

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0010-BManderscheid; 0014-DNiemi; 0016-KPaul; 0049-CDowning; 0056-SWhitehouse; 0092-GFurnier; 0123-MJacobson, 0111-RHarris

**Resource Area(s):** Air Quality – General (AQ-1)

### Objection Issue:

- 0014-2: I live on the far southwestern side of Tucson and on a breezy day, the haze from the existing mines fills the air and depending on the prevailing winds, casts a dirty pall over wherever it is. When the dust shroud blows my way, grit will cover the furniture if I don't shut the windows and have filtered ventilation. Tucson stands between Haboob City Phoenix and these mines. We don't need more grit in the air.
- 0010-4: They (EPA) discuss pollution, but I would add, in addition to long words and unrecognized contaminants, that the quality of the valley will suffer no matter what Rosemont Mines say to the contrary, simply because this part of Arizona is a "bowl" shaped by the surrounding mountains, which will add to the inability to move the polluted air out and away from the valley.
- 0016-4: The mine will adversely affect the areas overall quality of life while creating many barriers for local communities to deal with not the least of which will be a major impact to the local air quality caused by vehicle pollution, dust not only from operations but from the toxic dust coming from the tailings piles.
- 0049-1: Dust from the mine tailings will pollute the air causing serious health issue to (local) residents.
- 0056-1: Issues pertaining to the health effects from air pollution from the mine have not been resolved in the FEIS.
- 0092-4: The noise and dust pollution generated by the mine and transport of the ore will also have significant health and safety impacts that the USFS has not adequately addressed.
- 0123-1: The objector expresses concern with the air quality impacts of the proposed mine. He specifically mentions dust created from blasting; dust from vehicles traveling on roads; emissions from mine related vehicles; dust from mine processing facilities; and dust from tailings.
- 0111-1: ADEQ should never have taken jurisdiction of the air-quality permit from Pima County in the manner in which was done.

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

0016-4: Prepare and circulate for public review and comment a Revised DEIS or Supplemental Draft EIS.

**Law, Regulation and/or Policy:** Clean Air Act; National Ambient Air Quality Standards (NAAQS), 40 CFR 50; National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 61 and 63; Regional Haze Rule, 40 CFR 51; General Conformity Analysis, 40 CFR 51, subpart W, and 40 CFR 93; 49 ARS; 18 AAC; Pima County Code 17

**Review Team Member Response:**

Response to objection issues 0014-2, 0016-4, 0049-1, 0056-1, 0092-4, and 0123-1

The objectors contend that vehicle pollution, dust, and tailings dust from mine operations will impact local air quality and adversely affect overall quality of life in Tucson and nearby communities.

The FEIS discusses particulate matter: “The contribution from the Rosemont Copper Mine would not trigger nonattainment status. Like any emission source large or small, the Rosemont Copper Project would contribute to regional air quality, and emissions from the Rosemont Copper Mine would slightly increase the risk for nonattainment. It would not be appropriate to state, however, that Rosemont Copper would be responsible for or cause nonattainment should it happen, as current levels observed in at least one monitoring station are already close to the NAAQS” [PR 047511\_3, p. 264].

Hazardous air pollutants (HAPs) from the mine are estimated to be 3.37 tons per year [PR 015729, pp. 1-3]. This is below the threshold of 10 tpy for a single HAP or 25 tpy for a combination of HAPs as established by the National Emissions Standards for Hazardous Air Pollutants.

In addition, there are several mitigations to limit the amount emissions and thus reduce vehicle, dust and particulate pollution (“grit”) released from the proposed Rosemont Copper Mine:

- Forest Service mitigation [PR 047511\_3, p. 283]: FS-SR-01, FS-SR-02, FS-SR-03, OA-AQ-04, FS-CR-05.
- Regulatory and permitting agencies mitigation [PR 047511\_3, pp. 283-285]: OA-GW-05, OA-AQ-01, OA-AQ-02, OA-AQ-03, OA-AQ-04, OA-AQ-05, OA-AQ-06, OA-AQ-07, OA-AQ-08, OA-AQ-09, OA-AQ-10, OA-AQ-11
- Rosemont Copper mitigation [PR 047511\_3, p. 285]: RC-TA-03 and RC-AQ-01

Construction and operation of the proposed facility is modeled to impact air quality; however, the modeled impacts are below thresholds established by the Clean Air Act. The air quality impact modeling followed EPA standards and was conservative in order to ensure full documentation of any potential impacts. The methodology, assumptions, and parameters used in the modeling are described in the air quality and climate change section of Chapter 3 the FEIS

under the heading ‘Analysis Methodology, Assumptions, Uncertain and Unknown Information’ [PR047511\_3, pp. 220-229].

#### Response to objection issue 0010-4

The objector contends that air quality impacts are not correctly modeled since “Arizona is a “bowl” shaped by the surrounding mountains, which will add to the inability to move the polluted air out and away from the valley.”

The FEIS alerts the reader to the fact that several considerations must be taken into account to understand how air quality will be impacted by emissions (including topography):

“The primary factors that influence regional air quality are the locations of air pollution sources, the quantity and chemical characteristics of the pollutants emitted by those sources, the topography of the region, and the local meteorological conditions. Potential direct and indirect impacts to air quality from the proposed project have been assessed for the premining, active mining, and final reclamation and closure phases of the project and spatially within the anticipated geographic pollutant dispersion range” [PR 047511\_3, p. 217].

Also, air quality modeling was re-run to address incorrect model options [PR 047511\_3, pp. 217-219] and changes in anticipated impacts were documented:

“It was determined that the restart options in the CALPUFF modeling had not been set to the preferred settings... Ultimately, the annual Barrel Alternative emissions scenario was remodeled for that month (August) of the 2001 meteorological year. While the results of the sensitivity analysis indicated a slight increase in the modeled criteria pollutant concentrations as well as the deposition and visibility impacts, it was determined by the Coronado that the results did not warrant a full rerun of the modeling for the Barrel Alternative” [PR 047511\_3, p. 217].

The air quality impact modeling followed EPA standards and was conservative in order to ensure full documentation of any potential impacts. The methodology, assumptions, and parameters used in the modeling are described in the air quality and climate change section of Chapter 3 the FEIS under the heading ‘Analysis Methodology, Assumptions, Uncertain and Unknown Information’ [PR047511\_3, pp. 220-229].

#### Response to objection issue 0111-1

According to the FEIS, the ADEQ is the responsible regulating agency: “Determination of whether Rosemont Copper’s emissions represent a violation of applicable air quality laws and regulations is solely under the regulatory authority of ADEQ as the agency issuing the permit.” [PR 047511\_3, p. 260].

