

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

**RESPONSIVENESS SUMMARY
TO PUBLIC COMMENTS AND QUESTIONS**

Rosemont Copper Company - Rosemont Copper Project

January 31, 2013

Table of Contents

DECISION

BACKGROUND

COMMENT PERIOD & PUBLIC HEARING

QUESTIONS AND COMMENTS WITH RESPONSES BY ADEQ

- A. Public Participation Issues**
- B. Jurisdiction Issues**
- C. Permit Type**
- D. Hazardous Air Pollutants**
- E. Permit Issues**
- F. General Permit Comments**
- G. Permit compliance Comments**
- H. Tailings**
- I. Climate Change**
- J. Other Issues**
- K. Social and Economic Impacts**
- L. Specific Permit Conditions**
- M. Modeling Issues**

APPENDIX A – Listing of Significant Changes Between Proposed and Final Permit

APPENDIX B – Listing of Typographical Changes between Proposed and Final Permit

DECISION

This permitting action is for the issuance of a new Class II air quality permit for the operation of the Rosemont Copper Project, an open pit copper mine to be located at 21900 South Sonoita Highway, Vail, Arizona 85641. The facility is approximately 30 miles southeast of Tucson, west of State Highway 83, in Pima County, Arizona.

BACKGROUND

On November 23, 2011, the Arizona Department of Environmental Quality ("Department") received a Class II application from Rosemont Copper Company (RCC) for the construction and operation of an open-pit copper mine to be located at 21900 S Sonoita Highway, Vail, Arizona, 30 miles southeast of Tucson, west of State Highway 83, in Pima County, Arizona.

Air Quality Permit #55223 is issued in accordance with A.R.S 49-426, Arizona Administrative Code (A.A.C.) Title 18, Chapter 2, Article 304, and with an assertion of jurisdiction pursuant to Arizona Revised Statutes (A.R.S) 49-402 and is processed in accordance with A.R.S. 49-426. The permit contains requirements from the A.A.C., Pima County Code Title 17, Code of Federal Regulations (CFR) and State Implementation Plan (SIP).

COMMENT PERIOD AND PUBLIC HEARING

A public notice for the proposed permit was published in the Arizona Daily Star and the Arizona Republic on August 6, 2012, and August 13, 2012. A public meeting to answer questions on the proposed permit was held on October 1, 2012, at the Sycamore Elementary School located at 16701 S Houghton Road, Vail, Arizona. A public hearing was held at the same location on October 9, 2012. Based on public request, the comment period was extended until October 31, 2012.

Oral and written comments were received during the public comment period. This document presents the Department's responses to the issues raised during the public comment period.

A. PUBLIC MEETING/HEARING

Comment 1 – The public meeting and hearing were incorrectly noticed. The location of the meeting and the hearing should have been noted as Corona de Tucson, not Vail as noticed by ADEQ. Adequate time was not provided for commenters to make comments at the public hearing.

Response: The public meeting and hearing were scheduled at the Sycamore Elementary School located in the town of Vail. The address and the city were confirmed with the school staff that identified the location as part of the town of Vail.

The one public hearing held on October 9th, 2012, was scheduled in response to a request for a hearing as required in A.A.C R18-2-330.E which states in part “*For other actions involving a proposed permit, the Director shall hold a public hearing only upon written request. If a public hearing is requested, the Director shall schedule the hearing and publish notice as described in A.R.S. § 49-444 and subsection (D). The Director shall give notice of any public hearing at least 30 days in advance of the hearing*”.

ADEQ took several measures to ensure adequate public participation. In response to public request, ADEQ extended the 60-day public comment period by another 30 days for a total of 90 days. In addition, upon request by the public, ADEQ took steps to move the public meeting date from September 26, 2012, to October 1, 2012.

The oral proceedings were conducted such that the public had an opportunity to provide oral comments. ADEQ’s decision to allot a limited amount of time for each speaker at the public hearing was based on the number of commenters present. Since there were over 250 people at the hearing, ADEQ wanted to ensure that everyone who wished to speak would have the opportunity. Therefore, every commenter was provided two minutes to present their oral comment. Prior to the commencement of the oral proceedings, the hearing officer explained the time limit of two minutes for each speaker to ensure that commenters would prepare their comments accordingly. As stated at the end of the proceeding, the public could still submit written comments.

Comment 2 – ADEQ’s public notice was headlined “Your voice will be heard”. How is ADEQ listening and taking public concerns into consideration if ADEQ is planning to issue the permit?

Response: ADEQ’s process prescribed in the state air quality regulations for processing an air quality permit application involves review of all applicable requirements and regulatory safeguards that are included in the permit. The draft permit is noticed for public review and comment. All public comments related specifically to air quality are reviewed and considered prior to making a decision.

Comment 3 – Almost an hour and twenty minutes into the hearing, only four people addressed air quality issues while the remaining spoke about irrelevant items such as jobs, economy, and relatives.

Response: As noted in the public notice documents and as stated by the hearing officer prior to the commencement of the hearing, the comments were to be limited to whether the permit meets the criteria for issuance as spelled out in the state air pollution control laws or rules. However, ADEQ cannot control the nature of the comments that are made.

B. JURISDICTION ISSUES

Comment 4 – ADEQ should not be involved in the air permitting process for a facility located in Pima County that has EPA’s approval to issue permits. The Superior Court ruling dealt only with a narrow procedural issue which required Rosemont to provide source references for information in its original application. Though Rosemont was given 30 days to provide this information, ADEQ short-circuited this process and took jurisdiction for the proposed permit. Clarification on the regulatory ambiguity, the statutory justification, why Rosemont circumvented the order out of the court, and why Pima DEQ is not qualified to enforce permits or evaluate and assess permits are requested. The State (ADEQ) has no statutory authority to usurp Pima County’s jurisdiction and the authority cited by ADEQ is procedural and not substantive. ADEQ has misinterpreted the court’s decision to justify its usurpation of Pima County’s jurisdiction.

Response: ADEQ’s decision to assert legal jurisdiction over the permitting of the Rosemont Copper Project (RCP) was based on a thorough analysis of the issues. First, as discussed in the response to Comment 6, there is ambiguity in the permitting rules regarding jurisdiction and the applicability of Pima SIP Rule 504. The other compelling reason was the Superior Court’s ruling (Case No. C20120242; Rosemont Copper Company vs. PCAQD) that deemed Pima County Air Quality District’s (PCAQD) denial of Rosemont Copper Company’s(RCC) air permit application as “arbitrary and capricious, and an abuse of discretion, under A.R.S §12-910(E)”.

The regulatory ambiguity is shown in Pima County’s SIP that stipulates facilities with uncontrolled emissions in excess of 75 tons per day to obtain an installation permit from ADEQ, while the Pima County Rules requires RCC to obtain an operating permit from PCAQD. Therefore, to address this regulatory uncertainty that has been created by PCAQD and the possible need for duplicative permits based on Pima County SIP, ADEQ decided to assert jurisdiction over the air permitting of the RCP facility. ADEQ followed the appropriate regulatory process prescribed in Arizona Revised Statutes (A.R.S) 49-402(B) and Arizona SIP R9-3-1101 to assert air quality jurisdiction over the facility.

Comment 5 –RCP should be given back to Pima County since numerous violations were handled well for all other facilities in the County. The commenter believes that the State took final decision on the Cal Portland Limestone mine located in the Davidson Canyon without considering the impacts of the area or providing any notification to the Empire-Fagin Coalition.

Response: The ADEQ assertion of jurisdiction has been explained in other responses. Delegation of the authority to inspect and enforce the air quality permit to Pima County was offered, but ultimately refused. ADEQ would like to clarify that it has not issued air permits to any facility in the Davidson Canyon.

Comment 6 – PCAQCD objects to ADEQ’s characterization of asserting jurisdiction due to uncertainty in the state and county permitting requirements. Further, PCAQD objects to the statement in the ADEQ fact sheet that “To address this uncertainty and ensure that duplicative air quality permits are not required, pursuant to ARS 49-402(B) and R9-3-1101 of the Arizona State Implementation Plan (SIP), has asserted complete air quality jurisdiction”. PCAQD did not discuss or state that there would be multiple state and county air quality permits and does not believe there has been confusion or uncertainty regarding permitting of the mine.

Response: ADEQ’s statement of regulatory uncertainty relates to the fact that the Pima County SIP stipulates that sources emitting over 75 tons per day of emissions should obtain an installation permit

from ADEQ. Additionally, Pima County's current rules would require PCAQCD to issue a minor source operating permit. This ambiguity led ADEQ to assert jurisdiction for this facility.

Comment 7: The reduction in emissions of 47 tons of PM₁₀ from point sources is insignificant compared to the approximately 1,000 tons of fugitive emissions. Further, the modeling results have shown that the mine will increase ambient PM₁₀ concentration from 37 µg/m³ to 147 µg/m³. With an inherent margin of error in modeling, the mine could easily move the place to non-attainment.

Response: ADEQ would like to clarify that PCAQD's proposed permit also included the same 1000 tons of fugitive emissions. ADEQ's request for top-of-the-line pollution controls like cartridge filters and mandating paving of roads resulted in net emission reductions of 47 tons of PM₁₀. Wherever feasible, ADEQ has strived to achieve additional emission reductions with enhanced environmental benefit. ADEQ took a conservative approach to the potential emissions calculations. When the additional paved roads were considered, RCC did not include the reduction in vehicle miles travelled by the water trucks in order to obtain a worst case scenario. Additionally, in response to public comments received, ADEQ has added ambient monitoring requirements for PM₁₀. The ambient monitors will serve to verify ambient concentrations from a NAAQS compliance standpoint and will validate the modeling conducted by RCC.

Comment 8: With regards to compliance and enforcement of the permit after issuance, the fact sheet states "ADEQ's preference would be to delegate those responsibilities to PCAQCD." The PCAQCD would consider taking compliance and enforcement responsibilities only if ADEQ returned jurisdiction to Pima County and would not take delegation of this source.

Response: The comments are noted.

Comment 9 – The Sierra Club notes the denial of a permit should not result in assertion of jurisdiction. Denying a permit is warranted when the permit is inappropriate for the facility or when information was clearly missing, as was the case here.

Response: ADEQ disagrees with this comment. As noted in earlier responses, the Superior Court's ruling that PCAQD's denial of RCC's application was "arbitrary and capricious" was one of the significant factors that led ADEQ to assert jurisdiction. Also stated by the court was that PCAQD could not "...engage in a practice of failing to enforce the requirements for an application for a permit for years, certify that an application is complete even in the absence of the citation to all applicable requirements, make multiple requests for additional information from the applicant, fail to mention the absence of the citation to all applicable requirements, and then decide to enforce the citation requirements and rely on the absence of the citation to deny the application without affording the applicant the opportunity to bring the application into compliance". This observation in the court ruling clearly highlights the regulatory uncertainty for the applicant.

Comment 10: The draft permit relies too heavily on voluntary mitigation measures to, in theory, reduce pollutants below major source thresholds. ADEQ does not have the resources to ensure compliance with this permit and with these voluntary measures. This lack of resources to adequately protect the public and

public health may require the US EPA to intervene. If ADEQ is to maintain jurisdiction, it needs to make clear that it has resources and the political will to ensure compliance.

Response: As stipulated the Clean Air Act (CAA), facilities can accept voluntarily conditions by either limiting the emissions rate or by taking operational restrictions to limit emissions below major source thresholds. The Permittee’s compliance status relative to these restrictions is monitored by a combination of periodic monitoring, recordkeeping and performance testing that is required of the applicant and also periodic inspections by ADEQ inspectors. This combination of practices is common for all regulatory programs at the county, state and federal level. The Department does not believe that staff losses over the last few years will impair its ability to conduct appropriate inspections. ADEQ has inspectors stationed at the South Regional Office located in Tucson who conduct regular inspections and respond to citizen complaints within 5 days of receipt. Complaints can be made either via the website at <http://www.azdeq.gov/function/compliance/complaint.html> or by calling in (602) 771-2286.

C. PERMIT TYPE

Comment 11 –The Rosemont mine should be issued a Class I permit. A report by Tetra Tech dated June 2007 indicates that the copper ore contains elements that would be emitted as HAPs in the course of the mining processes in amounts far greater than permitted in the proposed permit. HAPs that will likely be emitted include chromium, lead, arsenic, and others. These emissions can greatly impact the human and animal health. Wind swept spores from valley fever would be a major danger to the miners as well.

Response: ADEQ’s analysis of the RCP’s potential emissions indicates that the proposed Class II permit is appropriate. The Tetra Tech report was developed for the Aquifer Protection Permit (APP) process to assess the concentration of various elements in the ore body that could possibly leach into the groundwater. These total concentrations of various elements cannot be directly correlated to air emissions since only the surface of the ore body that is exposed to the atmosphere has the potential to be released into the atmosphere. The commenter, however, assumed that the entire ore body is exposed to the air and that the entire mass is released to the atmosphere. This is inaccurate. Further, ADEQ verified the concentrations used by the commenter from the Tetra Tech report and noted that the concentrations as analyzed are different from those used in the commenter’s calculations. However, in order to demonstrate the worst case scenario, ADEQ calculated the HAP emissions using the same concentrations as the commenter and assuming that the concentration of the HAPs in the PM₁₀ emissions are the same as in the ore body. The maximum emissions rates calculated are shown in Table 1 below.

