

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0036-Rosemont

**Resource Area(s):** Reclamation and Revegetation – General (RCL-1) (Large Woody Material)

**Objection Issue:**

- 0036-11: Large woody material should be clearly defined. Rosemont suggests a definition of material with a minimum diameter of 4 inches and a minimum length of 6 feet. (DROD, page 32, #18).

**Remedy Supplied by Objector (if any):** None

**Law, Regulation and/or Policy:** General Mining Act of 1872, Multiple Use Mining Act of 1955, 36 CFR 228 Subpart A

**Review Team Member Response:**

Large woody material would be used on reclaimed areas to help stabilize salvaged soil and promote variability of revegetation on the slopes. The Coronado estimates that 20 to 25 tons of large woody material per acre could be used for reclamation purposes (this will be refined in the final reclamation plan). An estimated 66,000 tons of large woody material would be cleared from the site; however, more than one-half of these amounts would be cleared during the initial construction phase, before much reclamation has been undertaken. Some woody material suitable for reclamation may be stored in temporary stockpiles prior to placement, but no large-scale stockpiles of wood would be maintained on NFS lands.

Available, onsite woody debris from clearing of the mine site would be used on the reclaimed growth medium surfaces to provide stability, organic matter, and microhabitats for seed germination, invertebrates, and small vertebrate species. Density and size of woody debris would meet guidelines that are portrayed in the draft Coronado forest plan [PR 047511\_6, p. B-10]. Larger woody material salvaged during clearing operations would be placed on the slopes in order to promote soil stability and promote microclimates and variation in vegetation following ripping site preparation treatments for seeding bed preparation [PR 047511\_3, p. 207].

**Recommended Remedy by Review Team Member (if any):** No remedy required.

**Review Team Member:** Wayne Robbie, Ecosystem Analysis and Planning/Watershed & Air

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0010-BManderscheid; 0011-CKestler; 0020-MIngram; 0036-Rosemont; 0058-NWall; 0084-SSSR; 0100-TohonoOodhamNation; 0109-SWind; 0118-KLowery;

**Resource Area(s):** Reclamation and Revegetation – General (RCL-1)

### Objection Issue:

- 0084-7: The Mining and Minerals Policy Act 30 U.S.C. 21a mandates successful and final reclamation of mine operations approved by the USFS. No such plan has been proposed or required in this case.
- 0100-18: The FEIS does not Adequately Address Reclamation. The FEIS does not fully inform the public regarding reasonable expectations in closure. The FEIS does not adequately address mine maintenance after mine closure. The FEIS fails to address who is responsible for mine maintenance after mine closure.
- 0020-6: ...the information provided with respect to revegetation and reclamation of the disturbed areas is still incomplete.
- 0084-8: The FEIS fails to provide a final revegetation plan; lacks any meaningful information regarding how revegetation of the site will be achieved; fails to provide adequate information regarding how revegetation will be monitored and maintained post-closure and fails to provide adequate information regarding how revegetation will be monitored and maintained post-closure.

### Remedy Supplied by Objector (if any):

0084-7: The USFS cannot issue a ROD choosing any action alternative and must reject any PoO that does not prevent or fully remediate the mine pit lake contamination.

0084-8: The USFS should seek the advice of botanists and develop a final reclamation and closure plan that includes all pertinent and detailed information regarding how revegetation will be achieved at the site.

**Law, Regulation and/or Policy:** General Mining Act of 1872; Multiple Use Mining Act of 1955; 36 CFR 228 Subpart A; ARS 49-241 through 49-252;

### Review Team Member Response:

Reclamation of the project will be administered and regulated by the Coronado (36 CFR 228) on NFS lands; administered and regulated on private land by the Arizona State Mine Inspector (ARS 27-901 et seq., as amended); and regulated by the ADEQ (ARS 49-241 through 49-252;

and Arizona Administrative Code 18-9-101 through 403) [PR 047504, p. A-21]. Following resolution of objections to the draft ROD, a final ROD will be issued. Rosemont Copper will be required to modify the preliminary MPO to align with the description of the selected alternative in the final ROD and resubmit it to the Forest Service for approval, along with the required reclamation bond or other specified financial assurance. After the Forest Service has determined that the post-objection, revised MPO is satisfactory and that the bond or financial assurance instrument is acceptable, it will notify Rosemont Copper that the MPO has been approved. Implementation of actions that affect NFS lands and resources may not commence until a final MPO is approved and bonding is in place [PR 047504, p. 44].

In the State of Arizona, operators must file a reclamation plan with the State Mine Inspector's office for mining activities on associated private lands [PR 047511\_3, p. 150]. Rosemont Copper shall update the final reclamation and closure plan for inclusion in the final Mining Plan of Operation (MOP) and submit such plan to the Coronado NF for approval. Rosemont Copper shall conduct reclamation in accordance with the approval of a final reclamation plan [PR 047504, p. 34]. Revegetation would only be considered complete when certain reclamation criteria have been met. It is the responsibility of the Coronado NF to determine these success criteria and the responsibility of Rosemont Copper to develop methodologies and techniques, including adaptive management that can meet the revegetation criteria. The final reclamation and closure plan would provide further detail on the techniques to be employed, as well as monitoring and success criteria required for approval by the Coronado NF [PR 047511\_3, p. 194].

Reclamation would be phased during the mine life, with concurrent reclamation occurring on the outer slopes of the perimeter buttress and waste rock facility as those surfaces are completed. Following completion of active mining (approximately 24.5 to 30 years after construction starts), further reclamation and closure would take place (final reclamation and closure stage). The open pit would be bermed and/or fenced to restrict access. Operating facilities at the project site would be demolished, including building foundations, which would be either buried in place or removed. All areas would be investigated for contaminants, and any contaminated soils, reagents, or fuels would be disposed of offsite at licensed facilities. Disturbed areas would be revegetated and monitored for reclamation success [PR 047511\_2, p. xviii].