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

**Review Team Member:** Andrea Nick, Air Resources

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0036-Rosemont; 0039-JFisher; 0084-SSSR

**Resource Area(s):** Air Quality – Legal (AQ-3)

**Objection Issue:**

- 0036-26: Blasting may occur more than once per day, the average will be once per day. The condition as written states that blasting is generally limited to once per day and limited to 52 tons per day of explosive usage based on the air permit, which is not what the air permit says. The permit specifies ANFO usage is limited to 52 tons per day, not all explosives and it does not specify the number of blasts at all. Rosemont objects to the current statements and requests the language be changed to not conflict with the air permit or any subsequent permit amendments and state: "Blasting restrictions are specified in the air permit, are limited to daylight hours, and generally one blast per day." (Volume 5, Appendix B, FS-N- 01, page B-67).
- 0039-7: The FEIS must correct potential errors with respect to NESHAP rules and clarify entries of Table 29.
- 0084-102: The FEIS wrongly assumes that the ADEQ permit will ensure that the project will meet all regulatory requirements. Specifically 1) it does not meet all regulatory requirements because it was approved for a different project configuration than the Barrel Alternative, 2) ADEQ's technical review was inadequate, 3) The concept and definition of a "class II synthetic minor permit" raises problems. ADEQ has not ensured that Rosemont Copper meets "all Federal, State and local requirements" because it has not effectively considered the potential to emit toxic and hazardous materials under Section 112(b) of the Clean Air Act, especially gaseous hazardous pollutants following blasting and from the dry disposal pile, 4) ADEQ issued a minor source air construction permit on January 31, 2013, because the majority of emissions from the Rosemont Copper Mine operation would be classified as fugitive. 5) The technology which ADEQ has required in the air quality permit to achieve the reductions of emissions of coarse dust particles by approximately 47 tons and of fine particulates by 43 tons, compared with the original Pima County air quality has been challenged in the air quality permit appeal hearings. The FEIS has indicated that, with the ADEQ class II permit having been issued, its analysis with respect to air quality permit issues and controls are not relevant in the FEIS. However, given the likelihood of the Rosemont project causing a non-attainment situation, as noted above, the USFS must now specify mitigating measures to reduce air pollution emissions further, including augmenting proposed mitigating measures in the air quality permit, as a condition of its approval of the Rosemont project.
- 0084-106: The project would not ensure compliance with all air quality requirements and thus cannot be approved via a Final ROD. The PM<sub>2.5</sub> increment is predicted to be

exceeded for all alternatives for the 24-hour averaging time. In light of the data indicating that PM<sub>2.5</sub> increments for the 24-hour averaging time will be exceeded under all alternatives, additional mitigation measures must be reviewed and required for reducing emissions of this criteria pollutant. As noted herein, failure to at least minimize these emissions, let alone prevent their exceedence, is required under federal law. The project should demonstrate that emission reductions and mitigation measures have been taken and shown by modeling to result in predicted values less than the applicable NAAQS or PSD Class II increments.

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

0039-26: Issue a new DEIS or Supplement EIS subject to public comment.

0084-102: The USFS must prepare its own assessment of this project's compliance with Federal, state and local requirements, in accordance with the comments herein, and include this information in a revised DEIS that is made available for public comment and review. B) The USFS must correct problems of modeling and statistical analyses in its revised modeling of air quality transport, dispersion and impacts. C) If the rerun results confirm the likelihood of the Rosemont project causing a non-attainment situation, the USFS must provide mitigating measures in the project approval to prevent this; otherwise the project will be in violation of the Clean Air Act.

**Law, Regulation and/or Policy:** Clean Air Act; National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61 and 63; Arizona Department of Environmental Quality Rules and Regulation; Prevention of Significant Deterioration (PSD) under the Clean Air Act.

**Review Team Member Response:**

Response to objection issue 0036-26

The objector contends that there is a conflict between the wording of the blasting stipulations air permit and a noise mitigation measure.

Blasting stipulations in the air permit state: "The Permittee shall limit the amount of Ammonium Nitrate and Fuel Oil (ANFO) used during blasting to no more than 52 tons per day [PR 018994]. A noise mitigation measure [PR 047511\_6, p. B-67] related to blasting states: "This mitigation is focused on noise management techniques, including generally limiting blasting to once per day, during daylight hours; and sequenced blasting using time-delay technology. Explosive usage is limited to 52 tons per day, as consistent with the limits contained in the air quality permit."

These limits are unrelated; the first is air quality based while the second is noise based. The lack of specificity is confusing.

Response to objection issue 0039-7

The objector contends that there are errors with respect to NESHAP rules as listed in Table 29 of the FEIS.

There is no conflict between the explanation of the NESHAP rule in table 29 [PR 047511\_3, p. 233] and the summary of Hazardous Air Pollutants (HAPs) emissions in table 1.1 of the document 'Emission Inventory Information, years 1, 5, 10, 15, and 20, vol. 1 [PR 015729, p. 1-3]. The lack of specificity is confusing.

Response to objection issue 0084-102

The objector contends that “ADEQ's technical review was inadequate [and] ADEQ issued a minor source air construction permit on January 31, 2013, because the majority of emissions from the Rosemont Copper Mine operation would be classified as fugitive [and] the technology which ADEQ has required in the air quality permit to achieve the reductions of emissions of coarse dust particles by approximately 47 tons and of fine particulates by 43 tons, compared with the original Pima County air quality has been challenged in the air quality permit appeal hearings.” In addition, the objector contends “USFS must now specify mitigating measures to reduce air pollution emissions further, including augmenting proposed mitigating measures in the air quality permit, as a condition of its approval of the Rosemont project.”

All these issues are addressed in the FEIS. The ADEQ is the responsible regulating agency: “Determination of whether Rosemont Copper’s emissions represent a violation of applicable air quality laws and regulations is solely under the regulatory authority of ADEQ as the agency issuing the permit” [PR 047511\_3, p. 260]. The Forest Service has no authority, obligation, or expertise to determine or enforce compliance with the measures included in this category [PR 047511\_6, p. B-4].

The objector contends “The concept and definition of a "class II synthetic minor permit" raises problems. ADEQ has not ensured that Rosemont Copper meets "all Federal, State and local requirements" because it has not effectively considered the potential to emit toxic and hazardous materials under Section 112(b) of the Clean Air Act, especially gaseous hazardous pollutants following blasting and from the dry disposal pile.”

Results of modeling and NAAQS standards comparison are disclosed in the FEIS Table 45 [PR 047511\_3, p. 261]. The table shows the maximum modeled and ambient emission concentrations at the perimeter fence for proposed action and action alternatives. The modeling results for NAAQS standards in relation to air quality issues are disclosed in Table 28: Summary of effects [PR 047511\_3, pp. 230-232]. The Rosemont Copper Mine’s hazardous air pollutants (HAPs) emissions meet the criteria as an “area source” as established by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation [PR 015729, pp. 1-3]. This modeling covered emissions of all hazardous pollutants. Modeling techniques were conservative to protect human health as described in the FEIS [PR 047511\_3, p. 218]. Modeling followed EPA guidelines to reflect the potential emissions of HAPs and other air pollutants [PR 047511\_3, pp. 220-229].

### Response to objection issue 0084-106

The objector contends that “the project would not ensure compliance with all air quality requirements.” All common air pollutants (particulate matter) are regulated by the National Ambient Air Quality Standards (NAAQS) [PR 047511\_3, p. 239]. Results of modeling and NAAQS standards comparison are disclosed in the FEIS Table 45 [PR 047511\_3, p. 261]. The table shows the maximum modeled and ambient emission concentrations at the perimeter fence for proposed action and action alternatives. The modeling results for NAAQS standards in relation to air quality issues are disclosed in Table 28: Summary of effects [PR 047511\_3, pp. 230-232]. In addition, the Rosemont Copper Mine’s hazardous air pollutants (HAPs) emissions meet the criteria as an “area source” as established by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation [PR 015729, pp. 1-3]. This modeling covered emissions of all hazardous pollutants. Modeling techniques for lead and other pollutants were conservative to protect human health as described in the FEIS [PR 047511\_3, p. 218]. Modeling followed EPA guidelines to reflect the potential emissions of HAPs and other air pollutants [PR 047511\_3, pp. 220-229]. The Forest Service has no authority, obligation, or expertise to determine or enforce compliance with the measures included in this category [PR 047511\_6, p. B-4].