The formula used to calculate the emissions is as follows:

$$\text{Emissions Rate (tons per year)} = [\text{Concentration (lbs/ton)}] \times [\text{Gravimetric factor (converts formula wt of element to formula wt of equivalent oxide)}] \times [\text{PM}_{10} \text{ emissions (tons/yr)}] \times [(1/2000 \text{ lbs/ton})]$$

Table 1: HAPs Emissions Using Tetra Tech Report

Pollutant	Concentration mg/Kg	Concentration (Pounds per	Gravimetric factor*	PM ₁₀ Emissions**	HAP Emissions
-----------	---------------------	---------------------------	---------------------	------------------------------	---------------

	(from commenter)	Ton)	(from commenter)	Tons per year (Includes Fugitives)	(TPY)
Lead	80	0.16	1.08	846	0.0731
Arsenic	15	0.03	1.32		0.0168
Chromium	30	0.06	2.92		0.0741
Nickel	7	0.014	1.27		0.0075
Antimony	2	0.004	2.398		0.0041
Cadmium	1	0.002	1.14		0.0010
Selenium	12	0.024	1.405		0.00143
Beryllium	0.8	0.0016	2.77		0.0019
Manganese	800	1.6	1.58		1.0693

* Gravimetric factor - converts formula weight of element to formula weight of equivalent oxide

**The PM10 emissions exclude dust generated by haul trucks and other activities not related to ore processing.

As seen in the above calculations and using a worst case scenario, the emissions of HAPs are below the major source thresholds of 10 tons of any single HAP or 25 tons of combined HAPs.

Comment 12 - What does “accepting voluntary emissions limitations” (to stay below major source thresholds) mean?

Response: State and county regulations specify the type of permit to be issued to a facility based on the amount of emissions emitted. If the emissions are over the major source threshold, a major source permit is issued; otherwise, a minor source permit is issued. A source with potential emissions over the major source threshold can take one or more voluntary restrictions such as use of air pollution controls, limiting hours of operation or limiting emission rates, or other operational restrictions to limit the potential emissions to below major source thresholds. In such instances, the limiting factor becomes an enforceable condition that is included in the permit and a minor source permit is issued. Additional monitoring, recordkeeping, reporting and testing requirements will ensure that the emissions stay below the major source.

Comment 13 – Are the proposed cartridge filters currently used in comparably sized open-pit mine, near a large metropolitan area? Has the effectiveness of these filters been tested to comply with all air quality standards? Has Rosemont Copper used these filters in a currently operating mine?

Response: The cartridge filters being proposed for this operation have been used in other mining facilities across the state and have documented great success relative to their effect in controlling particulate matter emissions. The units are modular in nature and have been proven to be superior compared to baghouses from a maintenance perspective. The ease of use, low-maintenance requirements and the improved emission control performance make these controls an excellent choice for top-of-the-line PM controls for mining operations. While RCC may not have operated these controls at other sites, the proven success and ease of operation of these units make it an appropriate choice for this project. The permit requires operation of these controls in accordance with manufacturer specifications. The permit also contains monitoring and testing provisions to track ongoing performance of the controls and their ability to comply with the emission limits identified in the permit.

Comment 14 – The initial application contains too many deficiencies and mistakes, including incorrect assumption, models and analyses. Rosemont needs to complete studies to correct all these and should resubmit the application.

Response: The comment is incomplete in that it does not identify the deficiencies or mistakes as referenced. ADEQ has reviewed the application thoroughly. All technical issues raised by ADEQ were addressed appropriately by RCC. The modeling analyses and emission calculations were verified by ADEQ. The modeling approach taken was consistent with well established methodology for modeling and state and federal guidelines. The air quality modeling indicates that the proposed mine will not “cause or contribute” to the violation of any applicable NAAQS. Therefore no additional studies are deemed necessary.

Comment 15 – One commenter notes that the emissions from the proposed mine can be significantly higher over a longer period of time than was analyzed and addressed by the proposed permit.

Response: The air quality regulations requires a facility to estimate potential emissions from the operations taking into consideration, the maximum rated capacity of each equipment and that the plant could theoretically operate 24 hours a day, 365 days a year. RCC calculated the potential emissions through Year 20, the projected life of the mine. These emissions were modeled for Year 1, Year 5, Year 10, Year 15 and Year 20. RCC performed modeling analysis under all these scenarios, and demonstrated that the NAAQS would not be violated. In addition, the permit requires annual testing in addition to various monitoring, including ambient monitoring, recordkeeping and reporting requirements to ensure adherence to the permitted emission limits.

Comment 16 - RCC has indicated that the oxide ore will no longer be processed and would increase sulfide ores which will cut water use but result in dry crushing and blasting. In addition, there will be increased truck hauling. Therefore a Class I permit should be issued.

Response: This permit is being processed based on the information provided by the applicant. If the applicant’s operating scenario changes based on the EIS process, RCC will be required to amend their permit prior to implementing the new operating scenario. The new scenario will be evaluated for emissions and impacts, and, as necessary, an evaluation of the permit class will be conducted.

D. HAZARDOUS AIR POLLUTANTS

Comment 17 – Rosemont should pay to install and maintain National-Scale Air Toxics Assessment equipment at the mine site given the substantial changes in air quality and introduction of a myriad of contaminates.

Response: In response to comments received, ADEQ evaluated the potential emissions of HAPs based on the Tetra Tech report. The analysis shows that the emissions from the RCP facility will be far below the major source thresholds for HAPs. Considering the relative level of air toxics emissions compared to the major source threshold of 10 tons per year of a single HAP, ADEQ has determined that ambient monitoring for air toxics is not warranted. Further, the modeling analysis for emissions of lead showed a maximum 3-month average concentration of 0.00163 ug/m³, which is about 1.1 % of the NAAQS of 0.15 ug/m³.

Comment 18 – The proposed mine emits HAPs in quantities above the major source threshold and therefore requires a Class I source permit. The current two mines operating in Green Valley are Class I sources. ADEQ reports HAP emissions as below three tons while Rosemont's report titled Baseline Geochemical Characterization shows over the major source threshold based on the daily tonnage of ore processed. Using the composition of the source materials developed by Tetra Tech for Rosemont and use of 95 to 99 percent efficiency, it is estimated that the mine will emit 12 tons of chromium, 11 tons of lead, over 10 tons of manganese and 31.6 tons of all toxics combined.

Response: The claim is incorrect. RCC's Baseline Geochemical Characterization Report developed for the Aquifer Protection Permit (APP) process analyzed the total concentration of various metals in the ore body to assess the effect of acid leaching on groundwater. It should be noted that this total concentration in the ore body cannot be correlated to air emissions since only a fraction of the soil will be exposed to the air at any given time. In spite of this, ADEQ calculated the HAP emissions by using the concentrations reported in the stated report and found that the emissions are below the major source thresholds (see response to comment 11). Therefore, the RCP facility has been issued a Class II synthetic minor permit.

Comment 19 – The proposed mine was excused from using a double liner for their tailings since the tailings would be a paste and not slurry so the heavy metal dust won't reach the ground water. However, the metals will now be dispersed into the air. The commenter notes that Tenoum is present because the presence of Uranium been so prevalent in Arizona. EPA has used this area as a model to develop a report showing radioactive materials that are technologically enhanced. The DEIS did not address Tenoum. The concern with heavy metals should be readdressed.

Response: The presence of heavy metals in the ore body does not necessarily translate to air emissions in its entirety. As explained in other responses, ADEQ has calculated the potential amount of HAPs emissions and has found it to be very small. The permit stipulates stringent requirements to control fugitive dust from the facility including the tailings area.

Comment 20 –Section 112(b) lists chemicals, including antimony, arsenic, beryllium, cadmium, chromium, lead, manganese, mercury, nickel, selenium, fine mineral fibers and radioactive substances WHICH Geochemists report as elements, with the exception of mineral fibers. These elements exist as compounds, mainly oxides, chlorides, phosphates, sulfides, and sulfates. Because Section 112(b) states that compounds of these are listed, the most conservative assumption is that the elements appear as oxides in the lowest possible valence state. Rosemont's ore materials are mainly oxides and sulfides and a small presence of fluoride indicating a possible set of compounds with fluorine. Fluoride incorporating into any phosphate based minerals is likely to be with compounds of radioactive elements, except for gaseous radon trapped in soil mantle.

Response: ADEQ's estimation of HAPs accounted for the compounds of each element. The table included in the response to comment #11 lists the calculation details.

E. PERMIT ISSUES

Comment 21- The permit application submitted by Rosemont does not accurately reflect the facility that Rosemont intends to construct and the operations that it intends to conduct. The initial application includes incorrect assumptions, models and analyses. Extensive reports from other governmental agencies and letters from Rosemont describe modified operations that will significantly alter the air emission sources and profiles. The Mine Plan of Operations as filed with the US and Canadian securities and those submitted to the DEIS process as part of a feasibility update study indicate vast differences in ore production- 667 million tons of sulfide ore (plus 1,243 million tons of waste rock) with anticipated mine life of 21-22 years compared with ADEQ's Technical Support Document listing of 123 million tons of sulfide ore plus oxide ore and waste rock with a mine life of 16 years. The commenters felt that the current permit addresses information that is no longer pertinent. ADEQ has asserted at the public meetings that it is only able to consider the application submitted but is under no obligation to undertake due diligence to ensure the accuracy of the application. If fraudulent or knowingly false information has been submitted, ADEQ seems to have no choice but to accept and consider it which is inconsistent with the agency's mission to protect public health and the environment.

Response: ADEQ is required to process air permit applications as submitted by applicants. The permit issued by ADEQ reflects the information provided in the application and limits the operating configurations and associated emissions to those specified in the application. The Department is aware of ongoing discussions between Rosemont and the U.S. Forest Service on different operating scenarios for the project. While these ongoing discussions may result in a change to the final configuration of the facility, those plans have not been shared with ADEQ. If the final Record of Decision from the USFS requires Rosemont to redesign its operations in a way that changes the emission profile, the company is legally compelled to revise its air permit before implementing any such change. It is likely that the changes being discussed will result in a new public notice process where there will be an opportunity for the public to assess the changes and comment as necessary.

Comment 22 –Would ADEQ require reapplication if Rosemont proposes to expand their operation to include “Other areas of interest” or when their operational footprint was expanded to exploit results from their investigation of adjacent land within their claim?

Response: If Rosemont changes its operations which impacts its emissions or will affect its ambient impacts, they will be required to revise their permit to incorporate the amended operating scenario into the permit. Typically these kinds of permit revisions require public participation.

Comment 23 – How are the emergency generators triggered? How large are these generators, models, and emissions? Does the 500 hours include periodic testing?

Response: Emergency engines are defined as those engines whose operation is limited to emergency situations and required testing and maintenance. Examples include when the engines are used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or used to pump water in the case of fire or flood, etc.

The current permit authorizes RCC to use five emergency-use engines with a cumulative rating of 3350 kilowatts and two fire-pumps rated at 400 hp each. The permit also requires that only model year 2007 or later engines be installed. Based upon an estimated 500 hours of operation each year, and using emissions factors associated with engines and fire pumps that were constructed after 2007, the

cumulative potential emissions from these engines amount to 0.4 tons per year of PM₁₀, 3.03 tons per year of carbon monoxide (CO), 5.08 tons per year of nitrogen oxides (NO_x), 0.006 tons per year of sulfur dioxide (SO₂) and 0.34 tons per year of volatile organic compounds (VOC).

Periodic testing is required for engines over 500 hp, however, ADEQ has the authority to require testing for any engine if it determines that the engine was not installed according to the manufacturer's recommendations.

Comment 24 – Is Rosemont's Air Quality permit held to a higher standard than ASARCO and Sierrita mines?

Response: Both the ASARCO and Sierrita mines are subject to the permitting requirements established under Title V of the Clean Air Act. When ADEQ developed its minor source permitting program in the early 1990s, the Department elected to subject its minor sources to the same administrative requirements that are mandated pursuant to Title V of the Clean Air Act. As a result, the air quality permit for the Rosemont facility is held to the same administrative standards to which the ASARCO and Sierrita mines were held.

ADEQ also has extensive experience in permitting metallic mineral mining operations throughout the state. Based upon the best practices observed at other facilities, ADEQ included requirements such as the operation of high-efficiency cartridge filter dust collectors for the control of particulate matter from crushing operations instead of baghouses. ADEQ also included the requirement for the development and approval of a dust control plan prior to the construction and operation of the facility. ADEQ is aware that both the controls and plans have been required of the Sierrita mine as the Department developed the Title V permit for the facility before turning jurisdiction to Pima County DEQ on September 1, 2009. ADEQ does not have experience with the ASARCO facility identified by the commenter, but understands that the requirements in the Rosemont mine are at least as stringent, if not more stringent than the requirements in the ASARCO permit.

Comment 25 – ADEQ needs to provide stronger assurance than self-inspections or voluntary reporting by Rosemont when limits are exceeded so the excessive emissions do not pose a health risk, in particular to the children who schools are within the town limits of Corona de Tucson. The commenter proposed consistent onsite testing, particularly during the early years of the mine's processing.

Response: ADEQ's reliance on a system of self-inspection and voluntary reporting is consistent with the requirements of the Clean Air Act, and permitting programs throughout the country. In addition to these tools, ADEQ inspectors will conduct periodic unannounced inspections at the facility to ensure on-going compliance with permit obligations. Additionally, performance tests conducted at the facility are supervised to verify compliance with emission limits. Because ADEQ resources do not allow for inspectors to be permanently stationed at each of the 600 facilities it regulates, all air permits prescribe self-monitoring and self-reporting obligations. If a problem is discovered as part of the monitoring that is conducted by the facility, the facility can undertake corrective action to quickly return operations back into compliance. State law requires the company to report all permit deviations and emission limit violations promptly to the Department. ADEQ inspectors will also conduct inspections in response to any complaints. The inspections are conducted expeditiously but in no instances, later than 5 days from the date of the complaint. Complaints can be made either via the website at <http://www.azdeq.gov/function/compliance/complaint.html> or by calling in (602) 771-2286.

