

To: Reviewing Officer, USFS Southwest Region

From: Douglas Pickrell

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Re: Formal Objections to Final Impact Statement and Draft Record of Decision for the Rosemont Copper Project: A Proposed Mining Operation, Coronado National Forest

Responsible Official: Jim Upchurch, Coronado National Forest Supervisor

First Objection:

In my letter to the Forest Service of December 2011, I argued that the alternative to fill in the pit should have been studied in detail.

This issue is referenced on page 12 of Appendix G. There it is stated that the Forest Service took a hard look at this alternative, and the reader is referred to chapter 2. The following three paragraphs are from page 104 of chapter 2:

The ``DEIS indicated that maintaining a hydraulic sink was desirable because it would protect groundwater from potential contamination by drawing potentially contaminated groundwater toward the pit, where the amount of water lost to evapotranspiration would exceed the amount of water flowing in. However, subsequent geochemical analysis of the chemical constituents of tailings and waste rock has indicated that the risk of contaminated seepage from the tailings and waste rock facilities is low. Although a pit lake would provide an additional level of protection against the small risk of groundwater contamination, maintaining a hydraulic sink is no longer the primary reason for eliminating complete pit backfill from detailed consideration."

``A complete waste rock pit backfill would require rehandling approximately 881 million tons of material. At a rate of 56 million to 58 million tons per year being moved, this would require approximately 16 years to complete, assuming 24 hours per day, 365 days per year of operations. The cost of such an operation is estimated to be 654 million to 996 million dollars. Concurrent reclamation activities would occur on the tailings buttress areas not integrated with waste rock on the eastern and northern areas. All other reclamation activities would be postponed until completion of backfill operations, further delaying final closure. The Rosemont Copper Mine site would remain active for the duration of backfill and reclamation activities. This would include traffic for employees and delivery of

materials and supplies for mining activities; continued environmental impacts such as fugitive dust emissions, light, and noise; and consumption of fuels and electricity for an additional 16 years or more."

"Because of the extended environmental impacts, financial implications, and safety issues of complete waste rock backfill, the responsible official has determined that complete waste rock pit backfill is not technically, economically, or environmentally feasible."

Similar reasons (page 105) are given for rejecting a partial pit backfill. (The estimated time is 3 years, and the estimated cost is 84-112 million).

In reference to the first quoted paragraph, I appreciate the correction. It is late, it reinforces an impression that basic analysis related to this proposal was wrong or not complete, but at least it is acknowledged.

The estimates of effort and cost are misleading nonsense. On the one hand it is claimed that digging this pit will take approximately 20 years. This involves blasting, breaking up and crushing rock, transporting and lifting rock, and reconfiguring the rock, which is an intermittent process. On the other hand it is estimated that to put the rock back into the hole, after it has been crushed and positioned, and with the assistance of gravity, will require 16 years of continuous work. This defies common sense.

The estimates of effort are nonsensical; for this and other reasons, the estimates of cost are also nonsensical.

It is very likely that these estimates were provided by Augusta Mining. At least some measure of scepticism should have been attached to these estimates (You might also consider that this company has never dug a pit, let alone reclaimed one).

I do not claim to have done the analysis that the Forest Service should have, but there are obvious advantages of a partial or complete backfill. For example (1) the footprint of the waste rock pile would be significantly reduced (perhaps cut in half), in turn reducing the scale of numerous other impacts, (2) the pit lake would be eliminated, (3) the long term effects on groundwater levels would be less severe, (4) the landscape would be returned to a more natural form, and so on.

In turn these advantages alter the calculation of cost. In fact it strikes me that they would significantly reduce costs. Although I cannot be certain, it appears that the calculation of cost of backfill was treated as independent of all other factors. If this is the case, this is wrong.

As occurs throughout the FEIS, there are highly subjective judgments that are made here. If this call was made by one individual, this is deplorable. The standard response "With respect to mining, the discretion of the Forest Service is limited ..." is a lazy response. This mining proposal is a critical case. You need to explore the limits of Forest Service discretion.

Second Objection

The FEIS is rife with uncertainty. For the record (so that I can have a voice), in my December 2011 comments to the Forest Service I pointed out numerous points in the DEIS where uncertainty arises, and where models should be checked against examples. To some limited extent the FEIS acknowledges uncertainty. After reading comments posted by others, including the USACE and EPA, I will humbly defer to others to pursue specific questions. But there is an overarching point I want to make. Out of habit as a professional mathematician, I will cast this in quasi-mathematical terms.

In dealing with uncertain outcomes, one has to estimate probabilities. There is some probability that this project will regularly violate clean air standards. There is some probability that this project will violate clean water standards. There is some probability that this project will violate surface water rights tied to Davidson Canyon, the Las Cienegas Conservation Area, and Cienega Creek. With respect to the ESA, there are many endangered species which will be affected by this project, and for each species there is some probability that the impact will rise to a significant level. There are many other negative outcomes which could possibly be cause for not approving this project, each of which can be expected to occur with some probability.

In the case of this project, I think the FEIS makes the case that the probabilities associated to a very large number of possible violations of law are significant. These probabilities are possibly difficult to quantify in some cases. This would involve comparisons with other mining proposals, and so on. I do not see any attempt to do this. This is something that should be done.

In the DROD the responsible officer takes an issue by issue approach. This is wrongheaded. In the end the Forest Service should persuasively make the case that there is a reasonable probability that this project will not violate any laws. In the case of a project such as this, there are many different standards which have to be met, and the events that these different standards are met are approximately independent. Consequently the probability that all of the standards are met is the product of the probabilities that each standard is met.

In a case as complex as this one, this means that an extremely high bar has to be set for all issues. But in the FEIS there even exist individual issues which the responsible officer acknowledges have not been resolved (see page 66 of Appendix G for questions which are listed as unresolved or possibly have not even been addressed).

I realize that the Forest Service has done things in one way for a long time. You hand off a mining proposal to a Forest Supervisor and ask them to do their best. Out of habit the Supervisor goes down the list and makes some judgments.

But in this case there is a very long list, and even if the individual risks seem small (which I dispute), there can be enormous overall uncertainty. This kind of analysis is standard practice in science and engineering.

Parting Comments

It was flat out irresponsible for the Forest Supervisor to put approval of this project on a clock. This has severely limited the Forest Service's options.

It is beyond belief that the Forest Supervisor argues that the amendment of the Forest Plan to accommodate this project is insignificant, because the affected area is only .61 percent of the total area of Coronado National Forest.

Douglas Pickrell