

DOCUMENT REVIEW COMMENT FORM—(NPS AIR RESOURCES DIVISION)

Commenter	Chapter	Section	Page	Line	Comment/Change requested
NPS ARD	3	Environmental Consequences Air Quality	General Comment		<p>The National Park Service (NPS) appreciates the opportunity to review the Administrative FEIS prepared in support of Rosemont Copper's mine plan of operations for the development of the Rosemont ore deposit. As a cooperating agency, the NPS has been engaged in this planning process, and has reviewed and commented on air quality modeling protocols, the administrative draft EIS and the DEIS. Our comments provided here are consistent with comments provided on previous documents.</p> <p>We recognize and appreciate the Coronado National Forest's efforts to understand and address NPS concerns regarding impacts to Air Quality Related Values (AQRV) in Saguaro National Park (NP), a Class I area administered by the NPS. We believe many changes made in the AFEIS, particularly in the Required Disclosures Section of Chapter 3, are in direct response to NPS comments.</p> <p>However, we continue to have outstanding concerns related to the Rosemont Copper Proposal itself. Further, we recommend additional changes to how predicted AQRV impacts are disclosed and addressed in the <i>Environmental Consequences section of the AFEIS</i>. In summary:</p> <ol style="list-style-type: none"> 1. Based on the air quality modeling results, the NPS has concluded that the proposed mine operations could result in significant adverse AQRV effects in Saguaro NP from nitrogen deposition and visibility degradation. While the modeled <i>values for the AQRV analyses</i> were disclosed in the AFEIS, the <i>document did not adequately discuss the context of these modeled values, and whether they represent adverse environmental effects in the Environmental Consequences section</i>. We recommend the USFS revise the FEIS to incorporate these changes. 2. We believe additional NOx mitigation measures should be required prior to approving the Rosemont Mine Plan of Operations (MPO). <p>Each of these outstanding concerns is addressed in the detailed comments below.</p>

NPS ARD	3	Environmental Consequences Air Quality	General Comment	<p><i>Rationale for disclosing NPS views on the severity of the predicted AQRV impacts in Saguaro NP from the proposed action:</i></p> <p>We appreciate the USFS efforts to use NPS recommendations in the FEIS. Consistent with the provisions of the NEPA regulations outlined below, we believe the USFS should also disclose the NPS views and conclusions regarding the severity of the predicted impacts in the applicable Environmental Consequences sections.</p> <p><i>Cooperating Agency Status & NEPA Requirements</i></p> <p>The National Park Service is a cooperating agency for the Rosemont Copper Environmental Impact Statement, as defined in 40 CFR 1508.5 (see FS Agreement 11-MU-11030514-012). The purpose of cooperating agency participation, as well as the roles and responsibilities of cooperating and lead agencies are identified in the CEQ at 40 CFR 1501.6. Specifically, any <i>“Federal agency which has special expertise with respect to any environmental issue, which should be addressed in the statement may be a cooperating agency upon request of the lead agency.”</i></p> <p>Given the NPS role as stewards of National Park Service lands, the NPS is deemed to have “special expertise” when assessing potential impacts to lands within its jurisdiction. This is particularly true in the case of parks designated as Class I areas under the Clean Air Act (CAA), such as Saguaro National Park. Under the CAA, the federal land manager for these areas has the “affirmative responsibility to protect the AQRVs (including visibility) of any such lands” (42 U.S.C. §7475(d)(2)(B)). To achieve this complex task, the NPS must use the best available science to: (1) Evaluate the impact new and existing sources of air pollution may have on NPS units and work to reduce or eliminate adverse air pollution impacts in parks; (2) Monitor current air pollution impacts in parks; (3) Provide important information about air pollution impacts in parks to decision makers. This statutory responsibility positions the NPS to serve as the primary experts in identifying and assessing the effects of air pollution in National Parks.</p> <p>The CEQ regulations further define the roles of the lead agency when working with cooperating agencies. Notably, the lead agency “shall: Use the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise, to the maximum extent possible consistent with its responsibility as lead agency” (40 CFR 1501.6 (a)(2)).</p> <p>Finally, and most importantly, 40 CFR 1502.16 identifies the required components of the <i>“environmental consequences”</i> section of an EIS, stating that discussions</p>
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NPS ARD	3	Required Disclosures; Short-Term Uses and Long-Term Productivity	2	1-3	<p><i>This section of the AFEIS states: “Impacts to air quality from mining operations would be short term and are expected to end with mine closure.”</i></p> <p>We would like to point out that mine operations are anticipated to continue for 20 to 25 years. In terms of the impacts to visitors over 25 years, this is not short-term. Air resource impacts from mining operations, such as visibility degradation, could potentially affect multiple generations of park visitors during this time span. Visitors come from around the world to experience Saguaro NP, for some this may be a once in a lifetime event. The park receives around 650,000 visitors annually, contributing approximately 22 million to the local economy. Over an extended time period, impaired visibility and degraded views could detract from the park experience for many millions of visitors who are an important contribution to the region’s tourism economy.</p> <p>Service-wide visitor survey data¹ demonstrate that park visitors highly value clean air and scenic views; 90% of NPS visitors surveyed responded that scenic views in National Parks are very important to extremely important. In fact, according to visitors surveyed, clean air and scenic views are among the top five most important attributes worthy of protection in national parks. While visibility and/or ambient air impacts from the Rosemont mine would cease once mining operations are discontinued, the effect of these impacts over a two decade time span are not</p>

