

Rosemont Copper Mine

Objection Review

Objection # (s): 0011-CKestler; 0016-KPaul; 0017-MStock; 0027-SBrowning; 0028-TPurdon; 0056-SWhitehouse; 0058-NWall; 0062-DanMeyer; 0063-DianeMeyer; 0072-MFarr; 0083-FICO; 0084-SSSR; 0099-KPhaler; 0100-TohonoOodhamNation; 0101-DDeVries; 0122-PimaAssocTaxpayers;

Resource Area(s): Socioeconomics – General (SOC-1)

Objection Issue:

- 0100-20: The FEIS does not adequately analyze real world implications of a Copper Mine. The FEIS and draft ROD fail to inform the public that the jobs promised by the Project are completely and utterly dependent on the price of copper.
- 0084-48: In our previous comments we asked that Table 171 be significantly revised so that it reflects all revisions embodied in the sum of the socioeconomic section comment letters. (SSSR et al. Appendix A at 68.) The USFS clearly does not include all of the revisions that should have been made in the FEIS had the USFS responded to all the socioeconomic comment letters. (See FEIS at 1059-1062.)
- 0058-2: And another negative besides the loss of tourism is the inevitable drop in property values for all those living anywhere near the mine.
- 0099-10: Overriding all the other failures of the FEIS is its stubborn refusal to deal with cost vs. benefit issues with any rational sort of economic analysis. A total lack of any economic analysis characterizes the entire DEIS.
- 0101-1: The FEIS mentions a very conservative decrease in land values. How was that arrived at? How will land owners be compensated for the loss in property values as a direct impact of the mine. If Nature based tourism decreases by “15 to 50 percent” what do you think that does to the pool of potential real estate buyers in the Sonoita area? Was there any kind of comprehensive study completed on these issues? And again, where are the reparations for this negative economic impact?
- 0017-4: Also, there are so many possible harmful effects of the mine that are dealt with to an uncertain or inadequate degree: 3. reduced tourism revenue due to the eyesore of a mine in a pristine area.
- 0062-6: There have been studies indicating that the increased air and noise pollution and expected water shortages attributable to the mine will result in more jobs lost in the travel, tourism, recreation and retirement industries than those created by the mine.
- 0063-5: Although the Rosemont mine would increase the County revenues by about one percent, the job and revenue losses from retirement, recreation and tourism will be far

greater due to the air, water and noise pollution and the degradation of scenic values the mines will bring with them.

- 0072-2: Has consideration been given to the negative economic impact on the tourist based economies of Sonoita and Patagonia, already at risk due to the proposed mine?
- 0056-11: Economic impacts to the communities of Sonoita, Elgin and Patagonia, the astronomy industry, FICO pecan farm, and jobs in public relations are unacceptable (summarized from the original).
- 0083-7: The USFS failed to take into consideration the impacts to the production value of farmland which will be affected by the water withdrawals and migration of an existing sulfate plume due to siphon effect of Rosemont's groundwater pumping.
- 0062-7: Green Valley residents are upset that the proposed high voltage power line will mar their view and lower their property value.
- 0063-1: Consequently (due to impacts to water tables, groundwater contamination, dust, and scenic resources), property values are significantly less for homes closer to the tailings.
- 0016-5: The dynamiting along with the constant rumbling, light pollution and wellness of area residents as this can be considered the equivalent to long term mental torture.
- 0083-3: There is no quantitative or even a qualitative analysis of a reduction in groundwater availability nor any socioeconomic analysis of the effect of groundwater mining on existing well owners. Land without water (or aquifer levels so depleted that it is uneconomic to pump) is land without value. Thus the proposed Rosemont Mine will harm FICO.
- 0011-8: The economic analysis is still flawed. The purported positive economic impacts of the mine simply do not add up. The company has submitted studies that it commissioned showing an inflated economic impact from the mine. These studies have been challenged by independent economists, who point out that if the mine were to cause even a tiny decline in the tourism industry, which dwarfs the economic contribution of mining in the region, the negative effects would outweigh any economic benefits realized from the mine.
- 0027-3: Just the prospect of the mine has already had a damaging effect on real estate in the Sonoita area.
- 0028-3: The potential for damage to area home property values and wells from the Rosemont project are severe and costly.
- 0122-3: The Forest Service report does not include the fact that the tourist industry in our area will likely be the loser in the long run.

Remedy Supplied by Objector (if any):

0084-48: Respond to all of the socioeconomic comment letters and incorporate pertinent facts and information from these comments in the Summary of Effects table as appropriate.

0101-1: These questions should be studied and answered.

0083-7, 3: Conduct an inventory of individual wells that could be affected by groundwater pumping at the production well-sites, and provide a quantitative hydrologic and socioeconomic analysis of the likely impact. Provide this information in a revised DEIS that is released for public review and comment.

0016-5: Prepare and circulate for public review and comment a Revised DEIS or Supplemental Draft EIS.

0084-50: Correct these errors and include this information for public review and comment in a revised DEIS.

0084-49: Do an analyses of population and demographics for the three significant areas mentioned above (50-mile radius, 20 mile radius, and 5-mile radius of the proposed mine site), as well as provide accurate and detailed descriptions of rural areas close to the proposed mine site.

0011-8: Deny Rosemont Copper's permit application.

0084-45: Conduct appropriate credible analyses using proper methodology and based on current, accurate data of the effects mine construction and then operation will have a SR 83 and its existing commuter and tourism users.

0084-39: Provide the information requested regarding the visitor survey and Respond as requested.

0084-41: The USFS should provide information regarding the data used to support this assertion.

0084-40: The USFS should provide the data, methodology, and analysis used to support this vague assertion.

0084-46: Conduct appropriate credible analyses using proper methodology and based on current, accurate data of the effects mine construction and then operation will have a SR 83 and its existing commuter and tourism users.

0084-44: The USFS should present this information for public review and comment in a revised DEIS.

0084-43: The USFS must provide details on the reclamation and closure process in a revised DEIS.

0027-3: An independent, credible, and quantifiable studies of the effects of well drawdowns and water loss of the neighboring residential wells should be conducted, and property owners impacted owners should be fully compensated for that loss.

0122-3: Select no action.