To counter-balance its inability to be present at each facility every day, ADEQ also required RCC to submit semi-annual compliance certifications documenting status of compliance with all permit terms. As part of the same report, the RCC is also required to provide a summary of the monitoring conducted during the 6-month period. The review of such information by ADEQ will determine the facility's compliance status and evaluation of the need to conduct more frequent onsite inspections.

In addition, in response to comments received, ADEQ has required ambient monitoring of PM10 emissions.

Comment 26 – The mine initially indicated that there would be 70 tons of uncontrolled emissions but has now increased that to 75 tons of uncontrolled emissions which sounds like a lot of emissions.

Response: ADEQ understands this comment to be related to a trigger in the applicable State Implementation Plan that may require facilities with the potential to emit more than 75 tons per day to obtain an air quality permit from the State.

RCC's emission estimates show that the aggregate of fugitive and non-fugitive emissions exceed 75 tons per day. As a result, the company has argued that ADEQ is required to issue an air quality permit for the company's operations.

Based on ADEQ's analysis and permit requirements, the non-fugitive emissions total will not exceed 100 tons per year for any criteria pollutant, and the total emissions from the facility do not exceed 10 tons per year for any single HAP or 25 tons per year for any combination of HAPs after taking RCC's voluntarily accepted conditions, including controls, into account. Consequently, the facility is categorized as a minor source of air pollution, and is therefore receiving a Class II air quality permit from ADEQ.

Comment 27 – What is the permit term? How long is the permit good for?

Response: The permit is issued for a term of 5 years. RCC will be required to submit an application for renewal at least 6 months, but no later than 18 months prior to the date of permit expiration. The renewal application process will be similar to a new application with public review period.

Comment 28 – How much of ADEQ's budget comes from granting permits? How does this help or hinder ADEQ to be objective? If the permit is amended when Augusta changes their mind again, will the process for the amendment include public comments?

Response: Administration of the air quality permitting program is accomplished through the collection of three separate fees, annual administrative or inspection fees, annual emissions fees for major sources of air pollution, and the collection of fees for permitting services rendered to applicants. On average, the air quality division receives approximately \$500,000 per year through the collection of fees for permitting services that are rendered to the applicant. ADEQ anticipates receiving approximately \$5.9 million from the combination of emissions and annual administrative and inspection fees this fiscal year. As a result, fees from issuing air quality permits accounts for less than 10% of the annual revenue collected by ADEQ.

For Rosemont specifically, ADEQ anticipates charging the company approximately \$100,000 for the air quality permit. Because Rosemont is a minor source of air pollution, there are no annual emissions fees. Annual administrative fees are charged only after a facility has commenced construction. After commencing construction the company will be responsible for an annual administrative fee of \$16,700. Therefore, Rosemont's fees comprise about 1.5% of this fiscal year's revenue, and about 0.25% of the anticipated annual revenues collected for the administration of ADEQ's air quality permitting program in future fiscal years.

The revenue system does not impact the objectivity of the Department's efforts. The Department's mandate as it relates to air permitting is driven by a comprehensive set of state and federal air pollution control laws. In addition, air permitting efforts are driven by science (as it relates to ambient impact analyses) and engineering (principles to estimate emissions). ADEQ incorporates these concepts into air quality permits to ensure both the protection of human health and the environment.

As stated in other responses, if Augusta, parent company of RCC changes its operations which impacts its emissions or will affect its ambient impacts, they will be required to revise their permit. Typically these kinds of permit revisions will undergo public participation.

Comment 29 – Will ADEQ approve the current air permit that the company will not use if the US Forest Service (USFS) approves a different plan? Why doesn't ADEQ synchronize its actions with the USFS?

Response: The USFS process and the ADEQ air permit process are two independent approvals that RCC must obtain prior to the construction and operation of the mine. While ADEQ is a cooperating agency in the USFS process, the Department only plays a peripheral consulting role in that process.

ADEQ is required by law to review and make a decision regarding all permit applications within a specified period of time. ADEQ's decision whether to grant or deny a permit is governed by A.R.S. § 49-427, which requires ADEQ to deny a permit if a facility cannot demonstrate the ability to comply with the applicable air pollution control requirements in federal and state law. ADEQ has determined that the proposed permit ensures compliance with all applicable requirements and is therefore issuing the proposed permit, as amended by the comments received during the public comment period. As mentioned in an earlier response, if the USFS process results in an operating scenario with a different emission profile and different ambient impacts, the facility will be required to amend their operating permit to reflect the new operations.

Comment 30 – The emission controls and limits in the proposed permit do not provide adequate evidence that the NAAQS will not be violated.

Response: ADEQ disagrees with the comment. The air quality impact analyses conducted for the proposed mine when operating the required pollution controls and emission limits demonstrates that the operation, as permitted, will not result in an exceedance of the NAAQS. As noted in previous responses, these controls and limits are enforced in the permit using measures such as emissions monitoring, operational monitoring, and appropriate recordkeeping, and through ADEQ activities such as unannounced inspections, performance testing and complaint response. In addition, the permit requires installation and monitoring of ambient PM₁₀ monitors that will verify NAAQS compliance.

Comment 31- The 1872 mining law seems obsolete and must be changed.

Response: The 1872 mining law is not an applicable air quality or environmental law. ADEQ has no authority to change or remove the law.

Comment 32 – The mine would increase particulates while the existing mines have already being contaminating the air and aquifer already. Violations have been noted at these mines despite current regulations and lax enforcement by the government agencies. Particulates containing heavy metals can cause major health issues.

Response: While it is true that the mining operation will result in particulate matter emissions, the permit contains the appropriate limitations to ensure the appropriate level of protection of air quality. As discussed previously, the compliance status of the facility will be evaluated based on ADEQ inspections as well as monitoring efforts by the company. If violations are observed, the permit requires the company to take timely corrective actions and ADEQ will implement the necessary compliance and enforcement measures to remedy the violations as expeditiously as possible. ADEQ inspectors will also conduct inspections in response to any complaints. The inspections are conducted expeditiously but in no instances, later than 5 days from the date of the complaint. Complaints can be made either via the website at <http://www.azdeq.gov/function/compliance/complaint.html> or by calling in (602) 771-2286.

Comment 33 – Residents living within 2 miles notice a film of insoluble white dust in the birdbaths during normal winds. With these mines operating with an air quality permit already polluting, addition of a bigger mine will add to the problem. RCC claims to control the dust but unlikely to happen once operations begin. With the money invested in lobbying, dust complaints will be of little or no consequence to those that do not have to contend with it. With Pima County already denying the permit, does the State have a different set of regulations to grant the permit? A number of seniors living in that area will be greatly affected by the mine.

Response: Pima County's action to deny the permit was the result of administrative deficiencies that it reportedly observed in the permit application and not because Pima County had reason to suspect that the mine would result in environmental violations. The Pima County Appeals Court subsequently found this action to be "arbitrary and capricious" and remanded the permit decision to Pima County for further consideration. ADEQ's permit is more prescriptive than Pima County's proposed permit as it includes additional air pollution control requirements, dust control obligations and the monitoring and testing provisions to ensure ongoing compliance. The ambient impact from the modeling demonstrates compliance with the NAAQS for all applicable pollutants. The permit also requires installation and monitoring of ambient PM₁₀ monitors that will verify NAAQS compliance once operations begin. Further, noncompliance with the permit will result in an enforcement action with possible penalties of up to \$10,000 per violation per day.

Comment 34 – The area is a desert where water use needs to be conserved. Further water used in a large-scale open-pit mine when combined with nasty chemicals by spraying on copper ore to leach copper can find its way into the aquifer.

Response: The air quality permit offers Rosemont flexibility in choosing the type of control most appropriate for reducing emissions of dust. In addition to the use of water, Rosemont has the ability to choose other dust control techniques. For process equipment ADEQ has required Rosemont to use cartridge filters to reduce the amount of water sprays, and for haul roads and other areas of fugitive dust, Rosemont has the option to use chemical dust suppressants or pave disturbed areas. As part of the ADEQ permit, Rosemont has agreed to pave an additional 3.1 miles of road within the facility, thereby reducing the amount of water used to control dust.

Comment 35 – One commenter expressed a personal experience related to wind-blown dust causing health issues due to the concentration of arsenic in the tailings piles. By taking homeopathic remedy the symptoms seemed to disappear. Another commenter provided an example of the Dewey-Humboldt Superfund site in Arizona that demonstrates the effects of fugitive emissions containing arsenic from the mining and smelting activities. The local residents participated in a study if their homes and garden were contaminated¹.

Response: The RCP facility will be operated with state-of-the-art control technology that will provide best of industry emissions control. The design of the dry stack tailings will also help reduce fugitive wind blown dust. Plans for vegetative growth using the salvaged top soil and other growth media will begin within the first year of operation. These control measures have been demonstrated by other mines within Arizona to be effective in reducing emissions of dust from tailings piles and will ensure that the public is adequately protected.

Comment 36 – The National Park Service (NPS) has proposed that the stationary internal combustion engines listed in the permit be required to meet the most stringent Tier emissions standards as required for the haul truck engines so as to minimize emissions of nitrogen oxides (NOx). NOx can have multiple impacts on resources at Saguaro NP as it is a precursor for ozone and nitrate particle formation.

Response: The stationary internal combustion engines permitted are either emergency generators or fire pumps. These engines are required to meet the applicable New Source Performance Standards for new engines and will be operated only in cases of emergency. No additional emission standards are being incorporated in the permit for these engines. RCC will purchase 6 Haul truck engines that meet the Tier 4 engine standards.

Comment 37 – The permit requires Tier 4 engines only on non-road engines, and Tier 2 for highway vehicles. The Tier 3 standards took effect in 2008 and engines meeting Tier 4 are becoming available now and will be required starting 2015. Though Rosemont is proposing to start operations prior to 2015, any lawsuit(s) could delay the start.

Response: The Clean Air Act exempts non-road engines from being regulated through an air quality permit as manufacturers of the engines are required to demonstrate that the engines are capable of achieving emissions levels that are mandated by EPA.

On-highway vehicles are also exempt from air quality permitting. Only the State of California and the EPA have authority to set emissions standards for such vehicles as it is more efficient to require manufacturers to demonstrate compliance with the emissions limitations. EPA, the State of California and the Alliance of Automobile Manufacturers have already agreed to aggressive Corporate Average Fuel Economy standards for on-highway vehicles through 2025. The proposed Tier 3 standards will

continue to build on these standards, requiring each new model year of vehicle to meet progressively tighter emissions limitations. Many air quality experts expect these rules to be finalized before the end of Calendar Year 2013.

Comment 38 – The Sierra Club notes that in a study conducted by ADEQ showed that when levels of PM10 in Central Phoenix were high, there was a significant increase in asthma incidents in children. There are also significant health impacts from the HAPs emitted by this proposed facility.

Response: Based upon the combination of background PM₁₀ concentrations, worst case atmospheric dispersion characteristics, and maximum potential emissions, ADEQ has determined that operation in accordance with the conditions of the permit will not result in a violation of the PM₁₀ health based standards. The modeling analysis for emissions of lead indicated a maximum 3-month average concentration as 0.00163 ug/m³, which is about 1.1 % of the NAAQS level of 0.15 ug/m³. Therefore, ADEQ's has determined that the HAP emissions from the facility are not expected to create significant health risks.

F. GENERAL PERMIT COMMENTS

Comment 39 – If Rosemont sells the claim within the first five years, does the permit stay in place? If sold to another company, how will ADEQ ensure all prior commitments from Rosemont are transferred to the new company?

Response: If the mining operations are sold by RCC to another company, state law allows for a permit transfer to authorize an orderly transfer of assets and operational liability to the new company. If the new company accepts transfer of the permit, it would then be responsible for compliance with the permit terms.

Comment 40 – Has ADEQ ever denied an air permit, if so, what was the reason?

Response: Yes, ADEQ has denied air permit applications. In some cases, the denial is based on the fact that the applicant does not provide the necessary application components for the Department to process a permit and does not respond to the Department's request for the supplemental information. This happened with a soil remediation facility in Vicksburg. In one instance, the denial action was prompted by the determination that a facility would be unable to comply with applicable emission standards in its current configuration. This happened with a hot mix asphalt operation in Globe.

Comment 41 – What steps will be taken to prevent the spread of valley fever when one mile of the desert is disturbed should the mine be permitted?

Response: Valley fever is not a regulated air pollutant, and is not addressed directly by the air quality permit. Valley fever appears to be related to the inhalation of dust. The permit includes the appropriate level of air pollution controls to minimize the emissions of dust. Air permit regulations

require dispersion modeling to document compliance with the National Ambient Air Quality Standards (NAAQS). RCC has conducted the requisite modeling to show that the expected ambient impacts will be below the NAAQS.

Comment 42 – In reference to the proposed filters, how is the captured particulate disposed of and what guarantee is there to ensure filtered particulate does not re-enter the atmosphere upon disposal.

Response: The particulates captured in the dust collectors will be disposed in the tailings area. Water sprays are used during material transfer to control any fugitive emissions.

Comment 43 – Is there a standard for high wind shut down or what is done to fight the wind say 45-90 mph wind which happens here?

