analyst, to confirm the value of the models, **nor is there any indication that there has been any testing of the models to confirm in some minimal way their potential value.** For example, nothing that I read indicated that there were predictions made from the model, and their accuracy tested by measurement. The authors of the studies themselves indicated the limitations of the models, and expected high error rates. **I am used to, in reviewing scientific arguments, at least minimal efforts at statistical analysis, but I see none here,** nor may that be commonly done for this subject area. I realize that making conclusions about water withdrawals and diversions is a difficult undertaking, but given that, only an extremely cautious approach is appropriate when such precious resources and sensitive assets are at risk.

**All the washes in the area of the mine, and the impacted Davidson Canyon wash are dependent on all the water that may flow locally within them for their ability to support life in the area, but also to provide cover and sustenance to animal and plant life whose survival may require that they move to the higher elevations of the mountains to the north.** The local water flow is also important to the small populations of animals whose long term survival depends on keeping up minimal level of genetic diversity. These populations require that individuals migrate between the mountain chains periodically to provide interbreeding between the otherwise isolated populations. The desiccation of the washes will likely have a severe effect on survival, and Davidson Canyon provides a unique combination of cover and a greener habitat for animals (or plants) that may be making such travels.

**The loss of ground water and specifically tanks and springs will have the same impact on the genomic diversity of the populations in the mountains in the area as the loss of surface water flow.** It is important to emphasize here, that the allelic diversity of the populations is not important solely as a longterm consideration of viability, but impacts enormously on the survival of each individual as it responds to various stresses. Any reasonable estimate of the future for wildlife and plant life in the greater Tucson area will include long term severe stress as extended drought, increased temperature, and other impacts of climate change, increased population, and decreased habitat from development take place. **All of these factors, including the diverse impacts of the Rosemont project on surface water flow, local springs, groundwater, noise, light pollution, increased traffic and decreased habitat, will likely work synergistically toward the failure of whole populations of animals and plants locally, and ruin the possibility of egress to northern/cooler locations.** To try to minimize the impact of the mine on water resources by saying essentially it is only part of the damage that is coming, as this report does, is to dismiss specifically this synergy. In fairness, the report does recognize that there is at least an additive effect between existing pressures on the water resources and the effects of the mine: "However, the reduction in surface runoff and its contribution to the alluvial aquifer will necessarily decrease the absolute water available to riparian vegetation compared to pre-mining conditions. Thus, while the predicted reduction in surface runoff due to the proposed mine will not have a consistent influence on riparian vegetation, it could adversely impact riparian vegetation during periods of seasonal and extreme drought when water availability exerts its greatest influence on the extent and character of riparian habitats." Even if water resources were only reduced in an additive manner, the impacts on the species that live in and migrate through the riparian areas will likely be synergistic. **A decided flaw of the whole of the FEIS is that it lacks credible consideration of climate change and its likely impacts.** There should have been studies done to detail the likely changes and the biological effects expected.

If the Endangered Species Act and the Clean Water Act, and other environmental laws are going to have lasting significance, then their application must be more than a superficial analysis of the immediate effects, and instead use long-sighted vision and include the synergy of the impacts that are coming to bear rapidly, in concert on the survival of a species and of a unique ecosystem. **This consideration of impacts in concert, and worse, acting synergistically, is a large part of what I see missing the most in the analysis of the FEIS, and the proposed action.** The FEIS report documents a wide range of impacts to the environment, but then minimizes those impacts with inadequate projects, indicates how those impacts have been reduced to a small extent, and then concludes that the mine should be accepted, despite the documented effects. A more reasonable conclusion would not give primacy to the General Mining Law, but would realize the relevance of environmental law in this case, and choose the no action alternative.

The FEIS includes the proposed use of CAP water to help recharge water depleted by the mine. CAP water is not a reliable source of water for the future given the rising demand for water and the declining availability in response to long term drought. Climate change is already likely impacting severely watersheds and demand for CAP water. The availability of water for use by Rosemont in the long term is likely to decline or disappear. **A study that is missing from the FEIS is an assessment of the future availability of CAP**

**water for Rosemont Copper, which is a late-comer to the large number of groups that seek access to the water.**

The FEIS outlines extensive measures to limit the spread of toxic materials from the mining and refining sites, but **ultimately, the mine site will still be a potential toxic hazard**. Pooled water at the site may threaten birds moving from Las Cienegas NCA, Cienega Creek, or Patagonia Lake. The toxic materials, under extreme conditions could be washed into Davidson Canyon and into Cienega Creek. This potential threat will remain long after the mine is closed.

The FEIS also includes long term remediation plans at the mine site and elsewhere in the area. These **remediation plans are only as reliable as long as Rosemont Copper exists as a reliable financial entity.** Rosemont Copper was created for the purpose of mining at the Rosemont site, and has no other existing projects or separate assets that I am aware of. Once the mine is closed, it may not have any motivation to complete its obligations rather than going bankrupt or otherwise dissolving. A related question is if Rosemont Copper is acquired by another company, what will become of its promises and obligations?

Additionally, none of the remediation and mitigation that is included in the FEIS can address the impacts to economies of the small communities of Sonoita, Elgin, and Patagonia because of the loss of the scenic and recreational value of the impacted areas. My wife and I used to drive down route 83 and enjoy the views, were happy to see pronghorn grazing in the grasslands just to the south of Rosemont, we often visited the wineries of Elgin and the stores in Patagonia, and we explored some of the roads into the Coronado National Forest. My wife will no longer go down this route because of the potential loss of the serenity of these places is upsetting to her. Tucson's economy is in the process of evolving to rely on more technology jobs. Recruiting of skilled technology workers and their retention is difficult, but a unique asset of Tucson is its proximity to wild lands. Damage from the Rosemont project to such unique natural resources in such close proximity to Tucson would be impossible to remediate in any near term and is just one of many, substantial considerations for a widely destructive project, one that is not justified

by the materials in the FEIS.

Sincerely,

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