Law, Regulation and/or Policy: Forest Service Manual (FSM) 1970; Forest Service Handbook (FSH) 1909.17

Review Team Member Response:

The objectors question or contend how social and economic issues are addressed in general (see “Objection Issues” above for details).

The FEIS includes a description of the affected environment and effects analysis for social and economic impacts in Chapter 3 of the FEIS [PR 047511_4, pp. 1053-1130]. Summaries of social and economic impacts are presented 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, pp. 130 and 136] where social and economic impacts are listed along with summaries of resource and amenity impacts from other resource sections in the FEIS (e.g., groundwater, air). Economic results are presented in terms of dollars, jobs, or income when feasible. Results in these tables reflect revisions completed in response to comments received on the Draft EIS.

Regarding objection(s) related to overall intent of the socioeconomic analysis and the role of costs, benefits, and impacts in decision-making, the Socioeconomics and Environmental Justice section of the FEIS [PR 047511_4, p. 1053-1130] reviews and evaluates changes in a number of benefits, costs, and economic impacts (e.g., jobs and income) associated with the project in a qualitative, quantitative, or monetized manner, depending on the availability and limitations of information and methods for supporting those evaluations. Benefits and costs associated with changes in resources and amenities affected by the project are not evaluated using consistent units due to limitations in available information and methods. It is therefore not feasible to make direct comparisons of percent changes in one measure of benefits or impacts with percent change in another (e.g., the economic impact of a one percent change in jobs is not equivalent to the social impact of a one percent change in air quality or emissions). However, as stated in the draft Record of Decision [PR 047504], the selected action decision is based on a thorough review of the FEIS, public comments, and consideration of relevant scientific information, risks, uncertainties, information gaps, and opposing viewpoints summarized in resource sections (including but not limited to the changes in benefits, costs, and economic/social impacts in the Socioeconomics and Environmental Justice section of the FEIS). The draft ROD goes on to say “I recognize that each of the action alternatives would result in significant environmental and social impacts and that the no action alternative is the environmentally preferable alternative (see page 46 of this ROD for further detail). However, Federal law provides the right for Rosemont Copper to develop the mineral resources it owns and to use the surface of its unpatented mining claims for mining and processing operations and reasonably incidental uses (see 30 United States Code (U.S.C.) 612)” [PR 047504, p. 11]. The analysis that is disclosed in the Rosemont Copper Project FEIS [including consideration of benefits, costs, and impacts outlined in the Socioeconomic and Environmental Justice section of the FEIS [PR 047511_4, pp. 1053-1130] concludes that the Barrel Alternative is the alternative that best achieves the minimization of impacts to Forest Service surface resources while allowing mineral operations and reasonably incidental uses.

The effects of metal prices on the uncertainty of projected job contributions and mine reclamation were addressed in response to comments on the Draft EIS. “M3 Engineering and Technology Corporation prepared a feasibility study for the Rosemont Copper Project in August

2001 and updates in January 2009 and August 2012. The study, which was prepared according to industry standards, addressed the economic feasibility of the Rosemont Copper Project. Weighted average metal processing for copper, molybdenum, silver and gold were used, which assumes some level of metal price fluctuation. Bonding is the mechanism used to assure that funds are available to reclaim the mine site should the proponent fail to carry out their obligations. The discussion of financial assurance and bonding has been updated for the FEIS [PR 047511_7, G-60]. In addition, results from two economic impact models are presented in the FEIS [PR 047511_4, pp. 1101-1104] to estimate a range of possible impacts (that also reflects a range of scale), rather than single absolute numbers, thereby providing a means of recognizing uncertainty about impact modeling assumptions.

Regarding potential for both positive and negative job and revenue impacts, over short and long terms, response to comment in Appendix G of the FEIS [PR 047511_7, G-48, 59] states “The Forest Service has revised the social and economic analysis to better reflect both the positive and negative economic impacts of the proposed mine, to reflect the latest available information, and to disclose a more complete picture of social and economic benefits and impacts that addresses recreation, tourism, and natural amenities.” “The Forest worked with industry specialists to devise a scientifically sound approach for tourism and recreation impacts that attempts to predict these impacts.” Tourism job impacts for the Patagonia Census County Division (including communities of Sonoita, Elgin, and Patagonia) are described within the FEIS [PR 047511_4, pp. 1086-1087 and 1110-1111]. The FEIS provides a description of potential job impacts related to decreases in net migration to Santa Cruz County due to losses in natural amenities [PR 047511_4, p. 1121]. Job impacts related to dark skies and the astronomy are also addressed in the FEIS [PR 047511_4, pp. 1114-1115].

Impacts to amenities affecting general quality of life (e.g., noise, light pollution) are addressed in the response to comment in Appendix G of the FEIS where it explains that the Socioeconomic section incorporates several independent studies to provide a more detailed and accurate estimation of the economic impacts of the Rosemont Copper Project on Pima, Santa Cruz, and Cochise counties (three county area, including Tucson). The updated data and analysis includes estimates of potential impacts to tourism, employment, tax revenues (including from mining), population, housing, natural amenities, amenity migration, the astronomy industry, and property values [PR 047511_7, G-61]. Details about updated data and analyses are provided in the Socioeconomic and Environmental Justice section of the FEIS [PR 047511_4, pp. 1053-1130]. The discussion of potential impacts to quality of life has been updated in the FEIS [PR 047511_4, pp. 1115-1121].