Response: ADEQ regulations do not include a separate standard during high winds. The permit limits the visible emissions to less than 20% at all times within the property and no visible emissions beyond the fence line. RCC is required to comply with the dust control plan that includes measures that will ensure that the visible emissions are addressed during periods of high winds. Some of the measures include reviewing meteorological wind forecasts and ensuring that appropriate measures are being taken in advance of a wind event to reduce or eliminate the emissions of dust.

Comment 44 - Is there any coordination between the air and water divisions within ADEQ regarding Rosemont?

Response: Even though the air and water regulations vary widely in the applicability and implementation, the air and water divisions of ADEQ did coordinate with each other on permitting issues and public participation issues.

Comment 45 – The commenter suggests that Rosemont use natural gas to generate its own electric power and use natural-gas powered engines at the mine site.

Response: The use of natural gas to generate its own electric power as an alternate to purchasing power would result in additional emissions that would need to be assessed. Rosemont's application has demonstrated that the company was capable of meeting all applicable air quality regulations. ADEQ has, however, made this suggestion to Rosemont.

Comment 46 – How does this project rate or compare with both recent and 20-30 years ago regarding the projected air quality impact in today's measuring standards?

Response: The project compares favorably with other historic mining operations. Based on the use of cartridge filters being proposed, road paving requirements and other stringent dust control provisions, it is expected that the ambient impacts from this operation will be better relative to impacts from comparable-sized older mining facilities that have not implemented these dust controls.

Comment 47 – The emission numbers should reflect a more realistic number of significant figures and air values that might indicate maximum and minimum amounts of pollution that can be expected from the proposed mine.

Response: The majority of the emission estimates from the facility are derived using expected operating conditions, emissions limitations and, when no other data is available, emission factors from AP-42, an EPA compendium of emission factors for various source categories. The emission factors are conservatively compiled using statistical analysis of test data from numerous facilities. By design, these emission factors are conservative. Due to the varying amounts of different pollutants emitted, not all pollutants can be presented in the same manner. It is normal in the environment field to use 3 significant figures after the decimal to show pollutants emitted in minute quantities.

Comment 48 – One commenter has indicated that ADEQ did not conduct an “administrative completeness” review of the Rosemont air permit, as required by A.A.C R18-1-503. Upon public records request, ADEQ had provided no evidence and that the application was deemed “administrative complete” solely by passage of time and expiration of the Licensing Time Frame (LTF) requirement. ARS 41-1074(C) requires that an application be “deemed administratively complete” if the agency fails to provide to the applicant a notice of “administratively completeness” prior to expiration of the LTF time period. Since there was no documentation of an “administratively completeness” review nor a notice to Rosemont, ADEQ failed to conduct an “administratively completeness” review, in violation of applicable laws and rules.

Response: A.R.S. 41-1074 (C) and A.A.C. R18-1-503 are the licensing time frame rules that apply to administrative review on permit applications. The idea that an application is deemed administratively complete at the end of administrative completeness review unless the Department notifies the Permittee in writing about completeness is to protect an applicant from a situation that the Department can potentially take an inordinate amount of time in conducting its review. In this instance, a review of the necessary application components was conducted during the administrative completeness review period and in accordance with A.A.C. R18-1-503.B.2, the application was deemed administratively complete at the end of the administrative completeness review period. The assertion that ADEQ did not conduct an administrative completeness review by virtue of the fact that no completeness notice was sent to the applicant is incorrect.

Comment 49 – The application does not adequately address how the permit will ensure that the health, safety and general welfare of the residents of Vail, Corona de Tucson and Sonoita area will be protected as stated in ARS 49-401.

Response: The permit includes enforceable emissions limitations and requirements to install and operate emissions control devices in order to protect public health. The permit contains all applicable state, federal and county regulations as required by law. The emission limits in the permit are supported by appropriate monitoring, recordkeeping, reporting and performance testing conditions. The dispersion modeling conducted using these emission limitations demonstrate that the EPA’s NAAQS designed to protect human health were not exceeded. As a result, the Department has concluded that the permit is protective of public health.

Comment 50 – Public regional health will be seriously impacted from particulate pollution. “Haboobs” could travel and lift pollution over 3000 feet and over 100 km wide. The pollution would cause untold health

problems and that the permit does not adequately demonstrate that it will protect public health. Further other businesses would be required to mitigate the effects by installing additional controls. Therefore this permit does not address the adverse economic impact if Pima County becomes non-attainment.

Response: Extremely large dust storms, commonly referred to as “Haboobs” are a natural event that are common in the arid southwest, as well as the Sahara desert, the Arabian Peninsula, North Africa and the Gulf of Guinea. According to the National Weather Service this phenomenon affects the region between one and three times per year on averaged, with more than 100 such dust storms having been reported in the last 10 years. These dust storms occur when air is forced down and pushed forward by the front of a traveling thunderstorm cell. As the wind moves, it collects dust and debris. Wind speeds have been measured as high as 60 miles per hour, breaking natural crusts in the desert and overwhelming dust controls in the area. ADEQ has no evidence to suggest that these events will become more frequent after the construction of the Rosemont mine.

As noted in response to other comments, the ambient air dispersion modeling that was performed in support of the air quality permit demonstrates that the emissions limitations and air pollution controls required at the mine are sufficient to prevent the area from reaching levels that would cause it to be designated as non-attainment. To provide additional assurances that the mine’s operations are protective of public health, ADEQ has added a requirement for the company to install and operate a PM10 monitor in the area. If exceedances due to the mine’s operations are observed on the monitor, ADEQ will work with Rosemont to revise the dust control strategy.

Comment 51 – Rosemont Copper has never built or operated a copper mine and their poor financial condition does not project them as being a good corporate citizen. Therefore the permit should be denied.

Response: The air permit regulations do not authorize the denial of a permit application on these conditions. Instead ADEQ must determine whether the application demonstrates that the company is capable of complying with all of the applicable federal, state and local air pollution control requirements. ADEQ has determined that the application has met these criteria and is issuing an air quality permit for the operation of the mine as it was described in the permit application. Any acts of non-compliance will be handled through the Department’s enforcement process to ensure the facility promptly returns to compliance.

Comment 52 – The diesel emissions from the mine site and ore truck transportation pose a major concern. Even with improvements in diesel technology, areas proximate to the routes of transportation can degrade the air quality due to “engine braking” or use of older diesel vehicles.

Response: The mine site diesel engines (haul trucks) fall under the category of non-road engines and the ore trucks fall under the category of mobile sources which are both regulated by the US EPA. The emissions from these engines were, however, included in the ambient air quality dispersion modeling analyses and was demonstrated that the facility would not be expected to violate the National Ambient Air Quality Standards.

Comment 53 – No construction site can ever control all air pollution. Using air monitors would only show if standards are met or violated. Given the scale of the project, the accuracy of these monitors is reduced.

Response: While it is true that no facility can control emissions entirely, ADEQ has ensured that the issued permit contains state-of-the-art control requirements like cartridge filter dust collectors. Additionally, there are numerous monitoring and testing requirements in the permit that will track the facility's compliance status with the terms of the permit. In response to public comment, ADEQ has included a requirement for the facility to operate an ambient monitor for particulate matter to verify the ambient impacts predicted in the dispersion modeling conducted in support of the application.

Comment 54 – Did ADEQ consider the dust and noise pollution from the many trucks hauling ore to railheads?

Response: The air permitting action is limited to evaluating air impacts within the Rosemont mine site and at learning sites that are within 2 miles of a proposed source. ADEQ's evaluation revealed that the permitted facility is expected to comply with the National Ambient Air Quality Standards even when the maximum emissions occur at the same time as the highest levels of air pollution from other existing sources in the region under the worst-case meteorological conditions. ADEQ evaluates dust from off-site truck traffic under a regional program. Noise pollution is not addressed by ADEQ but comes under the jurisdiction of local ordinances.

Comment 55 – RCC has indicated the life of the mine to be 20 years. Did ADEQ take this time period into consideration when reviewing the application? If the mine is operated beyond 20 years, would they have to obtain a new permit?

Response: The permitting process takes into account worst-case annual emissions to determine the type of permit and worst-case ambient impacts for to determine compliance status with the NAAQS. The permit that is being issued will be good for 5 years. RCC must apply for a renewal permit every five years to authorize operations beyond that time period. Nonetheless, RCC calculated the potential emissions through Year 20. These emissions were modeled for Year 1, Year 5, Year 10, Year 15 and Year 20. For all these scenarios, ADEQ confirmed that the NAAQS would not be violated.

G. PERMIT COMPLIANCE

Comment 56 – What are the remedies if Rosemont fails to comply with ADEQ requirements after the permit is issued? Reference continued dust problems with mines in Green Valley? (i.e., violation of standards, payment of fines but no remedy)

Response: The facility's compliance status with permit obligations will be monitored by a combination of inspection programs, performance testing, submission of semi-annual compliance certifications and monitoring, recordkeeping and reporting requirements. For any incidents of non-compliance, the Department will follow protocols identified in its Compliance and Enforcement Handbook. The handbook specifies appropriate remedial measures to assist in returning facilities back into compliance expeditiously. Enforcement measures can include the development of compliance schedules, assessment of penalties and injunctive relief.

On September 1, 2009 ADEQ transferred jurisdiction of the Freeport McMoRan mining operation near Green Valley to Pima County DEQ. Prior to that, ADEQ took an enforcement action against the mine for excessive amounts of visible dust emissions released from the tailings impoundment at that facility. At the time of the dust events, Freeport McMoRan spent more than \$170,000 cleaning or reimbursing home owners in the area for the damage caused by the emissions. ADEQ also imposed another \$105,000 in fines and supplemental environmental projects, as well as worked with the company to enhance the dust control plan that is implemented at the facility.

Comment 57 - What will happen if visibility standards are exceeded due to off site hauling and emissions from tailings and other area sources, if the mine is approved? Will ADEQ require adherence to the state implementation plan for visibility? Method 22 is very simple and provides little protection. An uncertified observer views potential outdoor dust source for about 10 minutes and then makes a note if any emissions were visible during the time. Nothing more is required of the observer.

Response: This permit does not cover off site hauling and is limited to emission activities that occur within the RCP property. However, emissions from the tailings and other area sources are required to be controlled using specific control measures and associated monitoring, recordkeeping and reporting requirements. Any exceedances of opacity standards in areas covered by the permit will be addressed by the compliance process. Violations of air pollution regulations that occur off site will be addressed through the enforcement of the existing state and local rules.

Method 22 is an EPA specified method established to do a quick check on visible emissions. While it does not quantify the opacity, it gives the observer a sense of the degree of visibility extinction. If the Method 22 observation appears to indicate a potential problem, the permit will require a certified Method 9 observation to quantify the opacity. Any opacity values recorded in excess of the standard will require reporting by the Permittee under the state excess emissions rule and the permit requires that the company take appropriate corrective action immediately.

Comment 58 – State regulatory agencies have lost staff due to our economy. Is it possible that ADEQ inspections will not be adequate to monitor the mine’s emissions secondary to reductions in staffing? (This is currently an issue with ADWR)

Response: While it is true that staffing has been reduced over the last few years, the reduced staffing has not hindered the Department’s ability to conduct routine inspections as well as respond to complaints. ADEQ has been actively reviewing and streamlining all of its processes to eliminate non-value added steps or activities. The resulting efficiencies have increased staff’s capacity, allowing all staff to better support ADEQ’s mission to protect and enhance public health and the environment. For more information about ADEQ’s efforts, please see our strategic plan, posted online at http://azdeq.gov/function/forms/download/strategic_plan-2012.pdf.

ADEQ also has inspectors stationed at the South Regional Office located in Tucson who conduct regular inspections and respond to citizen complaints within 5 days of receipt. Complaints can be made either via the website at <http://www.azdeq.gov/function/compliance/complaint.html> or by calling in (602) 771-2286.

Comment 59 – What would ADEQ be required to do if Rosemont could not comply with violation remediation requirements?

Response: Any violation would trigger an appropriate action (a notice of opportunity to correct, notice of violation, order of abatement on consent or administrative compliance order) from ADEQ to ensure that corrective actions have been or will be taken by RCC to restore compliance and prevent similar incidents in the future, as well as actions as needed to protect public health and the environment.

By engaging the Attorney General's Office, ADEQ can assess penalties based on the nature of the non-compliance and any economic benefits obtained as a result of noncompliance. In the unlikely event that the non-compliance poses a threat to public health, ADEQ and the Attorney General's office can seek a court ordered injunction to bar further operation until the problem is corrected.

Comment 60 – ADEQ included emission controls and limits in an attempt to address the exceedances of NAAQS but provided no evidence that these measures would prevent violations of the NAAQS. The unproven mitigation measures fail to provide an adequate margin of safety leading to likelihood that emissions will create an imminent and substantial endangerment to public health through violation of the NAAQS.

Response: This comment is incorrect. The modeling analyses performed in support of the proposed permit demonstrated that the required emissions controls are sufficient to protect against a violation of EPA's health based NAAQS. In response to public comment, however, ADEQ is now requiring RCC to conduct ambient monitoring for particulate matter. This will serve as a further measure to quantify the ambient impacts from the facility.

Comment 61 – Any violation from the proposed mine could cause Pima County to require additional control requirements for other business in order to show compliance with the SIP requirements

Response: This comment is not accurate. Because the permit is constructed to be protective of the National Ambient Air Quality Standards it is unlikely that any one violation at the facility will result in an exceedance of the health based standard.

If there are sufficient violations of an ambient standard to redesignate a portion of Pima County as nonattainment for any pollutant, ADEQ or the local planning organization, is required to first construct an emissions inventory that identifies all of the sources of the specific air pollutant within the area. This emissions inventory is then used to run a regional model that identifies the sources that significantly contribute to the concentrations that have been observed at a monitor. Only after these steps have been completed can ADEQ or the local planning organization develop additional control strategies for these significant sources.