The objector contends that the project does not meet “PSD Class II increments.” Prevention of significant deterioration (PSD) is not applicable to this project since the ADEQ issued an “Air Quality Class II Synthetic Minor Permit” authorizing “Rosemont Copper Company for the construction and operation of an open pit copper mine, milling, leaching, and solvent extraction/electrowinning facility to be located at 21900 S Sonoita Highway, Vail, Arizona 85641” [PR 018994, p. 1]. PSD applies only to major stationary sources.

The objector contends that “mitigation measures must be reviewed and required for reducing emissions of this [PM 2.5] criteria pollutant.” According to the FEIS, the ADEQ is the responsible regulating agency: “Determination of whether Rosemont Copper’s emissions represent a violation of applicable air quality laws and regulations is solely under the regulatory authority of ADEQ as the agency issuing the permit” [PR 047511\_3, p. 260]. The ADEQ permit contains the guidelines regarding dust suppression: “The Permittee shall comply with the dust control plan included in Attachment “D” of this permit to control particulate matter emissions from activities identified in the dust control plan” [PR 018994, p. 17].

### **Recommended Remedy by Review Team Member (if any):**

No remedy is needed for objections 0084-102 and 0084-106.

Two of the objections (0036-26 and 0036-7) are based on issues with clarity in the projects documentation. Clarity can be improved by adding additional information.

**Objection 0036-26:** Change wording of the FS-N-01 mitigation measure [PR 047511\_6, p. B-67]: "Air quality related blasting restrictions are specified in the Air Quality Class II Synthetic Minor Permit issued by the Arizona Department of Environmental Quality. Additional blasting restrictions were established focused on noise management techniques, including generally

limiting blasting to once per day, during daylight hours; and sequenced blasting using time-delay technology.”

**Objection 0039-7:** The following should be addressed in the Errata: In Table 29. Air quality laws, ordinances, regulations, and standards under “applicability” column of the row titled “National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 61 and 63” [PR 047511\_3, p. 233] change the wording to state: “Based on the estimated, maximum potential emissions for the proposed mine operation, the Rosemont Copper Project would not be a “major HAP source” as annual HAP emissions are modeled at 3.37 tpy [PR 015729, pp. 1-3]. However, applicable NESHAPs pertaining to the boiler, emergency engine, and storage tanks would apply.”

**Review Team Member:** Andrea Nick, Air Resources



# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0036-Rosemont; 0039-JFisher; 0084-SSSR

**Resource Area(s):** Air Quality – Mitigation (AQ-4)

**Objection Issue:**

- 0039-10: The monitoring and mitigation measures described in Appendix B are entirely new.
- 0039-11: The FEIS cannot rely on voluntary measures to meaningfully offset emissions.
- 0036-34: The actions include application of water and chemical dust suppressant. Should state water and/or chemical dust suppressant. Also, there is a typo in the Location section referring to concentrated ore, which should state concentrate ore. Rosemont requests the suggested changes be made so they match the requirements in the air permit. (Volume 5, Appendix B, page B-77, OA-AQ-02, Description).
- 0039-9: The FEIS relies unwisely and entirely on ADEQ for monitoring and enforcement of mitigating measures for air quality. The FEIS incorrectly totally relies on the ADEQ permit to ensure the project meets all Federal, State and local requirements.
- 0039-8: The air quality monitoring protocols described in the FEIS are inadequate.
- 0084-104: The air quality monitoring is inadequate because 1) it makes no provision for monitoring PM2.5. 2) Because the commencement of certain monitoring requirements will not occur until after certain air emissions activities have begun. 3) The calendar of required activities under the air quality permit may conflict with respect to installation of particulate monitors and the required monitoring and therefore is a problem with respect to mine start-up activities. 4) The FEIS also fails to establish an enforceable mechanism to assure that the array of mitigation and monitoring measures will be adequate, without relying solely on the limited measures proposed by ADEQ.
- 0084-105: CNF cannot rely on voluntary measures to reduce NOx emissions. The reduction of NOx emissions estimated in the FEIS is unsupported by defensible calculations, optimistic, and probably represents an upper limit. The FEIS should require additional and enforceable NOx mitigation measures in the Mining Plan of Operations. The ADEQ air permit requires Tier 4 engines on only four haul-trucks purchased after 2014. Blasting is the second largest source of NOx emissions, but the FEIS requires no specific mitigation for these emissions.

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

0039-8, 10, 11: Issue a new DEIS or Supplement EIS subject to public comment.

0039-9: Provide additional mitigating and monitoring requirements to address the deficiencies in air quality

0084-104: A) The air quality monitoring protocols, particularly for PM2.5, must be made available in a revised DEIS. B) The monitoring protocol should be provided in the FEIS and should not come after the final decision on this project. C) Provide additional mitigating and monitoring requirements to address the deficiencies in air quality to augment and reinforce the effectiveness of ADEQ permit requirements.

0084-105: A) Prepare a revised DEIS that reflects that the agency is not relying solely on voluntary measures as mitigation, and provide this information in a revised DEIS that is made available for public comment and review. The revised DEIS must also provide a detailed calculation justifying the estimated NOx offset or reduction by voluntary carpooling. B) All haul-trucks should be required to have Tier 4 engines. C) The FS should require mitigation for NOx emissions from the blasting process.

**Law, Regulation and/or Policy:** National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 61 and 63; Clean Air Act; Council on Environmental Quality (CEQ) Regulations at 40 CFR 1500-1508

### **Review Team Member Response:**

#### Response to objection issue 0039-10

The objector contends the monitoring and mitigation measures described in Appendix B are entirely new.

The DEIS addresses mitigation measures common to all alternatives in Chapter 2 [PR 047511\_2, pp. 64-65]. The text notes that the final mitigation measures for air quality will be included in the final air quality permit issued by Pima County. Details of the air quality mitigation measures and strategies are also discussed the ‘Mitigation Effectiveness’ section of the air quality resource section in Chapter 3 of the DEIS, the details [PR 047511\_3, pp. 196-202]. This section notes that these measures will be evaluated for effectiveness at reducing impacts on air quality between the DEIS and FEIS.

The response to comments on the DEIS addresses air quality [PR 047511\_7, pp. G-11, G-24 to G-36]. Various responses note that the analysis was updated, additional modeling was done, and mitigation measures were added. The FEIS addresses mitigation measures in general in Chapter 2 [PR 047511\_2, pp. 93-95]. The text notes that all of the mitigation measures have been incorporated into Appendix B for ease of reading. It also notes that (1) many measures have been added or refined since the DEIS and (2) the final measures will not be known until all permits have been issued. In Chapter 1 [PR 047511\_2, p. 26] the text notes that many new mitigation measures were added in response to comments on the DEIS and notes their location in an appendix. The air quality section in Chapter 3 of the DEIS also describes changes made to the air quality section from the DEIS [PR 047511\_3, pp. 217-219], including the addition of new mitigation and monitoring measures. The text states that the new measures were made in

response to comments. Air quality mitigation measures are found in appendix B [PR 047511\_6, pp. B-76 to B-83, B-91 to B-92, B-97 to B-98].