Regarding property values and mitigation measures for potential property owner costs, the FEIS recognizes that the project may affect property values. “The economic analysis has been updated, in part to address potential property value impacts attributable to the proposed mine. Quantification of property value impacts is limited to those parcels within five miles of the mine site [PR 047511_4, p. 1106-1109], based on available evidence and studies. Green Valley is not included within the five mile buffer; however, the FEIS (p. 1107) indicates “that values of properties farther from the mine, such as ...in the Sonoita and Patagonia areas, could also be affected.” Evidence cited in the FEIS suggests that impacts to values decrease with distance from

the mine (e.g., Green Valley study (Kim and Harris, 1996) indicates an 11 percent and 4 percent decrease for parcels 1 mile and 2 to 5 miles from an industrial site respectively) [PR 047511_4, p. 1105]. Potential decreases in net migration are described on pages 1119 to 1121 of the FEIS, but it was not possible to quantify impacts to property values as a result of those decreases beyond property value impacts described above. Potential impacts to groundwater wells are not accounted for in property value calculations; however, the FEIS identifies specific areas where potential impacts to domestic wells may occur (Singing Valley Rd west of SR83; Hilton Ranch Rd east of SR83; and near mine water supply wells in Sahuarita) [PR 047511_4, p. 1115]. The groundwater quantity section of the FEIS [PR 047511_3, pp. 288-362] has discussion about potential offset from recharge stipulated in the license agreement with the Town of Sahuarita. Potential increases in agricultural or domestic water pumping costs may be mitigated if well owners enroll in the well owner protection program implemented by Rosemont Copper [PR 047511_4, p. 1115]. If the proposed mine were to result in the loss of water supply to properties not participating in one of the Well Owners Agreements, those properties would likely suffer additional decreases in property value [PR 047511_4, p. 1108]. Response to comment in Appendix G of the FEIS [PR 047511_7, p. G-59] states that loss of private property value is not a Forest Service surface resource, and there is no basis in law that would allow the Forest Service to require Rosemont to mitigate or compensate for reduced property values. As indicated in response to comment, “power line siting is the responsibility of the public utility (Tucson Electric Power) under the oversight of the Arizona Corporation Commission (ACC). Mitigation measures such as pole surface type have been considered as part of the power line siting process by TEP and the Rosemont Copper Company. The Forest Service generally does not have the authority to require implementation of mitigation measures on land outside of the National Forest System” [PR 047511_7, p. G-11]. Mitigation related to social and economic impacts is discussed in the FEIS [PR 047511_4, pp. 1128-1129]. Mitigation measures specified for environmental or resource amenities (e.g., air quality, transportation, visual) indirectly effect or minimize impacts to socioeconomics and quality of life [PR 047511_6, Appendix B].

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

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

Rosemont Copper Mine

Objection Review

Objection # (s): 0080-CShinsky; 0082-SReichardt

Resource Area(s): Socioeconomics – Mitigation (SOC-4)

Objection Issue:

- 0080-1: Nowhere has any mitigation been required, or even suggested, for damages done to nearby residences because of decreased property values and/or inability to sell homes that will be directly affected by this project.
- 0082-1: Property values have dropped specifically due to the proposed Rosemont mine. Where in the DEIS does Rosemont agree to compensate us for property values?

Remedy Supplied by Objector (if any):

0080-1: Conduct a more realistic study of the detrimental effects on property values and require Rosemont/Augusta to fully compensate any property owners who will be hurt by this project.

0082-1: USFS should contract for and conduct independent studies of the effects of well drawdowns, water loss/quantity and water quality of all neighboring residential wells that will be affected by the mine. Affected well owners should be compensated at market value prior to the mine. Prepare and distribute a supplemental DEIS.

Law, Regulation and/or Policy: Council on Environmental Quality (CEQ) Regulations at 40 CFR 1500-1508; Forest Service Manual (FSM) 1970; Forest Service Handbook FSH 1909.17

Review Team Member Response:

The FEIS identifies specific areas where potential impacts to domestic wells may occur (Singing Valley Rd west of SR83; Hilton Ranch Rd east of SR83; and near mine water supply wells in Sahuarita) [PR 047511_4, p. 1115]. The groundwater quantity section of the FEIS [PR 047511_3, pp. 288-362] has a discussion about potential offset from recharge stipulated in the license agreement with the Town of Sahuarita. Potential increases in agricultural or domestic water pumping costs may be mitigated if well owners enroll in the well owner protection program implemented by Rosemont Copper [PR 047511_4, p. 1115]. If the proposed mine were to result in the loss of water supply to properties not participating in one of the Well Owners Agreements, those properties would likely suffer additional decreases in property value [PR 047511_4, p. 1108]. Loss of private property value is not a Forest Service surface resource, and there is no basis in law that would allow the Forest Service to require Rosemont to mitigate or compensate for reduced property values [PR 047511_7, p G-59]. As indicated in response to comment, “Power line siting is the responsibility of the public utility (Tucson Electric Power) under the oversight of the Arizona Corporation Commission (ACC). Mitigation measures such as

pole surface type have been considered as part of the power line siting process by TEP and the Rosemont Copper Company. The Forest Service generally does not have the authority to require implementation of mitigation measures on land outside of the National Forest System” [PR 047511_7, G-11]. Mitigation related to social and economic impacts is discussed in Appendix B [PR 047511_6, pp. 1128-1129]. Mitigation measures specified for environmental or resource amenities (e.g., air quality, transportation, visual) indirectly effect or minimizing impacts to socioeconomics and quality of life.

Recommended Remedy by Review Team Member (if any):

In the ROD, clarify mitigation of groundwater impact costs to homeowners by referencing more details about the mechanics of the Well Owners Agreements (and sign ups), as well as the licensing agreement with Sahuarita in the mitigation measures section of the socioeconomic section. Readers appear to be confused about this mitigation aspect for property/well owners.

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

Rosemont Copper Mine

Objection Review

Objection # (s): 0010-BManderscheid; 0025-WBunting; 0057-MEAA; 0060-NMcCoy; 0083-FICO; 0084-SSSR;

Resource Area(s): Socioeconomics – Effects and Modeling (SOC-5)

Objection Issue:

- 0010-8: Like Keystone that first promised 20,000 jobs, with the Chamber of Commerce promising 250,000 jobs and ended up with a more realistic estimate in the end of 35 to 50 jobs, some of which were from Canadians, the 2,500+ jobs promised by Rosemont turn out to be perhaps 400 jobs. 400 Jobs for the permanent destruction of a glorious mountain?
- 0010-12: As construction is completed, the number of jobs will decline to about 225 by month 16 with 45 staff wrapping up the work by the last month. This, when they originally promised thousands of jobs. By comparison, a study of the report submitted by interests of Keystone was almost laughable if it hadn't been such a blatant lie. They included dancers, manicurists, bar employees, massage therapists, etc, all unsubstantiated. Rosemont does not say, but the remaining jobs may include people they bring to the site rather than local workers as revealed for the Keystone Pipeline.
- 0025-16: An independently prepared and verifiable economic analysis of both the benefits and the costs of the proposed project should have been conducted using the IMPLAN modeling methods and widely accepted multipliers for copper mining in the regional study area.
- 0025-11: ...the validity and reliability of the questionable socioeconomics analyses in the FEIS will also never be known to the public or to the CNF itself.
- 0057-1: Numerous new economic analyses have been included in the FEIS without allowing the public ample time to review and comment. Much of the economic analysis in the FEIS is flawed, including: misinterpretation of economic studies referenced; the value of protected landscapes and their contribution to well-being of residents; refusal to reveal the assumptions behind IMPLAN modeling; misuse of Applied Economics analysis; presentation of employment, payroll and payments to governments as being stable year over year; understating the size of visitor-related economy that would be damaged; adopting a “beauty-strip” approach to environmental damage; using an inappropriate model to estimate the impact of the degraded natural landscape; and mischaracterizing changes in property values as “social” rather than economic.