¹ http://www.nature.nps.gov/air/pubs/pdf/NPS-VisitorValueOf-CleanAir-ScenicViews-DarkSkies_2013_web.pdf

					<p>insignificant.</p> <p>In addition, mine operations are predicted to significantly contribute to adverse nitrogen deposition effects in Saguaro NP. The effects of nitrogen deposition are both cumulative and additive. Once harmful changes begin to occur in an ecosystem, such as shifts in species composition and decreased biodiversity, a cascade of negative impacts can follow. Some changes may irrevocably alter the ecosystem as we have known it, these changes could continue well beyond the life span of the mine itself. In the case of Saguaro NP, increases in fire frequency, as described in comments below, may lead to local extinctions in the iconic saguaro cactus, the Park’s namesake.</p> <p>Finally, inadequate or unsuccessful reclamation efforts could result in ongoing wind-blown dust issues in the region.</p> <p>Please revise the FEIS conclusion regarding air impacts accordingly.</p>
NPS ARD	3	Environmental Consequences Air Quality Deposition Effects	57-60	38 – 40 & Table 51 and Table 52	<p>This section reports the modeled incremental deposition loading from the Rosemont Copper Mine, as well as estimated Critical Load (CL) and current nitrogen (N) deposition values. However, the document does not address the context, severity and intensity of the incremental deposition impacts. In other words, it does not state that given the current levels of total N deposition, which are at or near the estimated minimum CL, and the magnitude of the modeled Deposition Analysis Threshold (DAT) exceedances from mine operations at Rosemont Copper for all Alternatives, the project is predicted to significantly contribute to adverse environmental effects from cumulative N deposition in Saguaro NP. Please revise this section of Chapter 3 to disclose this information. Specifically, please incorporate the following (or similar) text in the Deposition Effects Section; line references are merely suggestions for where this language could fit within the existing discussion:</p> <p>Line 29, please add the following sentence to this paragraph:</p> <p>Based on this research, the NPS believes that desert and semi-arid ecosystems in the area, such as those found in Saguaro National Park, may be impacted by current levels of nitrogen deposition.</p>