#### Response to objection issue 0036-34

The objector contends that there are typographical errors in the air quality mitigation and monitoring section in appendix B of the FEIS. This wording conflicts with the wording in the air permit.

According to the FEIS, the ADEQ is the responsible regulating agency: “Determination of whether Rosemont Copper’s emissions represent a violation of applicable air quality laws and regulations is solely under the regulatory authority of ADEQ as the agency issuing the permit” [PR 047511\_3, p. 260]. The ADEQ permit contains the guidelines regarding dust suppression: “The Permittee shall comply with the dust control plan included in Attachment “D” of this permit to control particulate matter emissions from activities identified in the dust control plan” [PR 018994, p. 17].

Appendix D offers the permit holder two options for dust suppression: 1) “Dust Control Program A” allowing for “Dust suppressants which could be used for this purpose include, among others, lignosulfonates, petroleum resins, asphalt emulsions, and acrylic cement”; 2) “Dust Control Program B” allowing “Dust Control Program B consists of periodic watering in sufficient amounts to achieve 90% control for PM10. The program will be applied only during days with precipitation of less than 0.01 inches. The water application intensities necessary to achieve a 90% particulate control efficiency during daylight and nighttime hours” [PR 018994, p. D5].

The permit refers to ‘chemical dust suppressant and/or water [PR 018994, p. D-8] and to ‘chemical dust suppressant and water’ [PR 047511\_6, p. B-78].

The permit issued by the ADEQ “Air Quality Class II Synthetic Minor Permit,” [PR 018994, p. 19] refers to “concentrate ore.” The text of mitigation measure OA-AQ-02 in appendix B OA-AQ-02 refers to “concentrated ore” [PR 047511\_6, p. B-77].

The objector is correct in pointing out the typographical errors.

#### Response to objection issues 0039-9, 0039-8, 0039-11, 0084-104, and 0084-105

The objectors contend that air quality monitoring, enforcement, and mitigation measures are inadequate. Emissions from the project will not meet Federal, State, and local requirements. According to the FEIS, the ADEQ is the responsible regulating agency: “Determination of whether Rosemont Copper’s emissions represent a violation of applicable air quality laws and regulations is solely under the regulatory authority of ADEQ as the agency issuing the permit.” [PR 047511\_3, p. 260]. In addition, Appendix B of the FEIS states: “Mitigation and Monitoring – Other Regulatory and Permitting Agencies – Mitigation and monitoring items under this heading are within the authority of other regulatory permitting agencies, including the ADEQ and ADWR. The Forest Service has no authority, obligation, or expertise to determine or enforce compliance the measures included in this category” [PR 047511\_6, p. B-4].

The ADEQ issued an “Air Quality Class II Synthetic Minor Permit” authorizing “Rosemont Copper Company for the construction and operation of an open pit copper mine, milling, leaching, and solvent extraction/electrowinning facility to be located at 21900 S Sonoita Highway, Vail, Arizona 85641” [PR 018994, p. 1].

**Recommended Remedy by Review Team Member** (if any):

An errata is needed to change a typo in the mitigation OA-AQ-02 on page B-77 [PR 047511\_6, p. B-77] from “concentrated” to “concentrate.”

An errata is also needed to change the wording of mitigation measure OA-AQ-03 “Dust control for open areas and storage piles” [047511\_6, p. B-78] to state: “These activities include application and reapplication of chemical dust suppressant *and/or water as defined in the ADEQ Air Quality Class II Synthetic Minor Permit.*”

**Review Team Member:** Andrea Nick, Air Resources

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0039-JFisher; 0080-CShinsky; 0084-SSSR; 0091-PimaCounty; 0100-TohonoOodhamNation

**Resource Area(s):** Air Quality – Effects (AQ-5)

**Objection Issue:**

- 0039-1: The USFS's evaluation of potential lead emissions is based on unsupported assumptions.
- 0039-2: The FEIS has not evaluated the problems of manganese as a toxic air pollutant.
- 0039-3: The FEIS relies on an inadequate evaluation of the presence of asbestos-containing materials, and the FEIS approach to preventing asbestos-related environmental problems from airborne emissions is deficient and non-protective of human health.
- 0039-5: The FEIS fails to adequately describe or address issues related to particulate matter emissions and other forms of emission of toxic air contaminants.
- 0039-6: The FEIS fails to provide risk assessments for the effects of toxic and hazardous air pollutants on human health.
- 0039-12: The FEIS discussion of the blast process is inadequate because it does not address the chemical production and release of toxic air pollutants and fails to give consideration to the relationship between the blast process and emission of greenhouse gases.
- 0039-4: The FEIS fails to address air quality monitoring with respect to radioactivity in particulate matter or radon gas.
- 0039-24: SSSR et al at 17 raised the issue of erionite, an asbestiform mineral found in the geological strata of the Southwestern United States and border areas in Mexico. The FEIS has not responded to the DEIS comment on erionite, and actually never mentions the substance. The FEIS handling of asbestos through the analysis of all particulate matter is limiting and misleading. Asbestos is not always monitored by gravimetric measurements.
- 0039-25: The Forest Service discussion ignores the radioactivity content of the air particulate emissions following the blast stage. Uranium and thorium will be present in the particulate matter. Both elements can be measured gravimetrically, and will be part of any elemental analysis of particulates. The FEIS has not responded to the comments here by SSSR et al. (at 15).
- 0080-2: The USFS fails to protect US citizens from toxic, air-borne chemicals which would be generated by the Rosemont project. Specifically mentioned are asbestiform minerals; lack of monitoring for PM 2.5; voluntary carpooling plan; and toxins contained in fugitive dust.

- 0084-97: FEIS provides incorrect information, inadequate analysis, and unsupported conclusions regarding the impacts to public health and safety from this project's air pollutant emissions.
- 0084-78: We previously commented on the DEIS that the CNF failed to require monitoring of radioactivity in particulate matter or radon gas. The FEIS has failed to respond to this comment and still does not cover air quality monitoring with respect to the monitoring of radioactivity in particulate matter or radon gas.
- 0084-86: The USFS cannot approve any PoO without assurance that all air quality standards and requirements will be met at all times. Yet, the FEIS here admits that some of these requirements may be violated by the Project's cumulative emissions with other reasonably foreseeable sources. Not only does this violate the agency's substantive environmental protection requirements, it highlights the procedural violations of NEPA. In other words, without knowing the extent of these combined emissions, the agency's statement that the Project will not cause any violation of air quality standards/requirements lacks the requisite evidentiary support and cannot stand.
- 0084-87: The FEIS fails to adequately assess air quality related values of visibility and nitrogen deposition. Specifically, the FEIS does not address the context, severity, and intensity of deposition, including critical loads; the Barrel Alternative exceeds deposition thresholds; and regulation of deposition is limited.
- 0084-88: The FEIS fails to adequately describe or address issues related to hazardous air pollutants, specifically in particulate matter, gaseous emissions, aerosols. Specifics include improper emissions calculations and analysis of emissions from dry-stack tailings and blasting, lack of analysis of health effects including cancer, mutagenic, neurotoxic, and teratogenic effects, specific metals including arsenic, admium, lead, selenium, uranium, thorium, and manganese, and specific gaseous compounds including arsene, phosphene, nickel carbonyl, carbon disulfide, carbonyl sulfide, hydrogen selenide, methyl lead, methyl mercury, selenium sulfide, elemental phosphorus. Statements in Table 29 regarding NESHAPS are also incorrect. Background concentrations of lead and arsenic are improperly identified (p. 264 of FEIS)
- 0084-90: The FEIS provides an inadequate analysis regarding potential increases in lung disease, including Valley Fever (Coccidiomycosis) that may result from mining operations.
- 0084-93: Based on the failure to adequately review all air quality issues, the USFS's determination that the Project will comply with all air quality standards and requirements lacks proper evidentiary support and cannot stand.
- 0084-94: The FEIS provides an inadequate analysis of NOx emissions and potential impacts to public health and safety. We contend that NAAQS for PMIO, as well as other pollutants, will be exceeded by this project.
- 0084-95: The FEIS fails to adequately evaluate the presence of asbestos-containing material. Specific concerns include lack of evaluation of erionite, mineralogical analysis for asbestos using xray or microscopic methods, reliance on particulate matter to protect health, inadequate monitoring.