- 0060-2: Impacts to tourism from the proposed Rosemont project, along with the six proposed mining operations in the Patagonia Mountains, would have significant and permanent adverse impacts on the economic well-being of the Sonoita, Elgin and Patagonia area. The cumulative effects of the traffic from all of the proposed mining activities will clog Highways 82 and 83, discouraging visitors and therefore, negatively affecting the area's tourist based economy.
- 0084-38: Numerous new economic analyses have been included in the FEIS without allowing the public ample time to review and comment. Much of the economic analysis in the FEIS is flawed and unsupported, including: misinterpretation of economic studies; refusal to reveal the assumptions behind IMPLAN modeling; misuse of Applied Economics analysis; failure to adequately analyze the impact to degraded natural landscapes on the attractiveness area to new residents and businesses; mischaracterizing changes to landscape amenities as “social” rather than economic; ignoring the volatility and variability copper mining jobs, income, and revenues to governments; underestimating the size of the existing recreation and tourist industry; minimizing negative economic impacts on the visitor economy, nature-based recreation, and amenity-supported economic vitality; failure to adequately analyze the impact on property values failure to adequately address and quantify impacts to local businesses when residents leave and new residents do not replace them; failure to provide information regarding potential economic impacts to domestic well owners; failure to quantify negative adverse impacts to visitors to the Coronado National Forest; failure to include the costs of road construction and road maintenance; fails to include socioeconomic impacts of all resource issues in the socioeconomics section; failure to address and quantify the socioeconomic impacts from increased costs of emergency services; failure to provide an assessment of future economic costs beyond the life of the mine; and failure to provide an adequate analysis of impacts to the direct economic value of public lands in the project area. The FEIS also provides no discussion regarding mitigation measures to offset adverse economic costs to various populations and users; and fails to support or explain numerous statements and its use of terms such as “if any” and “over time” (FEIS at 1054, 1083, 1090-1091, 1099).
- 0083-5: Serious general conceptual problems have been identified with those analyses (new socioeconomic analysis presented in the FEIS) that indicate that they cannot be relied upon in making a decision on the propose Rosemont Mine. Specifically mentioned are studies and methodology used to estimate the impact on property values.
- 0084-42: In our previous comments, we asked the USFS to explain why recreational related employment is not expected to change to a measurable degree, and to provide the data, methodology, and analysis to justify this conclusion; in particular, we wanted to know where the recreation related employment occurs and why or why not it will be impacted by the proposed project. (See SSSR et al. Appendix A at 78.) The FEIS has failed to provide an adequate response to this comment.
- 0084-50: In our previous comments, we asked the agency to disclose or not use data from Table 176, Employment by Industry, as there were seven areas in the two columns for

Santa Cruz County for which the data was "not shown to avoid disclosure of confidential information." (See SSSR et al. Appendix A at 72.) However, in the FEIS, the USFS still uses the table lacking the Santa Cruz County information (See FEIS at 1073.), still lists Santa Cruz County as "\$0" for private hospitals (See FEIS at 1079) although Santa Cruz County does have a private hospital, and refers again to Tubac, Rio Rico, Elgin and Sonoita as "urban areas." (See FEIS at 1076.).

- 0084-49: In our previous comments, we asked the USFS to change the sequence of their analyses of the three counties that would be affected by the mine so that the county information is addressed in the order by which they would be most affected: Pima County, Santa Cruz County, Cochise County. (See SSSR et al. Appendix A at 70.) Although the USFS changed the sequence of their county by county analyses as we requested, all data is still organized by county without any mention of population and demographics regarding the three areas of analyses we requested. (See FEIS at 1064-1068.)
- 0084-45: In our previous comments we pointed out that claims in the DEIS that the three-year construction period required for the proposed action would not result in an increased demand for public services, has no basis in fact. (See SSSR et al. Appendix A at 86.). The USFS fails to address any of the issues we raised and provides no analysis of the likely effects that the severe increase of heavy trucks on SR 83 will have on commuter and tourism traffic. (See FEIS at 1116.)
- 0084-39: In our previous comments we asked the USFS to identify where the agency conducted its survey of USFS Forest visitors. The FEIS failed to provide an adequate response to this comment.
- 0084-41: In our previous comments we asked for clarification of the following points in the DEIS: "As a result there would be minimal demands on the local housing supply during the operational phase of the mine. In-migration would result in beneficial long-term impacts to the local housing supply." (SSSR et al. Appendix A at 78.) The USFS response is inadequate as it still does not provide information on the data used.
- 0084-40: In our previous comments we asked the USFS to provide the data, methodology, and analysis to substantiate this cursory and conclusory statement: "10% of the construction jobs would require specialty skills that could not be filled by the local workforce." (See SSSR et al. Appendix A at 78.) The USFS has failed to provide an adequate response and has simply made the statement more vague, but has not provided any information or analysis to support this assertion.
- 0084-46: In our previous comments we pointed out that the assertion in the DEIS that the tax on fuel purchases related to the proposed project would lead to increase tax revenues, and the inference that these vehicle fuel taxes would provide the funding necessary for road maintenance, is purely speculative. (See SSSR et al. Appendix A at 87.) The agency failed to provide an adequate response to this comment, and instead simply repeated the statements made in the DEIS. (See FEIS at 1116-1117).
- 0084-44: In our previous comments, we noted that there was no data or analysis provided to support the statement in the DEIS that "the operation of the copper mine would be (sic)

have little impact on housing demand." (See SSSR et al. Appendix A at 82.) The FEIS has failed to provide an adequate response to this comment, as there is still no data to support this statement or regarding those who choose not to move to the area.

