

Rosemont Copper Mine

Objection Review

Objection # (s): 0017-MStock; 0055-CGMcCormick; 0058-NWall; 0084-SSSR; 0091-PimaCounty; 0092-GFurnier; 0115-KChristian

Resource Area(s): Dark Skies – General (DS-1)

Objection Issue:

- 0058-8: And there's the question of light pollution from a twenty-four hour a day operation—affecting the nearby observatories.
- 0017-3: There are so many possible harmful effects of the mine that are dealt with to an uncertain or inadequate degree: 2. the Whipple Observatory will be hindered in its research.
- 0092-3: The USFS has not effectively addressed the impact of light pollution from the mine on our economically and academically important astronomical observatories.
- 0115-1: Rosemont would violate the Pima County Dark Sky Ordinance, with both particulate and light pollution befouling the air. This would obliterate our multi-million dollar astronomy infrastructure – in favor of a few hundred jobs for laborers aimed at destroying a mountain.
- 0091-5: Pima County objects to the Forest Service's continued reluctance to require compliance with the Pima County lighting code (Pima County Code, Ch. 15.12). Rosemont asserts that it, pursuant to A.R.S. § 11-812, is exempt from the Pima County lighting code but cannot explain away the County's authority under A.R.S. § 11-251(35).
- 0020-1: FS-DS-01 only attempts to reduce the impacts from artificial night lighting. It does not have any "teeth" to it. FS-DS-02 says something about "review results and make proposals."
- 0084-21: The FEIS fails to adequately analyze the impacts of night lighting or provide adequate mitigation for those impacts.
- 0055-1: Neither the Final EIS nor the BBC report, however, provide quantitative data on the economic impact of the Rosemont Copper Project on the astronomy industry.

Remedy Supplied by Objector (if any):

0115-1: Mine must be denied.

0091-5: Pima County recommends that the ROD be amended to recognize Pima County's authority to regulate Rosemont's lighting design and lighting operations. Furthermore, if the mine is unable to comply with the County lighting code, night-time operations should be prohibited.

0084-21: Include quantified estimates of the economic impacts of the mine on the astronomy industry similar to what has been undertaken for other economic sectors. A number of specific aspects are described in the objection (p. 279).

0055-1: Quantitatively evaluate the socioeconomic impact of the Rosemont Copper Project on Fred Lawrence Whipple Observatory.

Law, Regulation and/or Policy: FSM 2300 - Recreation, Wilderness and Related Resource Management, Chapter 2380, Landscape Management; Pima County and the City of Tucson adopted Final Ordinance No. 2012-14, “2012 City of Tucson/Pima County Outdoor Lighting Code.”

Review Team Member Response:

Response to objection issues 0058-8, 0017-3, 0092-3, 0115-1, 0091-5, 0020-1, and 0084-21

The objectors contend that the effect of light pollution from the mine on nearby observatories was not adequately addressed, and that the proposed mitigations are also inadequate. They also contend that the mine is subject to the Pima County lighting code.

The FEIS includes an analysis of dark skies in Chapter 3, and this analysis adequately addresses the effect of light pollution from the mine on nearby observatories. Additionally, in response to comments on the DEIS, Monrad Engineering prepared a subsequent lighting plan for the Rosemont Copper Project in an attempt to reduce impacts from outdoor lighting. The revised lighting plan projects a total of 5,791,151 initial lumens, a substantial reduction from the original lighting plan, which projected a total of 21,815,355 [PR 047511_4, p. 751]. Despite the reduction in lumens, the FEIS discloses that “all of the action alternatives would increase night brightness and impact night viewing and astronomy...therefore all action alternatives would have direct, adverse, long-term impacts to night sky viewing until mine closure” [PR 047511_4, pp. 759-760]. To mitigate these impacts, adherence to the revised lighting plan would be required for the Barrel, Phased Tailings, Barrel Trail and Scholefield-McCleary alternatives, in addition to monitoring requirements outlined in the lighting plan and in the FEIS [PR 047511_4, pp. 765-766]. The FEIS is clear that these mitigations would reduce impacts to dark skies, but would not eliminate impacts [PR 047511_4, pp. 1129, 1133, 1135, 1140].

Public comments on the DEIS raised a number of concerns related to socioeconomic impacts of the proposed project, so the Forest commissioned a report to focus on four specific socioeconomic issues, one of which included potential impacts on the astronomy industry in the area [PR 047511_4, p. 1056, pp. 1087-1089; PR 045231, section V]. Information from this report was incorporated into the FEIS, and this additional analysis adequately addresses the impacts of the proposed project to the local astronomy industry, including quantified estimates of the economic impacts of the mine on the astronomy industry [PR 045231, Section V; PR 047511_4, pp. 1087-1089]. As discussed in the previous paragraph, it was disclosed in the dark skies analysis that all the action alternatives would have direct, adverse long-term impacts to night sky viewing until mine closure. According to the socioeconomic analysis, the adverse impacts to dark sky visibility could have adverse impacts to these world-class astronomy research facilities,

which could have long-term, adverse impacts on the economic contributions of the astronomy, planetary and space sciences [PR 047511_4, p. 1114]. The mitigation measures (such as the revised lighting plan) would reduce impacts, but would not eliminate impacts to dark skies, which in turn would reduce the socioeconomic impacts to the astronomy industry [PR 047511_4, pp. 1114, 1129]. Some potential impacts, such as the perception associated with the development of a copper mine in close proximity to the observatory, cannot be quantified or completely mitigated [PR 047511_4, pp. 1114-1115, p. 1135].