Comment 62 – If Rosemont is found in violation of permit requirements, besides remedy of the problem, will fines be levied and if so, how much?

Response: Under state law, the Department is authorized levy fines up to \$10,000 per day. The exact daily amount as well as the overall penalty that is levied will be based on the nature and duration of the violation.

H. TAILINGS

Comment 63 – The proposed permit does not sufficiently address the fugitive dust from the dry-stacked tailings piles. There is no tailings management plan submittal required prior to permit approval and this denies the public the opportunity to review and comment on this plan. The Dry Stacked Tailings are a theoretical experimental technique not yet proven effective in the arid climate and windy conditions of the southwest. Rosemont’s own dry stack tailings consultant references that “...dust generation is a common problem in arid climates and can occur relatively quickly after tailings are disposed due to low moisture content of the placed material...” The dry tailings at 18 percent moisture and height of 850 feet would be subject to high winds thereby causing large quantities of dust. Controlling fugitive emissions of this size is untested. Use of water is insufficient to control the toxics in the dust. Other mining operations with mine tailings use the conventional wet tailings and have already been a significant contributor to regional air pollution. Further several residences are within a mile of the tailings area. Therefore, the commenter requests that a determination be made to establish a “risk zone, safety zone” in distance of miles from the tailings piles for all living beings; miles the windswept fine particulates can travel; and residence time of toxic dust in soils and groundwater.

Response: Filtered tailings are becoming an increasingly common consideration for tailings management at many mines¹. The engineering and environmental assessments of such facilities are just as rigorous and comprehensive as with other systems. The dry stack tailings offers significant benefits compared to the conventional wet-stack tailings method such as smaller foot-print, critical water conservation, ease of progressive reclamation and closure of the facility. Reclamation can start very early in the project cycle thereby leading to better control of the fugitive dust. Dust generation will no doubt occur from both types of tailings piles if left uncontrolled. Taking preventative measures can reduce or limit the wind blown erosion. Part of the design of dry stack tailings involves proper placement of the containment buttresses that will break up air flow and reduce exposure of large areas of tailings to windy conditions. The proposed permit requires RCC to submit a Tailings Management Plan that addresses control measures at all times along with ongoing monitoring, recordkeeping and reporting requirements. Further, the permit requires RCC to perform an annual review of the TMP to determine its effectiveness and make appropriate changes as necessary.

RCC is subject to the requirements of Pima County SIP Rule 343 that requires the facility to not cause or permit the airborne diffusion of visible emissions, including fugitive dust, beyond property boundary lines. In addition, the air quality modeling analysis has shown that the tailings operations will not cause adverse risk to public health. Therefore establishing additional risk zones is not warranted. Establishing toxic dust residence time in the soil and groundwater are outside the scope of the air quality permit.

In response to this comment, ADEQ has included a new permit condition requiring RCC to submit the Tailings Management Plan as a significant permit revision thereby allowing concerned citizens an opportunity to review and comment prior to approval.

1. Filtered Dry Stacked Tailings – The Fundamentals, Dr. Michael Davies, VP Mining, AMEC Environment & Infrastructure, Vancouver Canada, Proceedings Tailing and Mine Waste 2011, Vancouver, BC, Nov 6-9, 2011

Comment 64 – The use of control measures such as water and chemical suppressants on the tailings when active will mean that the 5 square miles of tailings that are not active will be uncontrolled. This will cause high pollution to the surrounding highly populated cities. Further, water usage should be reduced.

Response: The control measures required by the air quality permit apply at all times. The requirement to use water or chemical suppressants during active tailings management will ensure that fugitive emissions are adequately controlled. Inactive areas cannot be left uncontrolled. The permit requires RCC to take reasonable precautions for all open areas that are a potential source of emissions.

With regards to the water usage, one of the benefits of using dry stack tailings is its relatively low water usage. However, use of water during active tailings management is an economical way to reduce emissions and the amount of water used is small when compared to wet-tailings disposal.

Comment 65 – Condition II.A.1.(a) that describes Visibility Limiting Standard excludes Rosemont from complying when wind speeds exceed 25 mph. While most of the dust is generated above the 25 mph speed, the requirement seems flawed.

Response: ADEQ agrees with the commenter that visible emissions can occur when wind speeds exceed 25 mph. Pima County SIP Rule 343 prohibits visible emissions from crossing the property boundary line at all times. The exception to this rule is allowed only after the facility has taken reasonable preventative measures to prevent fugitive emissions from becoming airborne. The permit conditions regarding fugitive dust management are considered reasonable precautions. While the 0% opacity requirement at the fence line has an exception based upon wind speed, the reasonable precautions prescribed in the permit must be maintained even when the wind speed exceeds 25 miles per hour.

Comment 66 – The permit fails to control substantial amounts of particulate matter, especially “toxic dust”, which will be emitted from the dry stack tailings facility. These emissions will have a substantial adverse effect on public health and social and economic factors. The commenter requests that Rosemont should prepare a dry-stack tailings management plan and submit to ADEQ for evaluation and public review & comment, prior to permit issuance. The commenter notes that the tailings management plan should address significant amounts of uncontrolled particulate emissions and analyze the tailings for HAPs and other constituents such as thallium and assure minimization of uncontrolled emissions from the tailings piles that could threaten public health and safety.

Response: ADEQ disagrees with the comment that the permit fails to control emissions from the dry stack tailings. The air quality impact analysis demonstrates that the mine does not pose a threat to public health. In addition, the permit requires RCC to submit and implement a Tailings Management Plan that will ensure compliance with the air quality regulations. In response to this comment and other similar requests, ADEQ has amended the permit to require the submittal of the Tailings Management Plan via a significant permit revision that will allow for public participation.

It should be noted that the toxic chemicals analyzed as part of the Baseline Geochemical Characterization report were part of the Aquifer Protection Plan permit and cannot be directly

correlated to air emissions. The tons of toxics reported relate to the total volume of ore body that could leach into groundwater. The amount of annual air emissions due to wind erosion totals to 30.23 tons of PM, 15.11 tons of PM₁₀ and 2.27 tons of PM_{2.5}. Only a small portion of these particulates are HAPs such as lead. The annual emissions of HAPs from this facility are relatively small compared to the major source threshold of 10 tons per year of individual HAPs and 25 tons per year of combination HAPs. Since the emissions are so low, the Department has determined that analyzing the tailings for HAPs is not necessary to ensure protection of public health.

Comment 67 – Is the plan referred to in VIII.B.1.b(5) is a Tailings Construction Plan or Tailings Management Plan. In addition, PCAQCD recommends this plan be submitted to the Director through a significant revision which will allow the public the opportunity to provide input on the Plan.

Response: The permit has been amended to clarify that the company must submit a tailings management plan. That plan will include the construction of the tailings and also the management of the tailings during regular operation of the mine. Further, the permit condition has been amended to clarify that the Tailings Management Plan must be submitted as a significant permit revision which will ensure that the public will have an opportunity to participate in the process.

Comment 68 – The Dust Control Plan in Appendix E is not specific enough. The plan should specify the schedules, how much material will be used and how the effectiveness will be determined. Though the frequencies can depend on various factors, RCC should describe how the control will be accomplished to provide reasonable assurance of compliance. One example is to conduct inspections twice daily.

Response: The dust control plan's objective is to enforce the 90% dust control efficiency assumed in the emission calculations for the unpaved haul roads and general-use roads within the facility and to generally minimize emissions in other open areas in the facility. For the unpaved roads, the facility can elect to either use chemical dust suppression or watering. The dust control plan is prescriptive from the standpoint of defining the process to establish application rates and frequencies. The information is based on EPA technical literature for the control of fugitive dust and is widely used. Additionally, the Permittee is required keep records of the application of dust suppressant to track ongoing compliance. The required visible emissions monitoring required by the permit will also verify the efficacy of the dust control plan.

Comment 69 – The title under section VIII.B.1.b(5)(a) should reflect the same as in the description. In addition, RCC requests ADEQ to define startup of operations and clarification on when the tailings construction plan is to be submitted.

Response: The titles have been amended to be consistent with the terms used. ADEQ has also clarified the timelines when the plans are required to be submitted.

Comment 70 – The tailings inspection requirements currently based on wind speeds in Condition VIII.B.1.d.3.c should be replaced to weekly inspections that will ensure better dust control than reactive plan based on wind speeds. Pima DEQ has moved to the weekly inspection in lieu of wind speeds. RCC notes that the twice daily and weekly inspections already specified in Condition VIII.B.1.d.3.b should be adequate. In addition, RCC requests references to “tailings dam” to “tailings facility”.

Response: The Department disagrees. The Department has determined that increased wind speed conditions should result in enhanced monitoring to ensure that adequate control measures can be employed to minimize wind-blown emissions. The changes requesting the tailings facility has been corrected.

Comment 71 – Windy days in the Green Valley are equivalent to being buried in the dust. Many seniors living in that area have significant health issues. The public needs assurance that Rosemont will not expose the people living in that area to the tailings dusts on windy days. Such dust problem has been prevalent in the mining industry.

Response: The air quality impacts that were modeled demonstrate that the local ambient air quality would not be adversely affected. ADEQ has no evidence that the proposed facility will cause exceedances of the NAAQS in Green Valley or any other location. The public can call ADEQ and file a complaint either via the website at <http://www.azdeq.gov/function/compliance/complaint.html> or by calling in (602) 771-2286.

Comment 72 – Recent wind storms in the Green Valley resulted in copper slag dust from the existing mines causing health issues. The mine was assessed a fine as part of the settlement over air quality violations. The claim of unproven technology needs to be experimented on existing mines first.

Response: The permit incorporates the facility's dust control obligations. ADEQ understands the reference to unproven technology as a reference to the dry stack tailings strategy will be employed by RCC. However, a comprehensive tailings management plan is required in to be included in the permit through a significant permit revision to ensure that fugitive dust emissions from the tailings are minimized. The plan also calls for more inspections and possible corrective measures during potential high-wind events. In addition, the permit requires a PM ambient monitor to track if the emissions from the facility will cause a violation of the NAAQS. ADEQ will be closely watching the facility through inspections to ensure that the tailings management plan is effective. In addition, the permit requires the RCC to annually evaluate the control effectiveness of the tailings management plan and make necessary changes as required.

Comment 73: The dust control plan utilizes 90% control of fugitive dust. Though this level of control is good, achieving it will be more difficult. Literature review suggests 10% to 70% for water use on haul roads. Dust suppressants could approach 90% with much diligence in application and maintenance but the highest published efficiency seen is 84%. Due to this uncertainty, NPS recommends including additional monitoring and reporting requirements. The monitoring plan should require the installation and operation of ambient particulate samplers near the fence line in areas of highest projected impact. This data would augment the opacity observations required. In addition, paving can substantially reduce particulate emissions.

Response: In response to public comment, ADEQ has included a requirement to install and operate an ambient particulate matter monitor to ensure that the prescribed controls are employed and that emissions from the facility do not contribute to a violation of the NAAQS. The permit already requires extensive monitoring, recordkeeping and reporting requirements to ensure that fugitive dust is controlled.

Comment 74 – Since RCC no longer processing oxide ore, it would create larger tailings piles and more waste rock from the mine; which will mean greater particulate emissions, at a minimum. Therefore RCC must revise their application.

Response: ADEQ has processed the application based on information submitted. RCC has been reviewing other options as part of discussions with federal and state agencies. Should RCC finalize changes to their process that results in new applicable requirements or any increase in emissions, RCC is required to revise their air quality permit. Significant permit revisions will undergo public review process similar to a new application.

Comment 75 – Rosemont is required to obtain an Aquifer Protection Permit (APP) while demonstrating that the mine process will not produce any exceedances of AWQS at the various points of compliance (POC) wells. However, under the air quality permit, pursuant to Pima County Rule 343, RCC is not required to prohibit visible emissions from exiting the boundaries of the mine area whenever the wind speeds exceeds 25 miles per hour. Major dust events only occur at wind speeds are greater than 25 miles per hour. Dust with 1 um in diameter has a transport flux 13 times greater at wind speeds of 50 mph than at 25 mph. Wind speeds of 25 mph are common at 5000 feet elevation in the Santa Rita Mountains, and 50 mph winds are not unusual. The fine-grained chemically-active tailings dust will be deposited throughout a downwind area, in effect producing a mobile tailing slayer that will then interact very actively with rainfall, thereby producing a very high potential for contamination of the aquifer. As this contamination will occur beyond the scope of the APP point of compliance wells, it will not violate any of the legal governing statutes. If only 1% of the tailings were eroded each year and deposited in a down-wind area equal in size to the surface area of the tailings pile, the annual dust/particulate layer would be 1.1 inches thick, and would have been exposed to an annual rainfall of 15 times this value. This water/rock interaction will almost certainly cause an exceedance of the AAWS for many toxic elements and cause surface waters to violate the Clean Water Act. Thus neither APP nor AQP would offer meaningful protection. Hence this permit should be written as a Class I permit. The commenter suggests that the dust control be required for all wind speeds up to 75 mph.

Response: Pursuant to the State regulations, fugitive emissions from tailings piles are not to be considered when determining whether a Class I permit is required to be issued to the facility. As a result, ADEQ is properly issuing a Class II air quality permit for this facility. ADEQ notes, however, that Class I permits undergo 45-day EPA review of the draft permit. Otherwise both permit types are required to contain all legally applicable federal, state and local air pollution requirements, as well as sufficient monitoring, record keeping and reporting provisions to ensure that the permit is enforceable.