- 0084-43: In our previous comments we questioned the assertion in the DEIS that "no employees of Rosemont Copper are expected during the final 2 years of closure" asked the USFS to clarify who will be doing the reclamation plan and what are the employee needs will be during the implementation of that plan, as that information was not provided in the DEIS. (See SSSR et al. Appendix A at 78.) This comment remains unanswered in the FEIS, and the USFS has failed to provide any specific information or data on the reclamation procedures.

Remedy Supplied by Objector (if any):

0057-1: Stop the FEIS and ROD process and prepare a Supplemental DEIS.

0060-2: Explain, clarify, correct, and quantify the cumulative effects of these six proposed mining projects and the increased traffic they will produce, along with the proposed Rosemont project, on the Sonoita, Elgin and Patagonia economies, and this information should be presented for public review and comment in a revised DEIS.

0084-38, 43, 44: A revised DEIS should be prepared that corrects the flaws identified, provides adequate and meaningful analysis of economic issues, includes supporting information for conclusions and statements, establishes mitigation measures for socioeconomic impacts, and presents the information for public review and response.

0083-5: The new socioeconomic analysis circulated for the first time in the FEIS should be circulated as a revised DEIS. The scope of the socioeconomic impacts must be broadened to also include impacts to the property values in the Sahuarita and Green Valley communities.

0084-50: Correct these errors and include this information for public review and comment in a revised DEIS.

0084-49: Do an analyses of population and demographics for the three significant areas mentioned above (50-mile radius, 20 mile radius, and 5-mile radius of the proposed mine site), as well as provide accurate and detailed descriptions of rural areas close to the proposed mine site.

0084-45, 46: Conduct appropriate credible analyses using proper methodology and based on current, accurate data of the effects mine construction and then operation will have a SR 83 and its existing commuter and tourism users.

0084-39: Provide the information requested regarding the visitor survey and respond as requested.

0084-40, 41, 42: The USFS should provide the data, methodology, and analysis used to support this vague assertion.

Law, Regulation and/or Policy: Council on Environmental Quality (CEQ) Regulations at 40 CFR 1500-1508; Forest Service Manual (FSM) 1970; Forest Service Handbook (FSH) 1909.17

Review Team Member Response:

The objectors question and contend a number of issues related to the data, use of data or cited studies, methods, and assumptions related to social and economic impacts (positive and negative) associated with the proposed mining activity as well as environmental effects resulting from pre-mining and mining operations. See “Objection Issues” above for details.

As indicated in the draft Record of Decision [PR 047504], the right to conduct mining activities on public lands exists (per mining laws), but proposals must comply with applicable Federal and State environmental protection laws, and the Forest Service can require reasonable measures, within their authority, to protect surface resources. The selected action minimizes adverse impacts to NFS surface resources and protects resources to the extent practicable. Response to comment in Appendix G of the FEIS indicates that the Forest Service may reasonably regulate mining activities to protect surface resources, and may reject an unreasonable Mine Plan of Operation, but cannot categorically prohibit mining or deny reasonable and legal mineral operations under the mining laws [PR 047511_7, G-7]. The Forest Service is required to assess and disclose potential social and environmental impacts in an EIS and can require reasonable modifications to mine plans of operation and measures to mitigate impacts. Impacts and benefits of the proposed project have been analyzed using the best information available [PR 047511_4, p. 1053-1130]. The Forest Service selected economic analysis tools and models that it determined to be appropriate to address the issues that are described in Chapter 1 of the FEIS [PR 047511_2], and which were developed or revised in response to public scoping.

Regarding objections related to the need for more time for review of social and economic information contained in the FEIS, new information, updates, and changes made to the socioeconomic analysis since release of the DEIS are summarized in Chapter 3 [PR 047511_4, pp. 1053-1054] under the heading ‘Changes from the Draft Environmental Impact Statement’. These changes included reviews of the appropriateness of analysis methods and modeling, changes in analysis boundaries, and completion of more robust analyses. These changes were made in response to comments on the DEIS. These changes fall within the parameters of 40 CFR 1503.4(a) and do not warrant preparation of a revised DEIS or a supplemental EIS.

The content of the Socioeconomic and Environmental Justice section of the FEIS [PR 047511_4, p. 1053-1130] covers an appropriate level and scope of analysis, as specified in the FSM 1970, in accordance with guidance in the FSH 1909.17, and consistent with the nature of Forest Service decisions regarding mine plans of operation. As such, the content of this section of the FEIS describes potential changes in social and economic conditions resulting from projected changes in forest resource attributes/goods/services, where appropriate and within the limitations of available social and economic data, studies, and methods. Available information may be dated (e.g., Gilmore et al. (1982) used to characterize commuting behavior) but still capable of informing the analysis. In cases where information is limited, reasonable assumptions (e.g., ‘some construction jobs would require specialty skills that may not be filled by the local

workforce’) are made to support impact analyses [PR 047511_4, p. 1101]. This section makes clear that not all social and economic impacts to all potentially affected populations are covered by impacts quantified in the socioeconomic section, and recognizes that there are uncertainties and limitations associated with the methods and measures. Decisions regarding this action (consistent with actions subject to NEPA in general) are based on consideration of all environmental effects linked to significant issues in the FEIS, not just social and economic impacts. The lack, absence, or limited scope of some social and economic impacts does not imply trivialization of the social or economic effects resulting from potential changes in environmental or landscape attributes. Rather it reflects the acknowledgement of analytical limitations and uncertainty, and suggests the need to consider landscape and environmental attribute effects described in other resource sections in the FEIS, to supplement or complement the limited set of social and economic impacts provided in the socioeconomic section of the FEIS. Decision rationale summarized in the draft Record of Decision (ROD) provides evidence that effects in all sections of the FEIS are considered in the selection of the preferred action (i.e., Barrel Alternative). The FEIS does not compare monetized mining benefits with an aggregate of monetized amenity losses resulting from changes in environmental and landscape amenities – gaps in the social and economic impact analysis prohibit this type of direct comparison.