				<p>After Line 40, please add the following new paragraphs (could also be included in a section dedicated exclusively to deposition impacts in Saguaro NP):</p> <p>Consisting of two districts and up to six distinctive biotic communities, Saguaro National Park exhibits a vast array of biodiversity. Recently, the park has documented up to 1044 different species within its boundaries, more than 400 of which, mostly invertebrate animals and non-vascular plants, were previously unknown in the park. At least one documented species of bryophyte is currently believed to be new to science (NPS Resource Brief 2012).</p> <p>The critical loads values described above were developed to protect these diverse and sensitive ecosystem components from the harmful effects of nitrogen deposition. As shown in table 52, current nitrogen deposition levels are exceeding these minimum critical load values, indicating that herbaceous plants, shrubs, lichens and mycorrhizal fungi communities in Saguaro NP and the surrounding region may be at risk for decreases in biodiversity and shifts in species composition.</p> <p>Research indicates that elevated nitrogen deposition favors the invasion of exotic grasses, such as buffelgrass (Lyons et al. 2013), which out-competes native species and increases fine fuel loading in arid areas, ultimately increasing fire frequency beyond what these ecosystems were historically adapted to (Rao et al. 2010). Many NPS sites in this area also contain cultural resources that could also be at risk if fire frequency increases. Buffelgrass and the ensuing threat of fire are a major concern for the Park. There are an estimated 2,000 acres of buffelgrass in the Park, and it is spreading at a rate of up to 35% annually. Many scientists believe that if this buffelgrass expansion continues, local extinctions of the iconic saguaros and many other native species may occur, changing the Sonoran Desert, its wildlife and Saguaro NP forever (NPS Resource Brief, 2011). Saguaro NP has undertaken extensive efforts to control and manage buffelgrass invasions and has seen some success; increased nitrogen deposition may undermine these efforts and exacerbate this significant issue.</p> <p>Because current estimates indicate that the area is likely at or exceeding nitrogen critical load values, the NPS has expressed significant concern over the additional nitrogen deposition predicted to occur in Saguaro National Park² from the Rosemont Copper mine. Nitrogen deposition from the Rosemont Mine alone under</p>
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² As reported in table 51 of the FEIS.

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NPS ARD	3	Environmental Consequences Air Quality Deposition Effects	57	25	Please revise this sentence to state: This in turn can result in management consequences, including changes increases in fire frequency and carrying capacity vegetation cover leading to increased fire-carrying capacity, which can alter fire frequency in the ecosystems that are not adapted to frequent wildfires.
NPS ARD	3	Environmental Consequences Air Quality Deposition Effects	57	30-37	This section characterizes the Critical Load (CL) as the point at which “noticeable” effects begin to occur. Please note that the current accepted technical definition of a CL in the U.S. is: “the quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment are not expected to occur according to present knowledge.” More simply put, it is a threshold deposition level at which harm may occur to sensitive resources in an ecosystem; the CL value is linked to a specific harmful effect. Please revise this section and replace “noticeable” with “harmful” to more accurately define the purpose of CL values.
NPS ARD	3	Environmental Consequences Air Quality	57	33 & 35	Lines 33 & 35 describe the critical load for “general vegetation;” please revise to state “herbaceous plants & shrubs.”