- 0084-96: The FEIS fails to evaluate radioactivity in particulate matter or radon gas. Failure to monitor radioactivity emissions in air quality creates a TENORM problem because the radioactivity levels in the air at the Rosemont site will mistakenly be assumed to be natural background rather than the combination of natural background and radioactivity emissions. A deficiency of the air quality permit currently under appeal includes a failure to consider TENORM or radon emissions and other aspects of radioactivity. What will be the human health risk exposure to radioactivity, as opposed simply to the NAAQS, at the fence line? How will the USFS determine this? The FEIS contains no information or analysis of this problem and demonstrates that the statement that air quality analyses with respect to the protection of human health as evidenced by levels of pollutants at the "fence line" are incomplete and faulty. The FEIS analysis of TENORM is inadequate. The details of the studies done by the USFS experts and Rosemont experts are not revealed in the FEIS. Because changes can continue to occur long after the mine operation ceases further investigation is warranted.
- 0084-98: The FEIS fails to properly and adequately model PM10 concentrations at points relevant to determining whether Pima County will be in non-attainment and to evaluate the reasonably foreseeable consequences of non-attainment; additionally, the FEIS fails to outline mitigation measures to ameliorate the consequences of PM10 NAAQS exceedances in Pima County. Why were concentrations not modeled at specific Tucson points which have previously shown elevated PM10 levels? Data from these specific locations can trigger the non-attainment status. The use of the surrogate distance to Saguaro National Park does not have any credibility with respect to approximating impacts at the locations not chosen in the previous item because of the different kinds and larger number of sources of air pollutant emissions that impact the locations where modeling should have been included. If Rosemont emissions are followed by a determination of a non-attainment status in Pima County, then USFS has permitted a violation of the Clean Air Act.
- 0084-99: Based on the previous five items, the second paragraph of the quoted material (FEIS at 264, "A simple calculation suggests...") from the EIS is incorrect. Rosemont Copper can create the non-attainment status, and the FEIS must acknowledge this.
- 0084-100: The FEIS fails to evaluate the issue of non-attainment of air quality areas in its cumulative effects analysis. The possibility of triggering non-attainment areas is a readily foreseeable event and subject to cumulative analysis evaluation under NEPA. Non-attainment will trigger in turn the enforcement actions under the State Implementation Plan, which will have major economic consequences for all air pollution sources in Pima County. When non-attainment occurs, the State Implementation Plan for air pollution is invoked. The FEIS does not consider the impact of this change of regulatory environment on its decision to support the proposed mine project
- 0084-103: ADEQ policy does not set specific air quality emissions requirements on radionuclides because EPA has not provided emission limits. Thus, the air quality permit did not require inclusion of such analyses to obtain a permit. This specific administrative agency policy of ADEQ has no applicability and no relationship to requirements under the NEPA rules, because EPA has declared all emissions of radionuclides to be toxic

substances under Section 112 of the Clean Air Act. Thus, for purposes of the NEPA analysis, the issue is the health and safety impact of radionuclides emissions as toxic substances, not merely conformity with regulatory emissions limits.

- 0084-107: The USFS has not shown that the Rosemont Project, alone and in conjunction with present and reasonably foreseeable future activities/actions, does not have the potential to violate air quality standards and requirements. As such, the FEIS and Draft ROD must be remanded back to the Coronado National Forest and no PoO can be approved until such a showing can be made (with full evidentiary support).
- 0091-3: Pima County objects to the FEIS because it does not accurately analyze the impact the Rosemont Mine would have on the air quality within Pima County. The Barrel Alternative increases the PM10 concentration from a background concentration of 47.7  $\mu\text{g}/\text{m}^3$  to a maximum concentration of 148.8  $\mu\text{g}/\text{m}^3$ . Pima County believes that proper modeling would result in additional negative air quality impacts that show the alternative is not protective of NFS resources beyond the perimeter fence line and exceed the National Ambient Air Quality Standard (NAAQS) for PM10 of 150  $\mu\text{g}/\text{m}^3$ .
- 0084-91: The perimeter buttress around the waste rock tailings facility to be used to break up air flow, reduce exposure of the tailing facility, and minimize particulate emissions from wind erosion was not mentioned in the DEIS. (FEIS at 225). The FEIS references provided no technical information.
- 0100-19: The FEIS fails to adequately analyze the impacts and efficacy of the use of binder material on tailings pond dust.

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

0039-1, 2, 3, 5, 6, 12; 0084-93, 94, 96: Issue a new DEIS or Supplement EIS subject to public comment.

0039-4: Require monitoring of radioactivity in air quality and must determine the exposure risk to human health of radioactivity at the fence line.

0080-2: Conduct a detailed analysis of the project site, including drilling core samples, and provide a report on their findings in a supplemental EIS; require PM2.5 monitoring prior to the start of operations; delete references to voluntary carpooling; conduct modeling that evaluates the accumulation of fugitive toxins.

0084-90, 95, 96, 97, 98, 99, 100, 103: Provide additional analysis of potential impacts to public health and safety caused by this project's air pollutant emissions in a revised DEIS.

0084-87: The FEIS, in the cumulative effects, irreversible impacts, and environmental consequences sections, needs to highlight the foregoing increased nitrogen deposition adverse effects and quantify visibility impairment.

0084-91: (1) Provide technical data to explain and justify the need and effectiveness of this new mitigation proposal; (2) redesign the buttress. Either the technical data or the re-designed plan



for the buttress, or both if applicable, must be made available for public review and comment in a revised DEIS.

**Law, Regulation and/or Policy:** Clean Air Act; National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61 and 63; National Ambient Air Quality Standards (NAAQS), 40 CFR 50; Arizona Department of Environmental Quality Rules and Regulation

**Review Team Member Response:**

Response to objection issues 0039-1, 0039-2, 0039-3, 0039-4, 0039-5, 0039-6, 0039-24, 0039-25, 0080-2, 0084-97, 0084-78, 0084-93, 0084-94, 0084-95, 0084-96, 0084-103.

The objectors have several contentions related to air quality and potential contaminants or pollutants. The objectors contend that Forest Service's evaluation of potential lead emissions is based on unsupported assumptions, and that the FEIS does not fully evaluate or address environmental or health issues related to manganese, particulate matter, asbestos, or other forms of toxic air contaminants or pollutants. Air quality monitoring with respect to radioactivity in particulate matter or radon gas is not addressed. The objector also contends that the evaluation of the presence of asbestos-containing materials was inadequate.