The only condition of the permit that includes an exemption based upon elevated wind speed is the requirement that RCC prevent visible emissions from crossing the fence line. This exemption is part of the county rules that apply to all types of facilities and was not developed for RCC. Further, such exemption only applies if RCC can demonstrate that it has applied reasonable controls leading up to and during these elevated wind speeds. The dust control provisions of the permit constitute the necessary reasonable controls and RCC is responsible for employing these controls at all times, including during elevated wind speed conditions. As a result, no change was made to the permit.

I. CLIMATE CHANGE

Comment 76 – There will be a marked increase of greenhouse gases, particularly carbon dioxide from haul trucks and employee travel. In addition, plant life is destroyed and there is possible detriment from ground and service water loss and deterioration of water quality would also contribute to climate change.

Response: Carbon dioxide (CO₂) in the open atmosphere does not pose a threat to human health but is an environmental concern on a global level. Under the federal greenhouse gas permitting program that has been delegated to ADEQ, a best available control technology analysis for GHGs is required only when the facility emissions exceed 100,000 tons per year. The total greenhouse gas emissions (GHGs) from the RCP mine is estimated to be 10,918 tons per year of CO₂ equivalent. As a result, there are no additional applicable greenhouse gas requirements for the mine to meet.

J. OTHER ISSUES

Comment 77 – The mine site proposed by Rosemont is home to endangered ocelot, and jaguar, as well as other species listed as candidates for protection under the Endangered Species Act, as well as 9 of which are threatened and therefore, request that the permit be denied.

Response: The comment is noted for the record. The Endangered Species Act is not an applicable air quality requirement for this facility. ADEQ notes, however, that the Environmental Impact Statement process is required to comply with all Endangered Species Act requirements and recommends that this comment be raised as a part of that process.

Comment 78 – Why did Rosemont testify before the line siting committee that emergency generation was not required?

Response: To the extent that Rosemont applied for the permitting of emergency-use engines, such engines have been addressed in the permit with applicable terms from federal regulations.

Comment 79 – Why was Pima County's request for Rosemont to post a Bond declined?

Response: State law and regulations do not authorize ADEQ to require a bond for air quality purposes. Bonds are typically required to cover environmental issues such as waste removal or remediating contaminated water supplies after the closure of a facility. Contamination from air pollution generally ends at the time that the facility stops operation, limiting the utility of bonds for the purposes of remediating contaminated air. ADEQ notes, however, that the air quality permit contains conditions, including dust control requirements, that apply after the facility is closed.

Comment 80 – Will groundwater or recycled water be used in the water trucks or to clean filters?

Response: Neither the permit application nor ADEQ's air quality permit identify the source of water to be used in water trucks or to clean filters.

Comment 81 – Does ADEQ's permitting process account for refraction of light on particulate ejected by the proposed Rosemont operation and its effect on the areas existing astronomy industry and their air quality requirements?

Response: The Department is assuming that this comment relates to visibility impacts from the proposed facility. The requirement for modeling visibility impacts is limited to facilities whose potential emissions exceed the thresholds for the more stringent federal New Source Review and Prevention of Significant Deterioration program. Rosemont's emissions are below those thresholds. Consequently, the permitting process does not require visibility modeling. Visibility impacts associated with this facility will be reviewed periodically as part of Arizona's Regional Haze State Implementation Plans.

Comment 82 – The “maintenance” road near the Rosemont substation should be eliminated and instead use “spurs” after the water pipeline and transmission lines have been constructed. The maintenance road could cause an ATV superhighway to the top of the Santa Rita Mountain.

Response: If the maintenance roads are not owned or operated by RCC, then the requirement to limit access is outside the scope of this permit.

Comment 83 – Nitrogen oxides emissions would represent a 4 percent increase in Pima County which would risk an exceedance of ozone air quality standard in the Tucson area and a 1 percent increase in greenhouse gas emissions. These emissions could cause visibility degradation in the Saguaro National Park and the Galiuro Wilderness airshed as stated in the Draft Environmental Statement. The astronomy community will be affected by the dust and light pollution diminishing visibility, and dust damages to their instruments.

Response: Ozone concentrations are the result of complex atmospheric chemistry that includes emissions of volatile organic compounds, oxides of nitrogen and sunlight. Because ozone is not directly emitted by the facility, ADEQ's air quality permits require sources to ensure the appropriate level of control for oxides of nitrogen and volatile organic compounds. ADEQ's permit includes all applicable federal, state and local air pollution requirements for these two pollutants. An area's overall compliance with the NAAQS is determined through ambient air quality monitoring. If an area is determined to be in non-attainment for any pollutant, ADEQ or the local planning authority will use the State Implementation Planning process to identify all sources of the pollutant, determine which sources significantly contribute to the problem, and require additional controls to return the area to compliance.

Also, as mentioned previously, visibility modeling is limited to sources whose potential emissions exceed thresholds which trigger the need for the New Source Review program. Rosemont's potential emissions are estimated to be below the thresholds and consequently, no visibility analysis has been conducted for this project.

Comment 84 – The parent company of Rosemont Copper, Augusta Resources, have been proven to file for bankruptcy or spun off their past companies. Obtaining this permit would allow them to do the same due to lack of financial resources. A recent change to their process that copper cathodes would no longer be made on-site will mean more trucks shipping the ore out, creating additional traffic and use of more fossil fuels.

Response: Comment is noted for the record. Rosemont demonstrated that the proposed facility is capable of complying with all of the applicable air pollution control requirements and, therefore, the Department is required to issue the air quality permit to the company. Rosemont will be held

responsible for compliance with permit terms. There are no federal, state or local requirements for applicants to make long-term financial assurance demonstrations.

This permit is based on information submitted by the applicant. Any change in the future will require a permit revision that would address all potential emissions from the change.

Comment 85 – The mine operations can have an increased possibility of accidentally wildfire and change the severity and extent of fires. The air quality permit does not mention the impacts from the wild land fire smoke would contribute to the deterioration of air quality in the region.

Response: ADEQ is unaware of any evidence that the operation of the mine will lead to the start or proliferation of a wildfire. The air permitting process does not include mitigating the risks of wildfire.

Comment 86 –If Rosemont is proposing to not make copper cathodes on site, then the increased truck usage to ship the concentrate can contribute to more fuel use.

Response: As stated in earlier responses, any change in the operations that has not been approved will undergo a permit revision process. Off-site haul truck usage are not regulated by ADEQ.

Comment 87 – Research should be conducted regarding livestock animals and agriculture raised within certain number of miles in proximity to the mine whether there would be any even subtle long term effect on health of humans from consumption of those products at the end of the food chain. In addition, determination of health impacts in the Pima and Santa Cruz counties through stringent record-keeping by health professionals and health departments to assess the degree of impacts on public health from wind swept particulates, HAPs and Valley Fever spores.

Response: ADEQ has no authority to deny a permit application based upon the requested research and can not mandate the requested studies. ADEQ's has determined that the permit contains sufficient conditions to ensure compliance with applicable emission limits, including the NAAQS, which are protective of public health and welfare (which includes impacts to animals and vegetation..

Comment 88 – Other issues in addition to air quality need to be addressed such as water pollution and consumption, traffic congestion by very large vehicles, noise pollution light pollution threatening nearby observatories, visual degradation and floral and faunal destruction.

Response: It should be noted that EPA's secondary national ambient air quality standards are designed to protect flora and fauna. The dispersion modeling analysis associated with the permit application demonstrated compliance with all of the primary and secondary NAAQS. There are no other applicable federal, state or local air pollution control requirements that address noise pollution, light pollution and traffic congestion.

Comment 89 – The application does not document how it would protect the property values.

Response: There are no applicable federal, state or local air pollution control requirements that require the applicant to assess the potential impact its operation might have on property values.

Comment 90 – ARS 49-402 requires the county to establish measures designed to attain and maintain the air quality standards are not adequately addressed in the application.

Response: This comment is incorrect. A.R.S. § 49-402(E) requires “the regional planning agency for each county...” to “...develop plan revisions containing transportation related air quality control measures designed to attain and maintain primary and secondary ambient air quality standards...” The plan revisions identified in this statute are revisions to the State Implementation Plan that are related to vehicle emissions. There are no other obligations in this statute related to the attainment or maintenance of the ambient air quality standards. Nevertheless, the dispersion modeling analyses reviewed and approved by ADEQ demonstrate that the permit is protective of the health based National Ambient Air Quality Standards (NAAQS) and that no additional control measures are necessary at this time. In response to public comments, the permit now requires RCC to operate an ambient monitor to address NAAQS compliance.

Comment 91 - The economic importance of landscape amenities to local economic vitality has been demonstrated in an economic research conducted by the US Dept of Agriculture and Forest Service. Such research should serve as part of the foundation for any socioeconomic impact analysis performed by the ADEQ. Per RCC DEIS, any degradation in the natural landscapes would have the potential to decrease public investment value of the land as well as the sense of place that these public lands provide to residents and visitors. There might be negative changes in the quality of life for those living close to the mine. A move from the undeveloped landscape to an industrial landscape would negatively impact local residents who are seeking a rural residential community. Disseminates associated with the mine include dust, light, noise and the conversion of a scenic highway into a mining haul road. The DEIS ignores the other ongoing economic impact despite citing studies warning those impacts.

Response: The air permitting process does not involve an analysis of socio-economic considerations. The Department’s authority with respect to the air permit is limited to air quality considerations.

Comment 92 – Tucson ranks high in the nation for a desirable place to live and vacation. RCC being a source of contaminants would be detrimental to the well being of the citizens. The evidence provided by RCC is insufficient to prove that this mine will not have a substantial negative impact on our air quality.

Response: ADEQ disagrees with this comment. The permit application contained a modeling analysis as required by law to document compliance with the NAAQS. Additionally, the permit contains applicable provisions from state, federal and county regulations with emission standards, monitoring, recordkeeping, reporting and testing conditions.

Comment 93 – The permit should include a condition that Rosemont purchase the residences and reimburse effected residents with relocation costs since the residents will be forced to move due to serious health issues caused by the operation of the mine.

Response: ADEQ has no authority to require Rosemont to purchase property or reimburse relocation costs.

Comment 94 – Over 500 registered wells would be directly impacted in an already dwindling aquifer. Addition of sulfuric acid, ammonium nitrate and other pollutants can cause more harm. Water is a more precious commodity than copper and hence the permit should be denied.

Response: ADEQ has addressed water quality issues through the Aquifer Protection Permit issued to Rosemont.

K. SOCIAL AND ECONOMIC IMPACTS

Comment 95 – The permit does not address the overwhelming adverse social and economical impacts on all Pima County in the event the air pollution from the proposed mine causes Pima County to become a non-attainment area.

Response: The air permitting process does not involve an analysis of socio-economic considerations. The Department's authority with respect to the air permit is limited to air quality considerations. The modeling conducted by RCC has been demonstrated that the NAAQS health standards are not exceeded. In addition, the permit now requires installation of an ambient monitor that will serve to demonstrate NAAQS compliance.

Condition 96 – Two recent economic studies conclude that the loss of just one percent of Pima County's tourism dollars would not be made up by one year's worth of Rosemont payroll. The Whipple Observatory in the Santa Rita's, the Madera Canyon, the Santa Rita's and the Saguaro National Park will all be negatively affected by the Rosemont mine.

Response: ADEQ's permit contains all applicable federal, state and local air pollution control requirements, and Rosemont has demonstrated that the facility can comply with these limitations. Further, the air permitting process does not allow for consideration of economic impacts.

L. SPECIFIC PERMIT COMMENTS

FACT SHEET

Comment 97 – The fugitive emissions were omitted in the Fact Sheet provided at the public meeting. This indicates that very high levels of various pollutants are released completely unregulated by state law. Lack of regulations is not a valid reason to omit fugitive emissions. Laws governing HAPs should be revised to include fugitives that impact public health.

Response: ADEQ's inclusion of only non-fugitive emissions in the facility-wide potential emissions total is explained as follows. A facility's potential emissions, calculated using the maximum capacity and maximum hours of operation is used to determine the type of permit issued. Potential emissions of all criteria and hazardous air pollutants (HAP) are compared to specific permitting thresholds. A facility emitting any criteria pollutant over 100 tons per year or any single HAP of 10 tons per year or any combination of HAPs of 25 tons per year is required to obtain a Class I permit. However, the Clean Air Act Section 302(j) distinguishes when fugitive emissions are combined with non-fugitive

emissions to determine a facility's potential emissions. For criteria pollutants (pollutants commonly found that are used as indicators of air quality), fugitives are included for those source categories that are stated in the regulations³. However, when HAP emissions are analyzed, the potential emissions include both non-fugitive and fugitive emissions.

The Rosemont Copper mine, is not a source identified that must include fugitive emissions and therefore fugitive emissions are not aggregated with non-fugitive emissions when determining the type of air quality permit that is required for criteria pollutants. The facility as permitted will emit less than 100 tons per year of each non-fugitive criteria pollutant and approximately 3 tons of fugitive and non-fugitive HAPs each year. It should be noted that fugitive emissions are not "unregulated" but are simply not counted when determining the type of permit that will be issued. In the case of RCP, all sources of air emissions, point and fugitives from the Rosemont Mine are subject to air regulations. Some of the requirements to control fugitive emissions includes at least twice daily inspection of all open areas and use of water trucks to limit haul road emissions.