		Deposition Effects			
NPS ARD	3	Environmental Consequences Air Quality Deposition Effects	57	36 & 37	<p>Lines 36 and 37 of this section accurately reflect that the range of reported critical loads values for North American deserts which is 3.0 to 8.4 kg/ha/yr. However, please note that consistent with our Clean Air Act responsibilities³ to protect sensitive resources in Class I areas, the NPS uses the critical load value associated with the most “sensitive resource,” in this case, the 3 kg/ha/yr critical load value.</p> <p>Recommendations in the interagency FLAG 2010 document reflect this approach, which states in section 3.5.4 “Federal Land Managers (FLMs) agree that a critical load should protect the most sensitive AQRVs within each FLM area and should be based on the best science available.” Please revise this section to indicate that consistent with our statutory mandates and policies, the NPS uses the most protective critical load threshold for herbaceous plants, shrubs and lichens, which is 3 kg/ha/yr.</p>
NPS ARD	3	Environmental Consequences Air Quality Visibility Effects	54	30 -32	<p>These lines state: “According to these metrics, all of the action alternatives could contribute to noticeable visibility impairment at each of the Class I areas analyzed. A summary of visibility impacts for each Class I area by action alternative is provided below.” Please note that for year one of active mining, all but one of the Alternatives would <i>cause</i> visibility impairment in Saguaro NP, and in years 5 or 12 of active mining, two of the Alternatives would <i>cause</i> visibility impairment in this park based on maximum modeled values. Using the 98th percentile impact for year one, all Alternatives <i>contribute</i> to visibility impairment in Saguaro NP, and the proposed action <i>causes</i> visibility impairment. In years 5 or 12, the Scholefield-McCleary Alternative contributes to visibility impairment in Saguaro NP. Given these results, please include the following text <i>in this section of the document</i> to disclose NPS conclusions regarding the severity of the predicted visibility impacts in Saguaro NP:</p> <p>Visibility impacts of this magnitude are a significant concern to the National Park Service in general, and of particular concern in this circumstance considering that Saguaro NP will not meet the Regional Haze goals under the Arizona DEQ</p>

³ *In cases of doubt the land manager should err on the side of protecting the air quality-related values for future generations...* (Senate Report No. 95-127, 95th Congress, 1st Session 1977).

					<p>proposed regional haze State Implementation Plan (SIP). Regional modeling completed for the Regional Haze process demonstrates that visibility on the 20% best visibility days at Saguaro NP will degrade in the future. The goal of the regional haze program is to improve visibility on the 20% worst days and prevent degradation on the 20% best days. Visibility impacts from the Rosemont mine may impede progress toward the national visibility goal.</p>
NPS ARD	3	Environmental Consequences Air Quality NAAQS Compliance Modeling	43 & 45	Lines 11-36 & Table 45	<p>The NAAQS compliance modeling demonstrates that the Barrel Trail and Scholefile-McCleary Alternatives could result in violations of the PM₁₀ NAAQS at the project area fenceline. This suggests that these Alternatives may not be a viable option if compliance with the Clean Air Act cannot be demonstrated.</p> <p>Further, the mine could be a significant source of regional particulate emissions. The project area is adjacent to the Pima County PM₁₀ nonattainment area (a partial county designation). The document does not discuss whether the Rosemont mine would potentially contribute to PM₁₀ NAAQS violations in this nonattainment area.</p>
NPS ARD	Appendix B. Mitigation and Monitoring Plan	Air Quality	64	QA-AQ-9	<p>Given NPS concerns regarding nitrogen deposition and visibility impacts, the NPS has previously recommended that the USFS require NO_x mitigations for significant NO_x emission sources operating within the mine. By far, the largest source of NO_x emissions are the thirty-one 250-Haulage Trucks, with 996 TPY NO_x estimated in the 7/2010 permit application. There appears to be some discrepancies between the total annual NO_x emissions from haul trucks reported in the April 2011 JBR Emission inventory for the EIS, and what is reported in the permit application (e.g., 860 TPY). None-the-less, haul trucks comprise a significant portion of the total annual NO_x emissions from mine operations. The FEIS proposes to mitigate these emissions as follows:</p> <p><i>MITIGATION MEASURE QA-AQ-9 - Reduction in air emissions from diesel engines associated with mobile sources (haulage equipment, etc.) Use of newer engine designs on haulage equipment and on select mobile sources; includes use of Tier 4 EPA compliant equipment for emission standards on selected non-road engines (all except haul trucks and the 2,000 horsepower front-end loaders); use of Tier 2 diesel engines for haul trucks; and use of Tier 4 engines for large haulage trucks and support equipment purchased after 2014.</i></p> <p>Although the 1/31/2013 AZ DEQ technical support document states that, “The</p>