All common air pollutants (including lead and particulate matter) are regulated by the National Ambient Air Quality Standards (NAAQS) [PR 047511\_3, p. 239]. Results of modeling and NAAQS standards comparison are disclosed in the FEIS Table 45 [PR 047511\_3, p. 261]. The table shows the maximum modeled and ambient emission concentrations at the perimeter fence for proposed action and action alternatives for lead, particulate matter, and other pollutants. The modeling results for NAAQS standards in relation to air quality issues are disclosed in Table 28: Summary of effects [PR 047511\_3, pp. 230-232].

The Rosemont Copper Mine's hazardous air pollutants (HAPs) emissions meet the criteria as an "area source" as established by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation [PR 015729, pp. 1-3]. This modeling covered emissions of all hazardous pollutants. Modeling techniques for lead and other pollutants were conservative to protect human health as described in the FEIS [PR 047511\_3, p. 218]. Modeling followed EPA guidelines to reflect the potential emissions of HAP and other air pollutants [PR 047511\_3, pp. 220-229].

Under the area source NESHAP regulation, the Rosemont mine would be required to install emission control technology to the boiler [PR 018994, pp. 30-33], storage tanks [PR 018994, p. 44], and emergency engines [PR 018994, pp. 35-38] as specified in the Arizona Department of Environmental Quality (ADEQ) permit. This information is also disclosed in Table 29 in the FEIS, 'Air quality laws, ordinances, regulation, and standards' [PR 047511\_3, p. 233]. In addition to the NESHAP regulation, particulate matter (regardless of its chemical composition) is regulated under the National Ambient Air Quality Standards (NAAQS). This information is presented in the FEIS: "it is presumed that if compliance with the PM10 and PM2.5 NAAQS is achieved, public health would be protected from the toxic metals compounds within the particulate emissions as well" [PR 047511\_3, p. 218].

“Asbestiform minerals” were not found in the vicinity of the project site as stated in the FEIS: “While asbestiform minerals may occur in many geological settings, including those of the project area, research by the AGS and by observations made directly by Rosemont geologists logging the drill cores give no indication that asbestiform minerals are present in the Rosemont deposit itself” [PR 047511\_3, p. 227]. According ADEQ homepage on the Web: “The ADEQ Asbestos NESHAP Program does not have any additional requirements apart from the federal standard.”

#### Response to objection issue 0039-12

The objector contends that “The FEIS discussion of the blast process is inadequate because it does not address the chemical production and release of toxic air pollutants and fails to give consideration to the relationship between the blast process and emission of greenhouse gases.”

The response to objection issues 0039-1, 0039-2, 0039-3, 0039-4, 0039-5, and 0039-6 addresses toxic air pollutants and related modeling results, emissions controls, and monitoring.

A discussion of climate change and modeling methodology is present in the FEIS [PR 047511\_3 pp. 227- 228] and covers all activity conducted by the proposed project. The FEIS states that project’s most common greenhouse gas pollutant is CO<sub>2</sub> [PR 047511\_3, p. 227]. Modeling results for tailpipe emissions (including CO<sub>2</sub>) and fugitive source emissions were displayed in the FEIS in tables 37, 38, 39, and 42, [PR 047511\_3, pp. 252-254 and 256]. These modeled results were compared to the total of Pima County’s emissions inventory shown in tables 43 and 44 [PR 047511\_3, pp. 257]. The results indicate that the modeled CO<sub>2</sub> emissions are close to 1 percent of the County’s total CO<sub>2</sub> emissions; therefore, all other greenhouses gases emitted from the project would be below the total modeled for CO<sub>2</sub>. Uncertainty in predicting climate change effects was documented in the FEIS [PR 047511\_3, p. 228].

#### Response to objections 0084-86, 0084-88, 0084-98, 0084-99, 0084-100, 0084-107, 0091-3

Objectors contend that the project would not meet compliance with all air quality requirements. All common air pollutants are regulated by the National Ambient Air Quality Standards (NAAQS) [PR 047511\_3, p. 239]. Results of modeling and NAAQS standards comparison are disclosed in the FEIS Table 45 [PR 047511\_3, p. 261]. The table shows the maximum modeled and ambient emission concentrations at the perimeter fence for proposed action and action alternatives. The modeling results for NAAQS standards in relation to air quality issues are disclosed in Table 28: Summary of effects [PR 047511\_3, pp. 230-232].

In addition, The Rosemont Copper Mine’s hazardous air pollutants (HAPs) emissions meet the criteria as an “area source” as established by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation [PR 015729, pp. 1-3]. This modeling covered emissions of all hazardous pollutants. Modeling techniques for lead and other pollutants were conservative to protect human health as described in the FEIS [PR 047511\_3, p. 218]. Modeling followed EPA guidelines to reflect the potential emissions of HAP and other air pollutants [PR 047511\_3, pp. 220-229].

Air quality impact modeling was conservative to ensure full documentation of any potential impacts. For example:

- Active mining emissions modeling based on the highest year of emissions [PR 047511\_3, p. 225].
- EPA standards were followed [PR 047511\_3, p. 220].
- Class I airshed impacts were modelled and assessed [PR 047511\_3, p. 220].
- Public exposure to air pollution was assessed using standard protocols of modeling National Ambient Air Quality Standards (NAAQS) at the facility's fenceline [PR 047511\_3, p. 220].
- Model inputs and control parameter options selected in accordance with the protocol established in the "User's Guide for the AMS/EPA Regulatory Model – AERMOD" (U.S. Environmental Protection Agency 2004b) [PR 047511\_3, p. 226].
- Evaluation of potential effects on air quality related values from the project to more distant Class I areas other than Saguaro National Park East was conducted by Rosemont Copper using CALPUFF Version 5.8, which is the recommended model for long-range transport applications (40 CFR 51, "Revision to the Guidelines on Air Quality Models," November 2005) [PR 047511\_3, p. 226].
- Uncertainty in predicting climate change effects is expected because it is not possible to meaningfully link individual project actions to quantitative effects on climatic patterns [PR 047511\_3, p. 228].
- Emissions from vehicles were included in air quality impact analysis [PR 047511\_3, pp. 223-226].

The Forest Service has no authority, obligation, or expertise to determine or enforce compliance with the measures included in this category [PR 047511\_6, p. B-4]. According to the FEIS, the ADEQ is the responsible regulating agency: "Determination of whether Rosemont Copper's emissions represent a violation of applicable air quality laws and regulations is solely under the regulatory authority of ADEQ as the agency issuing the permit" [PR 047511\_3, p. 260].

#### Response to objection 0084-90

The objector contends that "an inadequate analysis regarding potential increases in lung disease, including Valley Fever (Coccidiomycosis) that may result from mining operations." Particulate matter (regardless of its chemical composition) is regulated under the National Ambient Air Quality Standards (NAAQS). This information is presented in the FEIS: "it is presumed that if compliance with the PM10 and PM2.5 NAAQS is achieved, public health would be protected from the toxic metals compounds within the particulate emissions as well" [PR 047511\_3, p. 218].