Regarding concerns about reliability of estimated job impacts related to mining, assumptions and results for the use of two different economic impact models for the Rosemont project are stated within the FEIS [PR 047511_4, pp. 1070, 1101] as well as material referenced in the FEIS (i.e., Applied Economics (AE model), 2011; and Gebert (Forest Service model), 2011 [PR 047511_4, pp. 1055-1056]). Job impacts are estimated for the goods and services linked directly to the mining activity, indirectly to other goods and service suppliers, and through induced worker spending in the local area, consistent with accepted input output modeling practices. The FEIS states that the construction workforce would be expected to be filled by the available labor supply, though some specialty skills may not be filled by local workforce [PR 047511_4, p. 1101]; and a vast majority of mining personnel during active mining would be available from the greater Tucson area [PR 047511_4, p. 1102].

Differences between, and rationale for including results from the AE and Forest Service models are described in Gebert 2011 (as cited in the FEIS), [PR 047511_4, p. 1056]:

- Industry sectors used in the two models differed in some cases for analysis of non-labor indirect expenditures (indirect impacts from supply purchases from local vendors). For example, the AE model assigned more local purchases of equipment, supplies, and services to retail, as well as the labor-intensive repair and maintenance sectors, while the Forest Service model allocated more of those purchases to wholesale sectors. Differences were most pronounced for purchase of fuel, equipment repair and maintenance, resulting in indirect impacts six times greater for the AE model versus the Forest Service model. These differences account, in large part, for the differences and apparent inconsistency between the relatively higher indirect/induced impacts under the AE model and the relatively lower impacts under the Forest Service model, despite the larger impact area assumed for the Forest Service model. Neither method is incorrect since there is uncertainty about how future expenditures will be distributed, but use of retail sectors results in larger multipliers and impacts, while use of wholesale sectors results in smaller,

more conservative multipliers. Results from both models are presented in the FEIS [PR 045711_4, pp. 1101-1104] to provide a range of possible impacts (that also reflects a range of scale), rather than single absolute numbers.

- Induced jobs, during construction were higher for the Forest Service model because ‘benefits’ were assumed to be included in labor income (the AE model assumed no benefits and therefore lower labor income available for local spending).

Objection 0057-MEAA is correct in citing errors in the FEIS discussion of differences in labor income on page 1103 of the FEIS [PR 047511_4].

Regarding objections that mining impact analysis fails to account for the volatility of copper markets, and therefore, misrepresents beneficial impacts to the local region, the Applied Economics model, 2011; and Gebert model, 2011 adopt assumptions about projected production and employment over the life of the mine that are consistent with accepted practice for estimating expected (average) effects [PR 047511_4, pp. 1055-1056]. Response to comment in Appendix G of the FEIS states “M3 Engineering and Technology Corporation prepared a feasibility study for the Rosemont Copper Project in August 2001 and updates in January 2009 and August 2012. The study, which was prepared according to industry standards, addressed the economic feasibility of the Rosemont Copper Project. Weighted average metal processing for copper, molybdenum, silver and gold were used, which assumes some level of metal price fluctuation” [PR 047511_7, G-60].

The FEIS discusses recent trends in unemployment, citing current high unemployment as an indication that a considerable workforce is seeking jobs and readily available to help fill the workforce needs associated with this action [PR 047511_4, p. 1101]. The FEIS (p. 1103) also notes that employment linked to this action would account for relatively small percentages of total employment (e.g., 0.08 percent in two counties), implying that impacts are not being characterized as a boom, in the context of boom bust cycles. The effects from boom and bust cycles linked to mining may be less pronounced in larger, more diversified economies such as that present in the greater Tucson area; the affected environment section of the FEIS clarifies that mining accounts for less than 1 percent of total employment in the three counties analyzed [PR 047511_4, p. 1072].

Adequate consideration is given to the use of studies and information (e.g., Hand et al., 2008; the Green Valley Study) identified as being most relevant and applicable for characterizing potential changes in property values to the Rosemont site and conditions. Property values and taxes are indicators of components of social or economic well-being affected by potential changes in landscape and natural amenities, but the FEIS does not claim that property values and taxes are comprehensive measures of all well-being impacted by the mine. Estimated reductions in property taxes and values apply to a smaller area that does not encompass the greater Tucson area or the entire three-county area; the FEIS notes that amenity-driven social and economic impacts may extend into those areas. These and other limitations associated with the Green Valley study are recognized when qualifying the discussion of property value results. The FEIS applies percent changes in property values (as a function of distance), but does not make use of absolute values from the Green Valley study (there are a number of factors that limit capability

to transfer absolute benefit values from that study, e.g., age of the study, differences in populations; for an example of criteria for determining feasibility of benefit value transfer, see OMB circular A-4). As a consequence, there is no attempt to estimate total local value for amenities based on the Green Valley study. Changes in property values and taxes demonstrate how a subset of the local population (i.e., property owners within five miles; local government revenues) may be impacted by changes in some amenities (e.g., visual/aesthetics, air/dust) but not all amenities linked to this action. For example, potential groundwater impacts are not addressed; however, impacts to and mitigation of groundwater resources are discussed from an environmental perspective elsewhere in the FEIS [PR 047511_3, p. 288-398].

Regarding objections that impacts to the recreation and tourism sector are understated and unbalanced (with reference to positive job impacts from mining) in the FEIS [PR 047511_4, p. 1109-1113], analysis of those impacts was based on the availability and limitations of existing information and methodology. The FEIS recognizes that (1) recreationists could be directly impacted by construction or mining-related traffic, loss of scenery, noise, and dust, and therefore avoid the mine and nearby areas, and that (2) predicting total visitor and tourist displacement as a result of all amenity losses is not possible [PR 047511_4, p. 1110]. For economic impacts from potential changes in tourism/recreation visits due to visual impacts, the FEIS presents direct and indirect visitor spending and job impacts for two different sized areas: (1) the Patagonia Census County division in Santa Cruz County and (2) the greater Tucson area. Impacts are based on reasonable application of existing studies showing (i) percent decreases (15 to 50 percent) in tourist visits and spending as a function of degraded scenic quality in Colorado, (ii) visitor traffic patterns (50 percent of visitor traffic occurs on roads visible to the mine), (iii) business survey data for the Patagonia Census district (183 nature based jobs), and (iv) an IMPLAN model for indirect and induced impacts (as completed by BBC Research and Consulting, 2013, as cited in the FEIS [PR 047511_4, pp. 1087 and 1110-1111] with additional modifications needed for analysis of the greater Tucson area. The Colorado studies referenced for information about visitor behavior rely on visitor responses to changes in commercial and residential development. The FEIS recognizes that mine development and operations may be more unappealing to tourists than changes in residential/commercial development cited in the Colorado studies, and that impacts are likely to tend toward the upper end of the range from those studies (i.e., tend more toward 50 percent) [PR 047511_4, p. 1110]. Other measures in addition to property values are used to characterize potential impacts from changes in resources and natural amenities [PR 047511_4, p. 1059].