3 -http://www.azsos.gov/Public_Services/Title_18/18-02.htm#Article_2

ATTACHMENT "A"

Comment 98 – PCAQCD would consider taking compliance and enforcement responsibilities only if ADEQ returned jurisdiction to Pima County and would not take delegation of this source. Further, should PCAQCD receive complete or partial jurisdiction of the permit, all references to the Director will need to be revised to Pima County Control Officer such that all reports and compliance related documents are submitted to PCAQCD.

Response: ADEQ understands PCAQCD's comment to reject the delegation of authority to inspect against and enforce the conditions of the air quality permit unless ADEQ also delegates the authority to administer the air quality permit. ADEQ did not offer and will not at this time delegate the authority to administer the air quality permit but will continue conversations with PCAQCD about the County's interest regarding the authority to inspect and enforce.

ATTACHMENT "B"

Comment 99 – The requirement to have an EPA Method 9 certified observer should be on-site and not on-call.

Response: ADEQ concurs with this comment. The permit has been amended to require a US EPA Method 9 certified personnel on-site at all times.

Comment 100 – What are the limitations in Conditions II.A.6 and II.A.7 based upon? What status/classification is the Permittee avoiding? Condition II.C.1 is missing the units for the amount of ANFO blasted.

Response: The permit condition under II.A.6 and II.A.7 limits the daily amount of rock mined and amount of ammonium nitrate fuel oil used in blasting. At these production numbers, Rosemont has demonstrated that the NAAQS will not be violated. To make these assumptions enforceable, they have been incorporated in the permit as operational limits. The citation to condition II.A.6 has been

revised to AAC R18-2-306.A.2. The units for ANFO under condition II.C.1 have been included in the final permit.

Comment 101 – PCAQCD seeks clarification in Condition II.C.5 regarding enforcement of visible emissions surveys that is required within 300 feet of the property boundary line and significance of the 300 feet and how specific should the record be. In addition, the citation used reflects recordkeeping requirements while there are no recordkeeping stated. The reporting citation should also be included for the excess emissions reporting.

Response: Condition II.C.5 requires a certified Method 9 observer to conduct a visible emissions survey from dust generating activity that occurs within 300 feet of the property boundary. The visible emissions methodology is listed in Condition II.B that requires the observer to record the location, date and time of observation and results of the observation. This condition serves as periodic monitoring for the requirements of Pima County SIP Rule 343 that requires facilities to limit any visible emissions from crossing the property line. ADEQ used an approximate distance of 300 feet from the property boundary to ensure that activities that pose a threat to the visible emissions standard are periodically monitored. ADEQ concurs with the citation error. The permit condition has been amended to include a citation to recordkeeping requirements in accordance with the Visual Emissions Observation Methodology listed in Condition II.B and the inclusion of Rule A.A.C. R18-2-306.A.5 for excess emissions reporting.

Comment 102 – The citation used in Condition II.C.7 is for monitoring while there is no corresponding condition being monitored. In addition, PCAQCD is seeking clarification on Condition II.C.7 that requires notification of purchase of equipment listed in the permit. Only NSPS equipment requires notification.

Response: ADEQ concurs with this comment. The citation has been updated to reflect R18-2-306.A.5. ADEQ agrees that equipment notifications are required under the NSPS regulations. It has been ADEQ's standard operating procedure to require notification for all new sources to ensure that ADEQ and its applicants have a mutual understanding of the applicability of the permit conditions.

Comment 103 – How can the requirement to remove accumulated material as expeditiously and as practicable in Condition III.D.2.i be practically enforced? The condition is too vague and cannot be a material permit condition since it does not meet the criteria under R18-2-331.

Response: In many process industries, ADEQ inspectors have observed that material tends to accumulate around equipment sometimes causing or contributing to particulate matter emissions. Such indirect sources of emissions are often unaddressed by the regulations. Based upon its experience ADEQ includes similar provisions in other permits to ensure that the facility performs appropriate housekeeping. It becomes practically enforceable through the inspection of the facility. If an inspector observes material build-up around equipment, it can be documented and a notice of opportunity to correct or a notice of violation can be issued based upon the documentation. It has been ADEQ experience that sources with these conditions take swifter action leading to reduced emissions. ADEQ is retaining the reference to the material permit conditions because the requirements represent an air pollution control measure.

Comment 104 – Are chutes considered air pollution control equipment and if so what are the established emission reductions from their use? If chutes are not APC, then the condition should not be a material permit condition.

Response: Equipment that will aid in emissions reduction can be deemed as APC. Although Rosemont has not calculated any emissions reduction for the use of chutes, they are add-on equipment used to reduce material loss and are likely to reduce emissions of dust emissions as a practical matter. Because ADEQ has identified the chutes as air pollution control devices, the material permit condition citation is appropriate.

Comment 105 – The citing of A.A.C. R18-2-702.B for the 20% opacity limit in VIII.B.1.a.(2) does not apply to Open Areas, Roadways & Streets, Storage Piles, and Material Handling but only to existing point sources. PCAQCD believes A.A.C. R18-2-614 which limits the opacity from nonpoint sources (fugitive emissions) to 40% is applicable but pursuant to ARS 49-402.D, the 20% opacity limit in PCC 17.16.050.B is also applicable and hence should be part of the permit.

Response: ADEQ has reviewed the citations and has determined that the permit contains the appropriate emissions limitations. The limit of 20% in Condition VIII.B.1.a.(2) applies to any fugitive dust from point sources and the 40% limit in Condition VIII.B.1.a.(1) applies to fugitive dust from non-point sources. ADEQ does not consider fugitive emissions and non-point source emissions to be synonymous. Emissions from non-point sources represent a subset of fugitive emissions.

Comment 106 – The Mineral Tailings requirement in AAC R18-2-608 was omitted from the draft permit.

Response: ADEQ concurs with the comment and the applicable requirements have been included under permit Condition VIII.B.1.a.(4).(i).

Comment 107 – The facility name should be updated to reflect as Rosemont Copper Project throughout the document.

Response: ADEQ concurs and the appropriate changes have been made.

Comment 108 – Condition II.A.3 - The requirement to follow manufacturer’s O&M plan for preventative maintenance on all dust control equipment appears to be duplicative of that required by the manufacturer. RCC has suggested the following “The Permittee shall perform comprehensive preventative maintenance checks according to vendor-supplied O&M instructions or the facility’s O&M plan on all dust equipment used at the facility. These maintenance checks must be conducted at least annually.”

Response: ADEQ concurs and has revised the permit to reflect the proposed language in the comment.

Comment 109 – Revise the compliance methodology relating to the daily production limits and ANFO limit by using rolling quarterly average instead of rolling daily average which would enable RCC to absorb changes in mining conditions.

Response: ADEQ cannot change the daily average to a quarterly average since the modeling analysis using this assumption was to demonstrate that the 24-hour PM10 standard would not be exceeded. To assure that the NAAQS will not be exceeded, the average proposed in the draft permit will be retained. If a different production or ANFO blasting limitation is necessary for additional operational flexibility, RCC may submit an application for the appropriate permit revision along with an ambient air quality dispersion modeling analysis to demonstrate that the proposed changes do not interfere with the attainment of the NAAQS.

Comment 110 – Increase the tons per day limit from 359,500 to 389,000 tons per day and ANFO from 52 tons per days to 65 tons per day since the limit does not take into consideration construction during the first year or changes in mining conditions. Further the emissions from the haul trucks are based on the vehicle miles travelled and not the tonnage amounts

Response: ADEQ cannot change the limits for the same reasons stated in other responses to similar comments. The modeling analysis was conducted assuming 359,500 tons per day and 52 tons per day of ANFO usage. Therefore both limitations must remain. As noted above, RCC may submit an application for the appropriate permit revision along with an ambient air quality dispersion modeling analysis to demonstrate that the proposed changes do not interfere with the attainment of the NAAQS.

Comment 111 – The daily rolling average recordkeeping of ore processed and ANFO used daily should be completed by 5 pm the next day.

Response: The proposed permit included this requirement and therefore no change is required to the permit.

Comment 112 - A perimeter road runs within 300 feet of the property boundary and therefore the requirement to limit emissions from crossing the property boundary should not apply to this road unless the road is used for production operations.

Response: RCC is responsible for emissions generated from operations under its control. If the road is under the control of RCC, then RCC should place access restrictions that will not cause or contribute to emissions.

Comment 113 – References to “copper” in Condition III.D. Table 1 and III.D.2.g.2 be revised to reflect “molybdenum” and from “crusher” to “conveyor” in second bullet point for Emissions Unit PCL12.

Response: ADEQ concurs and the requested changes have been made.

Comment 114 – Unit ID PCL02 and PCL03 are switched and PCL03 should include Reclaim Feeders to Reclaim Conveyor in Table I, in Condition III.D.2.b, III.D.2.b.1 & III.D.2.c and Equipment list.

Response: ADEQ concurs and the requested corrections have been made.

Comment 115 – Condition III.D.2.j should identify the units where use of water sprays is required since the SAG mill and wet screens use water as part of the process.

Response: ADEQ concurs and Permit condition III.D.2.j has been amended to clarify where the use of water sprays is required.

Comment 116 – Does the requirement to install rubber sealing strips or rubber curtains in Condition III.D.2.1 over and above that would normally be installed on the chutes or is it only where a chute is not already being used?

Response: The requirement applies to material transfer point where a chute is not already being used.

Comment 117 – Condition V.F.1 revise “oil-fired” to “diesel-fired” to accurately reflect the equipment. Update the applicability section under Condition VI.A to exclude hot water generator. Add “dilute” before sulfuric acid to more accurately reflect the process.

Response: ADEQ concurs and the conditions have been updated accordingly.

Comment 118 – Changes to the Boiler MACT requirements should be included to reflect the recent EPA action.

Response: The applicable provisions of the area source boiler MACT rule have been incorporated in the permit.

Comment 119 – The requirement to install non-resettable hours meter requirement applies only to those engines that do not meet the non-emergency engine standards and therefore it was requested that the requirement be removed and instead include the specific language from 40 CFR 60.42211(a)(3).

Response: ADEQ agrees that the requirement to install a non-resettable hours meter applies only if the engine does not meet the engine standards of a non-emergency engine. However, since the PTE calculations were based on 500 hours of operation, ADEQ has determined that the hours meter remains an integral portion of the facility’s compliance strategy and that the hours meters will still be required. The citation has been revised to AAC R18-2-306.A.3.c, a monitoring requirement that will ensure compliance with the limit.

Comment 120 – The requirement in Condition VII.F.2 should include engines that are greater than or equal to 100 hp and less than or equal to 500 hp as provided in 60.4211(g)(2).

Response: ADEQ concurs with the comment. The requirements for CI ICE greater than or equal to 100 HP and less than or equal to 500 hp has been included under condition VII.F.2.

Comment 121 – Section VIII.B.1.a.5 should be removed as it should not include haul roads due to the nature of mining that requires full flexibility in moving and building haul roads. Further Rosemont has modeled for any worst case scenarios and limitations exist in other parts of the permit.

Response: The intent of the condition was to ensure that the total length of the haul roads used in the PTE calculations remain the same. Rerouting the roads can be undertaken as long as the total lengths are unchanged. In order to provide addition clarity to the condition, the condition has been revised to state that the total length of unpaved roads within the mine site is not exceeded from what was projected in the application.

Comment 122 – Include a reference point in Section VIII.B.1.b.1 to avoid confusion and change reference of “all industrial roads” to “light duty roads”.

Response: The permit condition has been clarified by referencing the map of the roads to be paved in Attachment “E”.

Comment 123 – Use “provide training, and implement” in place of “and enforce” in Condition VIII.B.1.c.2 since it is not clear.

Response: ADEQ agrees and the permit condition has been revised as requested.

Comment 124 – The haul road speed limit in condition VIII.B.1.c.2 should be revised to read as an average round trip speed.

Response: ADEQ disagrees with this comment. The speed limit established is the maximum speed that the haul trucks can travel. The use of average speed limits decreases the enforceability of the permit as a practical matter and the Department has determined that average speed limits do not result in the same amount of emissions reductions as maximum speed limits

Comment 125 – What is ADEQ referring to in Condition VIII.B.1.d.1 when discussing Payload Management Reports?

Response: The Payload Management Report includes recordkeeping requirements to demonstrate compliance with the speed limit. The permit condition has been amended to reflect the recordkeeping in lieu of the Payload Management Report.

Comment 126 – The fuel usage requirement for the hot water generator must be required to ensure compliance with the emissions limits.

Response: ADEQ disagrees with this requirement. Emissions estimations for the hot water generator were based on the maximum design capacity and a limitation on the fuel usage is unnecessary.

Comment 127 – The PTE for non-fugitive emissions is at 78.33 tons per year and with the use of high-efficiency scrubbers, the permit does not include sufficient monitoring, reporting, and recordkeeping requirements to ensure that the PM10 emissions do not exceed the major source thresholds.

Response: ADEQ disagrees. The permit includes annual testing requirements to ensure that the emission limits are met. The permit also prescribes operational and maintenance plan requirements and periodic parametric monitoring to provide reasonable assurance that process and control equipment are operating optimally in between annual performance tests. Also, there are periodic monitoring measures including opacity checks which will help the Permittee identify operational problems and resolve them expeditiously.

Comment 128 – The citations in Condition IX.B.2 and B.3 are switched and updates to equipment list were provided by RCC.

Response: ADEQ concurs and has corrected the citations and equipment list.

ATTACHMENT “D” - Dust Control Plan

Comment 129: The Dust Control Plan should not be part of the permit as an attachment but instead be included as a condition so that RCC would not have to undergo a permit modification for each change required to be made as necessary.