#### Response to objection 0084-87

The objector contends that air quality related values pertaining to visibility and nitrogen deposition are not addressed with context, severity, and intensity. The FEIS addresses visibility impacts in the "Action Alternatives' Projected Effects on Visibility in Class I Areas." [PR 047511\_3, p. 191]. The FEIS addresses deposition within the "Action Alternatives' Projected

Effects on Deposition of Sulfates and Nitrates” [PR 047511\_3, p. 195]. In addition, the FEIS presents pertinent modeling results in the following tables:

- Visibility analysis Follows the Federal Land Managers Air Quality Related Values Workgroup (FLAG) Phase 1 Report Revised Table 6 (2010). [PR 047511\_3, p. 193]
- Table 45: Visibility impacts at other Class I airsheds from year 1 and year 5 emissions display visibility impacts in multiple wildernesses [PR 047511\_3, p. 194]
- Results from nitrogen deposition modeling are displayed in Table 46 Deposition impacts for each Class I area [PR 047511\_3, p. 196]
- Visual impacts at Saguaro East National Park is displayed in Table 44 [PR 047511\_3, p. 192]

Response to objection 0084-91 and 0100-19

Objectors contend that the effectiveness of dust prevention measures and design of mine tailings was not examined. The FEIS discusses the tailing design and references a study where dust control effectiveness was studied: “Conventional Tailings Design: The Applicant completed a tailings siting study in 2006 (Vector 2006) to identify potential locations for the development of a tailings facility” [PR 047511\_6, p. 28]. Tailing impoundment design was studied in detail with results presented within a Technical Memorandum [PR 011901]

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

**Review Team Member:** Andrea Nick, Air Resources

# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0039-JFisher, 0053-RMaddox, 0084-SSSR

**Resource Area(s):** Air Quality – Modeling (AQ-6)

**Objection Issue:**

- 0039-13: The FEIS continues to use air quality data and meteorological data inappropriately and fails to correct problems of modeling, and statistical analyses in its revised modeling of air quality transport and dispersion.
- 0039-14: The FEIS has mistakenly based its decision on using the low NO<sub>2</sub>/NO<sub>x</sub> ratio in its revised air quality simulations rather than the higher NO<sub>2</sub>/NO<sub>x</sub> ratio.
- 0039-15: The FEIS revised AERMOD analysis continues to use inappropriate, incomplete, and inadequate input data so that its results showing NAAQS compliance are not reliable; furthermore, the FEIS failed to use the current AERMOD guidance in its analysis.
- 0039-16: The FEIS revised models with CALPUFF continue to demonstrate problems.
- 0039-17: VISCREEN modeling depends on and correlates outputs of applications of AERMOD. VISCREEN modeling therefore likely also suffers from previously described problems with AERMOD. Because the original AERMOD and CALPUFF modeling was so faulty, the Forest Service should have considered a different and more comprehensive modeling platform for revised modeling.
- 0039-19: The FEIS allows the Forest Service to treat “exceptional” events in air pollution and meteorology in a dangerously deficient and dismissive manner.
- 0053-1: The modeling behind the air quality analysis in the FEIS is flawed, uses outdated models, uses inappropriate data and thus the modeling results are flawed.
- 0084-89: The FEIS air quality modeling, including AERMOD, CALPUFF, and VISCREEN models, is inadequate for a variety of reasons, and the modeling does not represent the best available science. Because of this the results showing compliance with NAAQS are not valid. Concerns include input data, model settings, background data, and modeling process. Specifics include: 1) inability for AERMOD to handle extreme weather events such as dust storms, 2) use of incorrect albedo and Bowen ratio numbers in AERMOD, 3) improper definition of the entire year as arid, 4) AERMOD surface moisture conditions must match actual conditions, not a theoretical norm based on inapplicable assumptions, 5) input data for the years 2001, 2002, 2003 were improperly used, 6) AERMOD model improperly applied the EPA AERSURFACE User's Guide and parameter settings were inappropriate, 7) AERMOD was improperly set as shrub land-arid for the entire year, 8) should have run AERMOD for each month in the data set or

defined appropriate seasons for the site, 9) AERMOD albedo did not vary by season, 10) the forecasts produced by CALMET/CALPUFF were for a completely different three-year period than were the AERMOD forecasts, 11) MM5 forecasts for rainfall were inaccurate, 12) simulations with CALPUFF suffered from several problems including data management and handling, inappropriate choices of data sources for background meteorological data - especially not using precipitation data from the RAWS network, incorrect choices of data on albedo and cloud cover, 13) improper selection of NO<sub>2</sub>/NO<sub>x</sub> ratio, 14) there is statistical uncertainty with the background concentrations, particularly PM<sub>10</sub>.

- 0084-101: The modeling continues to use inappropriate reference sites for the selection of background data on NAAQS and meteorological parameters for the Rosemont site because Rosemont's consultants only measured one NAAQS parameter, PM<sub>10</sub>, and restricted its meteorological measurements to wind speed and temperature, and only later added humidity. It is not clear how data were handled for missing data. The single meteorological station does not account for complexities of terrain and geography. The quality assurance plan was not followed completely. Other data sources are not analyzed or complete. Previous comments on these issues were not addressed.

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

0039-13: Issue a new DEIS or Supplement EIS subject to public comment.

0053-1: All air quality modeling must be redone using best available scientific procedures and state of art air quality models.

0084-89: A) Reject the Rosemont modeling analyses and require Rosemont to redo completely the modeling consistent with the Objections described above. If the USFS believes that a revised modeling protocol consistent with the Objections previously stated, or consistent with any other revisions, represents "the best available science," the USFS needs to justify and explain this reliance in a revised DEIS available for public review and comment. Alternatively, if the USFS believes that Rosemont's protocol and modeling analyses represent "the best available science," the FS needs to justify and explain this reliance in a revised DEIS available for public review and comment. B) Rosemont's air quality modeling should be rejected and not relied upon by the FS, which should require Rosemont to redo the modeling analyses completely, consistent with the remedies outlined herein, for a consistent period, April 2007 through March 2010. C) The invalid modeling results must be rejected, and the AERMOD model runs should be done incorporating the correct parameters for surface roughness. D) Provide a new analysis that measures the background of all NAAQS parameters at the site and that addresses deficiencies in establishing the representativeness of the climatological and meteorological characterization of the Rosemont site. The USFS must use other models to examine the aerosol and chemical reaction possibilities of these pollutants. E) The invalid modeling results must be rejected, and the AERMOD model runs must be done using appropriate surface moisture, land surface conditions, and seasonal settings including albedo. F) Require Rosemont to do statistical comparisons between the MM5 forecast observations and actual observations (including RAWS and other sites within the CALPUFF domain) for 2001-2003. G) The USFS should require Rosemont to use accurate MM5

forecasts for rainfall. The revised analyses should be provided in a revised DEIS for public review and comment. H) The USFS should require Rosemont to use high-resolution mesoscale model forecasts from April 2007 through March 2010 to provide consistent input "observations" for CALMET/CALPUFF. Additionally, all available meteorological observations, including all RAWS sites, should be blended with the model forecast "observations." I) Present the new information regarding Viscreen in a revised DEIS. J) Require Rosemont to use high-resolution mesoscale model forecasts from April 2007 through March 2010 to provide consistent input "observations" for CALMET/CALPUFF. K) Fix the continuing problems with CALPUFF and present this information. L) The USFS must revise its analysis to show appropriate worst case simulation conditions in its air quality modeling with regards to NO<sub>x</sub> ratios. M) Rerun the modeling using higher levels of wind speeds and a frequency analysis of the high wind events to determine whether the project will cause NAAQS exceedances or trigger non-attainment for any criteria pollutant. If the rerun results confirm the likelihood of the Rosemont project causing a non-attainment situation, the USFS must provide mitigating measures in the project approval to prevent this.