The long-term purpose of undertaking revegetation is to create a self-sustainable ecosystem that would promote site stability and repair hydrologic function. Specific goals include providing soil stability to prevent erosion by storm water runoff and wind and providing vegetation cover that is appropriate to support post mining land uses, in this case wildlife habitat, livestock grazing and recreation.

Portions of the site, including the mine pit, will likely remain fenced off and closed to the public indefinitely for safety reasons, or as required by the Arizona State Mine Inspector [PR 047504, p. A-8].

It is acknowledged in the Draft Record of Decision that there is incomplete or unavailable information for some resource analyses (also discussed in the resource sections in Chapter 3 of the FEIS). In an effort to understand scientific uncertainty and resolve professional disagreement, the responsible official sought out and considered the professional opinion of resource specialists

from Federal agencies, private industry, and third-party consultants. The responsible official met on numerous occasions with interested members of the public to listen to their concerns and issues to help formulate the decision [PR 047504, p. 9].

**Recommended Remedy by Review Team Member** (if any): The remedies suggested by the objectors are not warranted. No remedy is required.

**Review Team Member:** Wayne Robbie, Ecosystem Analysis and Planning, Watershed & Air

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0010-BManderscheid; 0011-CKestler; 0109-SWind

**Resource Area(s):** Reclamation and Revegetation – General (RCL-1) (Revegetation)

**Objection Issue:**

- 0109-4: The FEIS because does not adequately address my concern that the benchmarks for revegetation of the tailings piles are too far in the future to be of value.
- 0010-14: The bottom line is that a mountain can never be rebuilt, it's beauty never restored. Similar mining sites in Arizona where reforestation has been attempted have been an effort in futile despair as the plants and trees withered and died.
- 0011-1: The proposed open pit mine would be a mile wide and half a mile deep. I have seen abandoned pit mines all over the state not nearly as large as this that are permanent scars on the landscape with essentially no natural or even introduced vegetation able to survive.

**Remedy Supplied by Objector (if any):**

0011-1: Deny Rosemont Copper's permit application.

**Law, Regulation and/or Policy:** General Mining Act of 1872, Multiple Use Mining Act of 1955, 36 CFR 228 Subpart A

**Review Team Member Response:**

The potential success of the revegetation plans, the Coronado NF has considered the results of greenhouse studies and onsite reclamation plot conducted by Rosemont Copper. The completed greenhouse studies by the University Of Arizona School Of Natural Resources and the Environment provide data from onsite test plots that indicate that revegetation success is feasible [PR 047511\_3, p. 211]. The Coronado NF has determined the general desired conditions for the reclaimed waste rock and tailing facilities over time. The desired vegetation condition represents what can reasonably be expected on disturbed, reclaimed growth medium that would exhibit more xeric soil moisture conditions than those found on natural areas. The desired conditions have been developed through a review of the Natural Resources Conservation Services Ecological Site Descriptions, test plot data, and expertise of the Coronado NF and others [PR 047511\_3, p. 195]. It is important to understand the desired conditions is not the same as reclamation success criteria, which are more site specific and quantitative and will be fully described in the revegetation plan currently being developed, to be approved with the final MPO. Most importantly, success criteria would be tied to the performance of undisturbed areas called reference sites [PR 047511\_3, p. 195].

**Recommended Remedy by Review Team Member** (if any): The remedy suggested by the objector is not warranted. No remedy is required.

**Review Team Member:** Wayne Robbie, Ecosystem Analysis and Planning/Watershed & Air

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0058-NWall; 0118-KLowery

**Resource Area(s):** Reclamation and Revegetation – General (RCL-1) (Tailings Revegetation)

**Objection Issue:**

- 0058-11: Mine tailings do not provide conditions necessary to supporting native vegetation.
- 0118-4: Another major concerns deals with the ecosystems of the areas, reclamation and the tailings piles. It is my understanding that part of the reclamations and control of the tailings would include dumping plies of rock on the tailings. This would become unsightly and would not restore the ecosystem or natural habitat.
- 0118-5: My concern is that there are few if any native plants that would grow or thrive on tailings. I do not believe that Rosemont is capable of restoring the tailings pile to an attractive native ecosystem.

**Remedy Supplied by Objector** (if any): None

**Law, Regulation and/or Policy:** General Mining Act of 1872; Multiple Use Mining Act of 1955; 36 CFR 228 Subpart A; Council on Environmental Quality (CEQ) Regulations at 40 CFR 1500-1508

**Review Team Member Response:**

To address revegetation potential in respect to natural conditions, Rosemont Copper conducted experiments with onsite reclamation test plots. Initial establishment of the plots took place in 2009 [PR 047511\_3, p. 211]. Plots were designed to replicate conditions similar to those that would be experienced on the waste rock perimeter buttresses around the tailings and waste rock facilities. On south-facing slopes revegetation efforts may differ substantially. Test plots were only conducted on east-facing slopes, whereas particularly south-facing slopes revegetation efforts may differ substantially due to sun exposure.

The results of the test plots were similar to the greenhouse studies. They demonstrate that soil productivity can reach the desired range with appropriate treatment under real world conditions. Onsite test plots and greenhouse studies indicate that revegetation can produce a vegetation volume that is similar to historic climax conditions under proper management [PR 047511\_3, p. 211].

**Recommended Remedy by Review Team Member** (if any): No remedy is required.

**Review Team Member:** Wayne Robbie, Ecosystem Analysis and Planning/Watershed & Air