Pima County states that the Outdoor Lighting Permit is required for construction and installation of outdoor lighting. The Outdoor Lighting code applies to development projects, defined as any residential, commercial, industrial, or mixed-use subdivision plan or development plan that is submitted to the jurisdiction for approval or for permit. However, state law ARS 11-830 exempts mining facilities from these local requirements [PR 047511_2, p. 59; PR 047511_4, p. 758]. Additionally, “the Forest Service has no authority, obligation, or expertise to determine or enforce compliance with other agencies’ laws or regulations. The Forest Service seeks to coordinate with other agencies to approve a legally compliant final MPO. However, it is the operator’s responsibility to ensure that its action comply with applicable laws” [PR 047511_2, p. 94]. To mitigate impacts from lighting, a revised lighting plan was developed (see previous paragraphs), which should minimize environmental impact to levels below the intent of the Pima County Outdoor Lighting Code, while also complying with operational safety requirements prescribed by the Mine Safety and Health Administration (MSHA) [PR 016802, p. 2].

Response to objection issue 0055-1

The issue of economic impacts of the project on the Fred Laurence Whipple Observatory (FLWO) was addressed in responses to comments in Appendix G of the FEIS [PR 047511_7, pp. 45, 46, and 61] where it states that updates regarding the impact to night skies and the astronomy industry (light, dust, and risks to short-term funding from ‘perceptions’), as well as reference to a revised lighting plan that FLWO representatives noted would be substantial improvement, have been added to the FEIS [PR 047511_4, pp. 1114-1115]. FLWO representatives, as well as the FEIS, note that increases in illumination and/or dust can increase observatory costs, but attempts to quantify potential costs were not made by FLWO representatives or the Forest Service. The FEIS also emphasizes that “the development of the mine would likely increase the risks that the observatory faces” in competing for grants due to ‘perceptions’ about potential impacts of the mine, but notes that ‘risks cannot be reliably quantified’. Information is therefore not available, or obtainable within the constraints of this project analysis, to quantify impacts to jobs and income. However, evidence and discussion of potential impacts provided in the FEIS, though qualitative, is sufficient for characterizing and communicating the “concerns regarding deteriorating lighting conditions” [PR 047511_4, p. 1115]. Impacts to dark skies and the astronomy sector are included in Summary of Effects tables within the social and economic section [PR 047511_4, p. 1061], as well as the FEIS as a whole [PR 047511_2, p. 130 and 136].

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

Review Team Member: Kyung Koh, RHWR, Chris J. Miller, Economist, NFS-WO

Rosemont Copper Mine

Objection Review

Objection # (s): 0036-Rosemont

Resource Area(s): Dark Skies – Mitigation (DS-4)

Objection Issue:

- 0036-29: The requirements of the DROD and FS-DS-02 do not specifically allow for impacts resulting from lighting requirements that may occur due to safety considerations and MSHA requirements, as does FS-DS-01. Rosemont requests that the consideration of Federal Safety Rules be included in the ROD. (DROD, page 38, Dark Skies)

Remedy Supplied by Objector (if any): None

Law, Regulation and/or Policy: FSM 2300 - Recreation, Wilderness and Related Resource Management,” Chapter 2380, Landscape Management; Pima County and the City of Tucson adopted Final Ordinance No. 2012-14, “2012 City of Tucson/Pima County Outdoor Lighting Code.”

Review Team Member Response:

Response to objection issue 0036-29

Mitigation measure FS-DS-02 [PR 047511_6, pp. B58-60] was originally proposed as a sky brightness monitoring plan (plan) by the Smithsonian Astrophysical Observatory (SAO) to outline the “monitoring that will take place on Mt. Hopkins to establish a baseline observatory sky brightness and how sky brightness changes over time as the result of the new Rosemont Mine site, and other related and unrelated activities...The resulting data will be available for uses by the Rosemont Mine operators to better control their illumination levels, thereby minimizing the impact of their operations on the observing efficiency on Mt. Hopkins” [PR 047020, p. 2]. The SAO sent the plan to the Forest Service [PR 047020], which then sent the plan to Rosemont Copper Company for review [PR 046808]. Rosemont Copper Company then provided feedback to the monitoring plan in a letter to the Forest Service. In the letter, Rosemont Copper Company appeared amendable to the proposed plan, but also listed some concerns regarding the plan. A concern related to impacts resulting from lighting requirements that may occur due to safety considerations and MSHA requirements was not listed as one of the concerns in the letter [PR 046810].

However, the objection issue does appear to have merit, since Rosemont Copper Company does need to comply with MSHA regulations. Thus, any lighting requirements under MSHA should be considered in the proposed mitigation measure, and in the SAO plan.

Recommended Remedy by Review Team Member (if any): Since the objection issue does appear to have merit, the reviewer suggests that any lighting requirements under MSHA be considered in the mitigation measure FS-DS-02. The remedy should be applied in the ROD.

Review Team Member: Kyung Koh, RHWR