The FEIS [PR 047511_4, p. 1119] recognizes that people are drawn to the region to live, work, and play, and that operation of the mine would likely result in a negative impact to the social benefits people derive from the forest's natural amenities. The total impact from changes in amenity driven benefits is not possible to quantify, nor is it feasible to isolate and quantify (or monetize) the specific impacts and related economic costs of changes in individual amenities. However, the FEIS [PR 047511_4] relies on a number of other indicators to help characterize potential impacts from losses in Forest-related amenities; these indicators include (1) changes in net migration (p. 1119), (2) changes in property values (p. 1105), (3) impacts to tourism jobs (p. 1109), and a qualitative discussion of impacts associated with traffic, noise, dust, visuals and sense of place in the section "Community Values and Social Trends" (p. 1117). The section

“Social and Economic Benefits of Amenities on the CNF” [PR 047511_4, pp. 1119-1122] provides a more quantitative evaluation of potential amenity driven impacts using changes in federally owned land to anchor calculations for changes in migration to the area. The FEIS is explicit that this indicator (or proxy) may not fully capture the full effect of the industrialization of the area on net migration, but quantitative estimates are none the less included as a means of contributing, in combination with other social, economic, and environmental indicators evaluated in the FEIS, to the discussion of amenity-driven impacts. Material referenced in the FEIS to support of the amenity driven impacts (i.e., BBC, Inc. Report: “Additional Socio-economic Evaluations: Rosemont Copper Project “(2013)) states that this analysis is a means to further discuss the concept of amenity driven migration and economic costs. The FEIS does not imply that estimated decreases in net migration resulting from the application of these studies is a complete or full representation of all amenity-driven damages to all areas or communities potentially impacted by this project; the FEIS is explicit in noting that the results apply only to Santa Cruz County. The FEIS [PR 047511_4, p. 1119] citing Cordell et. al., (2011) states that there could be further negative impacts to amenity migration because these lands are not only being lost to public use and recreation but also converted into a surface mine, but the additional impact cannot be determined, based on a 2011 Forest Service analysis (Cordell et al. 2011).

Regarding objections about other questions about missing information or adequacy of analyses:

- Baseline information regarding property values of greatest relevance to the FEIS analyses is presented for parcels within specific distances of the project area (e.g., 0.5 to 10 miles) in Table 209 [PR 047511_4, p. 1069]. Potential changes in property values were evaluated for parcels within five miles, as per assumptions described in the FEIS [PR 047511_4, p. 1106]; it is not feasible for the Forest Service to produce hedonic studies similar to that of Green Valley, specifically for the Rosemont project. These concentric areas are within Pima County, and data for Table 209 is from the Pima County Assessor’s Office (for 2010), as described in BBC (2013). References for available information about median home values [PR 047511_4, pp. 1067-1068] is cited in the FEIS; values for Patagonia are not explicitly mentioned for Santa Cruz County but reflected in the county wide values.
- Amenity-based relocation is estimated to result in a 0.08% decrease in net migration to Santa Cruz County and be negligible in Pima and Cochise counties. Estimates also include a 6% to 33% decrease in the rate of population growth at a more localized level for Patagonia [PR 047511_4, p. 1062]. Employment impacts from potential decreases in population growth are estimated for Santa Cruz County [PR 047511_4, p. 1121]; however, it is difficult to reliably apply the regional impact modeling methods at the level of a smaller community.
- The general description and purpose of the National Visitor Use Monitoring (NVUM) survey results used to characterize recreational activity and spending related to visitor use on the Coronado National Forest are provided in the FEIS [PR 047511_4, p. 1083]. Details about those survey methods and results, as well as other references describing the statistical sampling and analysis procedures, are located in “*National Visitor Use Monitoring Results*. Data collected FY 2001 and FY 2007.” U.S. Forest Service, Region 3, Coronado National Forest. November 2, as cited in the FEIS (see reference US Forest

Service 2008j). Survey sampling locations and frequency are identified and distributed in time and space within the Coronado NF to provide reliable estimates of expected visitor use, activity, and spending (e.g., survey sites include Catalina State Park CG, Calabazas CG, Santa Rita Lodge/Madera Canyon).