					<p>Permittee is required to purchase 6 haul trucks that meet US EPA Tier 4 requirements,” we could find no such requirement in the 1/31/2013 permit.</p> <p>We recommend that <i>all</i> haul trucks be required to meet EPA Tier 4 emission standards <i>upon</i> commencement of mine operations. EPA’s Tier 2 standards limit NO_x emissions to 9.2 g/kWh, while Tier 4 allows 3.5 g/kWh, a reduction of 62%. If all thirty-one of the 250-Haulage Trucks meet Tier 4 standards, emissions would be reduced to 379 TPY. On the other hand, converting only six of the 250-Haulage Trucks to Tier 4 would yield only a 12% reduction and leave 877 TPY of NO_x.</p> <p>Finally, it may be possible to further reduce haul truck emissions by using a system similar to the Siemens “Trolley Truck” system described at this website: http://www.industry.usa.siemens.com/verticals/us/en/mining/Documents/Truck_Trolley_FINAL%202013.pdf</p> <p>Given the magnitude of predicted AQRV impacts, the USFS should analyze whether a similar system is feasible for the Rosemont Mine, and if not, document why in the FEIS.</p>
NPS ARD	Appendix B. Mitigation and Monitoring Plan	Air Quality	49	FS-HM-01	<p><u>Blasting</u></p> <p>At 154 TPY, blasting is the second-largest NO_x source category from Rosemont mine operations.</p> <p>The FEIS proposes no specific mitigation of these emissions; Mitigation Measure FS-HM-01 states: “An explosives and blasting management procedure would be required to be implemented to ensure best management practices are applied.” The document does not define what these BMPs may be, or what they would achieve.</p> <p>A technical review yielded articles suggesting that NO_x emissions from blasting could be reduced by addition of calcium compounds, silicon, and urea to the blasting agent. The USFS should analyze whether these options may be feasible for blasting operations at the Rosemont Mine, and if not, document why in the FEIS.</p>
NPS ARD	3	Environmental	14	Table 28	The FEIS discusses potential NAAQS ozone violation at Saguaro East with no description how the calculations or modeling were performed. Please update this

		Consequences Air Quality			information.
NPS ARD	3	Environmental Consequences Air Quality	46	30 - 40	The FEIS discusses potential NAAQS ozone violation at Saguaro East with no description how the calculations or modeling were performed. Please update this information.
NPS ARD	3	Environmental Consequences Air Quality	53	4-9 Table 49	<p>The document states: “A level 2 screening analysis was therefore performed to better analyze impacts using the actual worst-case meteorological conditions as recorded from the National Weather Service Tucson airport site for the year 2002. The actual worst-case conditions identified from this site were 2 meters per second wind speeds and atmospheric stability class “F.” These conditions appear for about 303 hours during the entire year, which translates to approximately 3.4 percent of the hours per year (JBR Environmental Consultants Inc. 2012d). Table 49 presents the results of the level 2 visibility screening analysis performed for Saguaro National Park East”.</p> <p>Comment: The above statement is true, but needs to be revised. It is correct that there are exceedances of the Terrain ΔE criteria (change in color) with the meteorological conditions of “F” and a 2 meter per second wind speed (NPS’s reran VISCREEN and confirms this.) Rosemont needs to determine the percent (%) of hours over the course of the year when impacts stop occurring. NPS’s VISCREEN analyses indicates that at the meteorological condition of “F” stability and a wind speed of 3 meters per second, exceedances of the ΔE criteria (change in color) and contrast do not occur for all 5 alternatives. Rosemont should state percent (%) of hours of the years when impacts stop occurring and update Tables 3.5 through 3.8 to reflect the impact with the meteorological condition of “F” stability and a wind speed of 3 meters per second. Rosemont may also note that the VISCREEN manual (EPA-450/4-88-015) states on page 47 that the meteorological condition “F” stability and a wind speed of 3 meters per second represents the third worst case combination of atmospheric stability and wind speed for a visible plume impact.</p>