0084-101: A) Explain and resolve the data accounting inconsistency in a revised DEIS to allow for public review and comment on this issue. Install separate weather stations at key locations and various elevations. The invalid modeling results must be rejected, and the AERMOD model runs should be redone incorporating the correct parameters for surface roughness. The project site should be properly monitored for at least a year with upgraded sensors and new data used within corrected AERMOD forecasts. The FS should require a new round of on-site met observations, consistent with the Quality Assurance Plan, and the audits should be conducted by an independent entity, as required by EPA guidelines. B) Incorporate regional RAWS weather data observations from all available observation sites within southeastern Arizona into corrected runs of the AERMOD and CALPUFF model. AERMOD must be run for each separate set of observation from the multiple observing sites. The revised AERMOD and CALPUFF modeling analysis must be made available for public review and comment in a revised DEIS.

**Law, Regulation and/or Policy:** Clean Air Act; National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 61 and 63; National Ambient Air Quality Standards (NAAQS), 40 CFR 50; Arizona Department of Environmental Quality Rules and Regulation

#### **Review Team Member Response:**

Response to objections 0039-13, 0039-14, 0039-15, 0039-16, 0039-17, 0039-19, 0053-1, 0084-89, and 0084-101

An issue with the air quality modeling was identified after the DEIS was circulated. This issue was addressed by changing incorrect model options and re-running the model. The new results are documented in the FEIS:

“It was determined that the restart options in the CALPUFF modeling had not been set to the preferred settings... Ultimately, the annual Barrel Alternative emissions scenario was remodeled for that month (August) of the 2001 meteorological year. While the results of the sensitivity

analysis indicated a slight increase in the modeled criteria pollutant concentrations as well as the deposition and visibility impacts, it was determined by the Coronado that the results did not warrant a full rerun of the modeling for the Barrel Alternative” [PR 047511\_3, p. 217].

In addition, modeling assumptions and uncertainty in air quality modeling was discussed in the “Analysis Methodology, Assumptions, Uncertain and Unknown Information” section [PR 047511\_3, pp. 220-222]. In general, air quality impact modeling was conservative to ensure full documentation of any potential impacts. For example:

- Active mining emissions modeling based on the highest year of emissions [PR 047511\_3, p. 225].
- EPA standards were followed [PR 047511\_3, p. 220].
- Class I airshed impacts were modelled and assessed [PR 047511\_3, p. 220].
- Public exposure to air pollution was assessed using standard protocols of modeling National Ambient Air Quality Standards (NAAQS) at the facility’s fenceline [PR 047511\_3, p. 220].
- Model inputs and control parameter options selected in accordance with the protocol established in the “User’s Guide for the AMS/EPA Regulatory Model – AERMOD” (U.S. Environmental Protection Agency 2004b) [PR 047511\_3, p. 226].
- Evaluation of potential effects on air quality related values from the project to more distant Class I areas other than Saguaro National Park East was conducted by Rosemont Copper using CALPUFF Version 5.8, which is the recommended model for long-range transport applications (40 CFR 51, “Revision to the Guidelines on Air Quality Models,” November 2005) [PR 047511\_3, p. 226].
- Uncertainty in predicting climate change effects is expected because it is not possible to meaningfully link individual project actions to quantitative effects on climatic patterns [PR 047511\_3, p. 228].
- Emissions from vehicles were included in air quality impact analysis [PR 047511\_3, pp. 223-226].

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

**Review Team Member:** Andrea Nick, Air Resources



# Rosemont Copper Mine

## Objection Review

**Objection # (s):** 0036-Rosemont; 0081-GShinsky

**Resource Area(s):** Air Quality – Legal (AQ-7)

**Objection Issue:**

- 0036-1: The statement (draft ROD, p. 13) that none of the other alternatives will meet the NAAQS is incorrect. The regulatory authority, ADEQ with EPA concurrence, concluded that the proposed action with mitigation would meet the NAAQS. DROD, page 13, 3rd bullet.
- 0081-4: The total hazardous air pollutants limit (25 tons/year) should be analyzed thoroughly. When 0.1% of the trace toxic element in this waste rock is emitted (through tailings emissions, mine processing, or blasting) there would be 30+ tons/year of total HAPS emissions. The Rosemont Mine project clearly would be in violation of NAAQS and would also be in violation of Arizona Law.

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

- Objection 0081-4: Re-classify Rosemont Copper as a Class 1 major source pursuant to the clean air act 112(b) and Arizona law, A.R.S. sections 49-426.03-426.06.

**Law, Regulation and/or Policy:** Clean Air Act; National Ambient Air Quality Standards (NAAQS), 40 CFR part 50

**Review Team Member Response:**

Response to Objection 0036-1

The objector contends that a statement in the draft record of decision (DROD) that none of the other alternatives would meet NAAQS is incorrect.

The DROD states, “A number of additional mitigation measures were added for all action alternatives after the DEIS air analysis indicated that *many* alternatives would not meet NAAQS. At this time, no additional practicable onsite mitigation measures have been identified that would further improve the ability of the alternatives to meet NAAQS” [PR 047504, p. 13].

The error cited by the objector was not found in the text of the DROD, as shown by the italicized text above.

#### Response to Objection 0081-4

The objector contends that the project will exceed allowable hazardous air pollutants emissions, National Ambient Air Quality Standards (NAAQS), and violate Arizona law.

The Rosemont Copper Mine's hazardous air pollutants (HAPs) emissions meet the criteria as an "area source" as established by the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation [PR 015729, pp. 1-3]. This modeling covered emissions of all hazardous pollutants. Modeling techniques for lead and other pollutants were conservative to protect human health as described in the FEIS [PR 047511\_3, p. 218]. Modeling followed EPA guidelines to reflect the potential emissions of HAP and other air pollutants [PR 047511\_3, pp. 220-229].

Under the area source NESHAP regulation, the Rosemont mine would be required to install emission control technology to the boiler [PR 018994, pp. 30-33], storage tanks [PR 018994, p. 44], and emergency engines [PR 018994, pp. 35-38] as specified in the Arizona Department of Environmental Quality (ADEQ) permit. This information is also disclosed in Table 29 in the FEIS, 'Air quality laws, ordinances, regulation, and standards' [PR 047511\_3, p. 233]. In addition to the NESHAP regulation, particulate matter (regardless of its chemical composition) is regulated under the National Ambient Air Quality Standards (NAAQS). This information is presented in the FEIS: "it is presumed that if compliance with the PM10 and PM2.5 NAAQS is achieved, public health would be protected from the toxic metals compounds within the particulate emissions as well" [PR 047511\_3, p. 218].

All common air pollutants (including lead and particulate matter) are regulated by the National Ambient Air Quality Standards (NAAQS) [PR 047511\_3, p. 239]. Results of modeling and NAAQS standards comparison are disclosed in the FEIS Table 45 [PR 047511\_3, p. 261]. The table shows the maximum modeled and ambient emission concentrations at the perimeter fence for proposed action and action alternatives for lead, particulate matter, and other pollutants. The modeling results for NAAQS standards in relation to air quality issues are disclosed in Table 28: Summary of effects [PR 047511\_3, pp. 230-232].

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

**Review Team Member:** Andrea Nick, Air Resources Specialist