- The affected environment section of the social and economic section of the FEIS [PR 047511_4, pp. 1063-1130] provides background and context for the evaluation of effects (pp. 1097-1130). Information about relatively higher economic diversity (p. 1082), average or high unemployment (p. 1070), and relative dominance of some industry sectors (e.g., government; retail) provides context for the potential value for projects supporting jobs in a sector such as mining. Similarly, background statements about community values [PR 047511_4, pp. 1090-1091] (e.g., diversity and uncertainty of values for forest amenities among different types of residents; changes in demand for amenities as a function of population growth) provides context suggesting the need to consider increasing demand for, and mitigation of adverse impacts to natural amenities that provide other social and economic benefits.
- By evaluating a number of socioeconomic impacts, the Forest recognizes impacts may occur, and the need to consider mitigation measures to protect natural amenities. Qualifying statements such as ‘changes (if any) to employment...’ [PR 047511_4, p. 1099] are attempting to recognize that there is uncertainty associated with social or economic impacts characterized in the Social and Economic section of the FEIS.
- The estimated percent increase in population for Tucson and Green Valley of 0.1 percent for premining (assuming most employees relocated from elsewhere) on page 1100 of the FEIS is derived from an estimated 594 direct jobs during premining compared to a population of 541,000; the result would still apply if population projections for 2015 were used (approximately 600,000). The source for housing vacancy is cited as US Census Bureau [PR 047511_4, p. 1100]. Rationale for the statement “in-migration would result in beneficial impacts to the local housing supply” is cited on page 1101 (i.e., increases in population would help offset (or fill) housing vacancies). The same type of rationale and data sources applies to the discussion about impacts on housing demand during operation of the mine [PR 047511_4, p. 1109].
- The statement on page 1102 of the FEIS subsection regarding pre-mining employment impacts [PR 047511_4] concluding that ‘the number of jobs (approximately 800 attributed to recreation on the CNF) are not expected to change during mine construction’ should be removed. That statement likely pre-dates completion of (and is inconsistent with) the more detailed recreation and tourism job impact results in the FEIS discussed on pages 1109 to 1113.
- The conclusions that ‘the mine [construction and operation] is not expected to result in an increased demand for public services’ in the FEIS [PR 047511_4, p. 1115] are in the context of public service demands resulting from increased workers migrating into the area and needing services. The basis for the conclusion is that a majority of the workforce is expected to be from the local area, as noted on page 1115. Impacts to (and demand for) public services in the context of the mine operation itself are discussed in other sections (e.g., transportation and road maintenance [transportation, PR 047511_4, pp. 1116-1117; groundwater, PR 047511_3, pp. 288-398].

- The summary of transportation and road maintenance effects within the social and economic section of the FEIS [PR 047511_4, pp. 1116-1117] adequately describes road improvements for SR83 (from the mine access road to I-10), who will cover those costs (i.e., Rosemont Copper), potential for increased maintenance costs that cannot be quantified, and the likely availability of increases in fuel tax revenues from mine-related transportation to help cover increased maintenance costs. The FEIS does not quantify road construction (improvement) costs for SR83; Rosemont Copper will be accountable for those costs. The FEIS does not demonstrate if increased tax revenues would be able to account for increased maintenance costs; however, it is expected that fuel tax rates on motor vehicles and heavy trucks as well as fuel tax revenue distribution policy for Arizona Department of Transportation are established such that increases in maintenance costs would be covered, at least in part, by fuel tax revenues.
- The summary of social and economic impacts in Table 205 of the FEIS notes the potential for more accidents and demand for emergency services [PR 047511_4, p. 1060]. Potential increased emergency service costs are not estimated, given that “it is impossible to predict how many accidents and hazardous materials spills would occur,” as stated in the Transportation/Access section of the FEIS [PR 047511_4, p. 1009].
- The life of the mine (through mine closure and reclamation) encompasses a reasonable period of time over which significant changes in the flows of benefits, costs, and impacts, linked to the project, can be characterized (consistent with FSH 1909.17.12(3))
- The FEIS has presented baseline county-level social and economic data [PR 047511_4, p. 1063-1091] consistent with standard practices used by the Forest Service for characterizing the affected environment for project-level analysis; time and resources did not permit translation of county-level data into buffer areas of specific mile distance (radius) from the mine (though the benefits of using the requested format are recognized).
- Employment information for Santa Cruz Counties in Table 212 [PR 047511_4, p. 1073] contains gaps to avoid disclosure of confidential information; however, information regarding Santa Cruz County contributes to the economic background and is therefore maintained in the FEIS [PR 047511_4]. The communities of Tubac, Rio Rico, Elgin, and Sonoita are referred to as ‘urban areas’ (p. 1076) to distinguish income levels between household within more established communities (clarified as Census-designated places (CDPs) in Table 214 (p. 1076)) and households in more rural areas outside of these established communities. A term such as ‘developed’ could have been used in place of ‘urban’ in this section to avoid mis-representing those census places.

Recommended Remedy by Review Team Member (if any):

To address errors noted by objection 0057-MEAA, make the following edits on page 1103 of the FEIS through the Errata.

“Labor income, which includes employee wages but excludes benefits, is estimated to be \$23 million in Pima County for direct labor income and \$57 million for indirect and induced labor income for a total of \$81 million in labor income (accounting for rounding) during the active mining phase under the AE model (Applied Economics 2011). In Pima,

Santa Cruz, and Cochise Counties combined, the labor income during the active mining phase is estimated to be \$29 million per year in direct labor income (which includes benefits) and \$26 million per year in indirect and induced labor income for a total of \$55 million in labor income under the Forest Service model (Gebert n.d. [2011]). A range of wages would be expected among those employed by the mine, from the lower wages of a general laborer to the higher wages of the project management staff and technical advisors. According to Rosemont Copper, the average annual income for a Rosemont Copper employee would be approximately \$60,000.”

Through the Errata, delete the statement on page 1102 of the FEIS concluding that ‘the number of jobs (approximately 800 attributed to recreation on the CNF) are not expected to change during mine construction.’

Add language in the ROD regarding differences between the Applied Economics (AE) and Forest Service input output models to the FEIS to ease confusion/concerns from readers about why the results are different for these two models:

- Industry sectors used in the two models differed in some cases for analysis of non-labor indirect expenditures (indirect impacts from supply purchases from local vendors). For example, the AE model assigned more local purchases of equipment, supplies, and services to retail, as well as the labor-intensive repair and maintenance sectors, while the Forest Service model allocated more of those purchases to wholesale sectors. Differences were most pronounced for purchase of fuel, equipment repair and maintenance, resulting in indirect impacts six times greater for the AE model versus the Forest Service model. These differences account, in large part, for the differences and apparent inconsistency between the relatively higher indirect/induced impacts under the AE model and the relatively lower impacts under the Forest Service model, despite the larger impact area assumed for the Forest Service model. Neither method is incorrect since there is uncertainty about how future expenditures will be distributed, but use of retail sectors results in larger multipliers and impacts, while use of wholesale sectors results in smaller, more conservative multipliers. Results from both models are presented in the FEIS p. 1101 to 1104) to provide a range of possible impacts (that also reflects a range of scale), rather than single absolute numbers.
- Induced jobs, during construction were higher for the Forest Service model because ‘benefits’ were assumed to be included in labor income (the AE model assumed no benefits and therefore lower labor income available for local spending).

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