Response: The Department has determined that the dust control plan being in the permit is appropriate to ensure adequate opportunity for public review and comment. While it is true that significant changes to the plan will entail a permit modification, it is reasonable that most minor changes to the plan can be handled expeditiously through facility change notices.

ATTACHMENT “E”

Comment 130 – Revise the first sentence in Condition E.2.1 to clarify that the haul roads that will be used by mining and support equipment as well as smaller equipment and passenger vehicles.

Response: Permit Condition E.2.1 does not prohibit the use of smaller equipment and passenger vehicles on the haul roads. As a result, no change has been made.

TECHNICAL SUPPORT DOCUMENT

Comment 131 – The TSD should reflect all the changes suggested in the permit conditions and corrections to the lifetime ore production and years of operation. The PTE emissions listed in TSD differ than those reported by RCC.

Response: ADEQ has made the requested corrections. The difference in the PTE calculations of fugitive emissions results from combining the maximum production of various processes that occur during the different years. Therefore no change has been made to the fugitive emissions listed in the TSD.

Comment 132 – The TSD should be revised to clearly explain the basis for the synthetic minor status of this proposed facility. The TSD should also explain how the permit contains adequate limits on potential to emit (PTE) as well as monitoring, reporting and recordkeeping requirements sufficient to ensure that emissions from the facility do not exceed major source thresholds.

Response: ADEQ has amended the TSD to include the requested information. Please see Section I.D on page 1 of the final TSD.

Comment 133 – The emergency engines are not restricted on their use. Therefore the TSD should be updated to state how the PTE will not increase over the major source threshold since there are no limits on the use.

Response: The permit requires the installation of hours meters that will be used to ensure compliance with the hours of operation. Therefore, an additional limit is not necessary. As a result no change has been made to the TSD.

Comment 134 – Additional discussions of the applicability or non-applicability of subpart ZZZZ requirements should be included in the TSD. If they are applicable, the relevant emission limits, recordkeeping, reporting and compliance requirements will be required in the permit.

Response: ADEQ has included additional discussion of compliance with Subpart ZZZZ under Section V , Table 2 of the TSD.

Comment 135 – The TSD should include EPA’s No Action Assurance letter to address the deadline for submitting notification of compliance status regarding initial tune-ups for certain area source boilers.

Response: The final rule reflecting the changes have been incorporated into the permit and therefore any reference to the letter is unnecessary.

M MODELING ISSUES

Comment 136 – The modeling undertaken by Rosemont and the analysis by ADEQ are insufficient to properly characterize the potential air pollution from the proposed mine. Particulates will contain toxic metals and will likely be transported by high wind events from the site to the neighboring communities. The modeling significantly understates the wind velocities that frequently occur in southern Arizona. Therefore the potential fugitive dust emissions from the proposed mine are significantly understated.

Response – The air quality analysis conducted for the Rosemont Mine Project (RCP) conforms to all applicable regulatory standards and guidelines. As explained in other responses, ADEQ evaluated the potential HAP emissions from the facility and determined that the emissions from the RCP will be below the major source thresholds. The wind direction and velocity used in the modeling was obtained from data collected over a multi-year period at the project site which represent conditions at the project location. As specified in response to similar comments, ADEQ has enhanced the permit to

include ambient monitoring of PM10 emissions and will require the Tailing Management Plan be submitted as a significant permit revision. The TMP will address the control of fugitive emissions from the tailings piles.

Comment 137 - Since the modeled emissions are based on an incorrect description of the facility, no amount of accurate prediction can correspond to the new changes forthcoming.

Response: The permit and impact analysis was processed based upon the information provided by the applicant. If the applicant's operating scenario changes based upon the EIS process, they may be required to have their permit amended to authorize a new operating scenario. The new scenario would be evaluated for emissions and impacts as necessary.

Comment 138: The highest measured concentration for 24-hour PM₁₀ over the 3-year period was 71.3µg/m³ and was not used in the analysis.

Response: Rosemont requested exclusion of the PM₁₀ 71.3µg/m³ value suggesting that the measurement was a statistical outlier. However, upon ADEQ's request, the final modeling report included the value in the estimates of background ambient concentration to determine the 24-hour PM10 ambient impact analysis. This information was included in the July 2012 AERMOD Modeling Report as a footnote to Table 7.1. The PM10 background concentration including the value of 71.3µg/m³ resulted in a background value of 47.7µg/m³. Adding this background value to the maximum modeled impact of 99.3 µg/m³, resulted in an ambient concentration of 147µg/m³ at the process area boundary which is below the Federal National Ambient Air Quality Standard (NAAQS) for PM10 of 150µg/m³. Particulate matter controls proposed in the draft permit consider the higher background value which includes the 71.3µg/m³ value. In order to clarify this issue ADEQ has included the PM₁₀ background concentration in the table shown in the technical support document.

Comment 139 – Is the dirt maintenance road for the electrical and water right-of-way included in the dust impacts of this air permit?

Response: The analysis includes emissions generated within the facility. If portions of the electrical maintenance road and water right-of-way road are outside the facility, the emissions are not included.

Comment 140 –Rosemont should address potential visibility impacts to neighboring Class I areas prior to reissuance.

Response: The requirement for visibility impacts modeling is limited to facilities whose potential emissions exceed thresholds that would trigger the New Source Review permitting program. Rosemont's emissions are below those thresholds. Consequently, the permitting process does not require visibility modeling. Visibility modeling was conducted through the Federal DEIS process.

Comment 141 – The proposed permit does not address potential visibility impairment in the Saguario National Park, a Class I area approximately 20 miles from the proposed mine. The Clean Air Act requires air-quality related values in Class I areas be protected from significant deterioration.

Response: The Rosemont modeling analysis conducted for ADEQ does not show an exceedance of any NAAQS within the modeling domain which extends to approximately 40 kilometers. See comment 140 regarding potential visibility impairment.

Comment 142 – What about the air pollution created by the worker commuters and especially the ore trucks transporting ore?

Response: ADEQ's jurisdiction for permitting is limited to emissions originating inside the facility process area boundary. These emissions are included in the analysis. Emissions such as worker vehicle travel to and from work or truck traffic leaving the boundary are not required to be considered in the ambient analysis.

Comment 143 – Does ADEQ only consider air impact inside the project boundary? Will the EIS be the source for air pollution outside the boundary that also includes emissions NOT considered by ADEQ (such as fugitive dust emissions?)

Response: The Rosemont modeling analysis evaluated air quality impacts outside the project boundary (process area boundary) and includes fugitive dust emissions.

Comment 144 – How do you determine the air quality produced by the mine and how it can be harmful to human habitation, especially to people with asthma and respiratory issues?

Response: The air quality modeling analysis conducted for the project provides an estimate of ambient air quality impacts resulting from project emissions. These estimates are compared to the federal National Ambient Air Quality Standards (NAAQS) which are set by the USEPA at a level determined to protect the public including sensitive groups such as those with asthma and respiratory issues. The Rosemont modeling analysis conducted for ADEQ does not show an exceedance of any NAAQS

Comment 145 – Why does the mine monitor their air quality instead of ADEQ? With large fines the ultimate penalty, why would Rosemont have an incentive to report infractions to ADEQ? Is there a system for ADEQ to do independent monitoring of emissions?

Response: The concept of self-policing in air permits is inherent to all air pollution control programs. ADEQ inspectors conduct periodic announced and unannounced inspections at the facility to track compliance with permit obligations. Additionally, performance tests conducted at the facility are supervised to verify compliance with emission limits. However, ADEQ resources do not allow for inspectors to be stationed at facilities permanently. To that extent, all air permits prescribe self-monitoring and self-reporting obligations. If a problem is discovered as part of the monitoring that is conducted by the facility, the facility can undertake corrective action to quickly return operations back into compliance. State law requires the company to report all permit deviations and emission limit violations promptly to the Department.

Additionally, RCC is required to submit semi-annual compliance certifications documenting status of compliance with all permit terms. As part of the same report, RCC is also required to provide a

summary of the monitoring conducted during the 6-month period. The review of such information by ADEQ will determine the facility's compliance status and evaluation of the need to conduct more frequent onsite inspections.

ADEQ also has inspectors stationed at the South Regional Office located in Tucson who conduct regular inspections and respond to citizen complaints within 5 days of receipt. Complaints can be made either via the website at <http://www.azdeq.gov/function/compliance/complaint.html> or by calling in (602) 771-2286.

Comment 146 – How are emissions from the tailings facility addressed in the permit? What was the average speed of the wind flow across the tailings and waste facilities as modeled?

Response: The AERMOD modeling package used in this analysis evaluates air quality impacts in one hour average intervals. For this analysis approximately 3 years of on-site one hour average wind speed and wind direction measurements were used. Wind speeds recorded during the period ranged from calm to a maximum hourly average of 21 miles per hour. The average wind speed used in the modeling of wind erosion emissions from the tailings is 6.21 miles per hour.

The emissions from the tailings are addressed in the permit through a requirement for a tailings management plan. The Permittee will be required to implement reasonable precautions to minimize wind-blown emissions from the tailings. The permit also has requirements for visible emission checks for the tailings area and also periodic inspections to verify the integrity of the tailings. The permit now also includes a requirement for a particulate matter ambient monitor to verify ambient impacts from the facility, including the tailings area.

Comment 147 – Did Augusta or ADEQ conduct the modeling and which model was used?

Response: Rosemont Copper Company conducted the modeling analysis through its technical consultant. The EPA-approved dispersion modeling tool, AERMOD, was utilized in the exercise. ADEQ staff reviewed the modeling analysis as part of the permitting process.

Comment 148 – The proposed mine will significantly impact regional air quality. According to the Forest Service Draft EIS and EPA, the proposed mine will violate NAAQS for particulate matter (PM10), particulate matter of 2.5 microns or less (PM2.5), nitrogen dioxide (NO2), and ozone (O3). Even though ADEQ has attempted to include controls and limits in the permit to address the NAAQS violation, there is no evidence that these measures would prevent further violations.

Response: The modeling conducted by Rosemont Copper for ADEQ demonstrates compliance with all National Ambient Air Quality Standards outside the facility boundary. ADEQ has determined the air quality analysis conducted for the project meets applicable regulatory rules and guidelines.

Comment 149 – The proposed permit does not adequately demonstrate that it will protect public health from the impacts of particulate pollution from the proposed mine. Further the property around State Route 83, Sonoita, Elgin and Patagonia are tourist havens and visibility will be greatly diminished.

Response: The modeling conducted by Rosemont Copper demonstrates compliance with all National Ambient Air Quality Standards. Additional modeling analysis conducted at ADEQ's request show the mine's ambient impact at Sonoita, Elgin and Patagonia are well below the National Ambient Air Quality Standards (NAAQS).

**ROSEMONT COPPER - MAXIMUM AMBIENT IMPACT SUMMARY
Including Ambient Background**

YEAR 1							
Emission Type	NAAQS	Green Valley/ Sahuarita	Tubac	Rio Rico	Patagonia	Sonoita	Corona De Tucson
CO 1-hr	40,000	695.5	628.2	645.2	701.1	708.7	758.0
CO 8-hr	10,000	598.5	587.9	590.5	602.4	603.5	618.4
NO ₂ 1-hr	188.6	60.9	33.5	30.2	45.0	97.5	115.5
NO ₂ Annual	100	4.2	4.1	4.1	4.2	4.4	4.9
PM ₁₀ 24-hr	150	38.6	38.1	37.8	38.0	39.6	43.8
PM _{2.5} 24-hr	35	7.4	7.3	7.3	7.3	7.6	8.3
PM _{2.5} Annual	15	3.1	3.1	3.1	3.11	3.12	3.2
SO ₂ 1-hr	195	22.5	22.3	22.3	22.4	22.7	22.7
SO ₂ 3-hr	1,300	43.1	43.1	43.05	43.1	43.2	43.3
SO ₂ 24-hr	365	17.02	17.01	17.01	17.02	17.04	17.1
SO ₂ Annual	80	3.001	3.0004	3.0003	3.001	3.002	3.003
YEAR 5							
Emission Type	NAAQS	Green Valley/ Sahuarita	Tubac	Rio Rico	Patagonia	Sonoita	Corona De Tucson
CO 1-hr	40,000	695.2	637.5	652.7	704.1	718.2	782.7
CO 8-hr	10,000	598.4	589.0	591.3	602.7	604.3	616.1
NO ₂ 1-hr	188.6	64.1	35.8	30.8	48.6	97.0	116.8
NO ₂ Annual	100	4.2	4.1	4.1	4.1	4.3	4.8
PM ₁₀ 24-hr	150	39.0	38.4	37.9	38.2	40.8	45.5
PM _{2.5} 24-hr	35	7.5	7.4	7.3	7.3	7.7	8.5
PM _{2.5} Annual	15	3.1	3.105	3.103	3.11	3.12	3.2
SO ₂ 1-hr	195	22.5	22.3	22.3	22.4	22.7	22.7
SO ₂ 3-hr	1,300	43.1	43.1	43.05	43.1	43.2	43.3
SO ₂ 24-hr	365	17.02	17.01	17.01	17.02	17.04	17.07
SO ₂ Annual	80	3.001	3.0003	3.0002	3.0004	3.001	3.002

NAAQS – National Ambient Air Quality Standard

All concentration values are in µg/m³

Values shown are maximum predicted values based on modeled concentration plus background values for Year 1 and Year 5

Data obtained from *AERMOD Additional Modeling Analysis Summary to Assess Ambient Air Quality Impact*, JBR Environmental Consultants, Sept. 2012

Comment 150 – Rosemont Copper Company should install monitoring stations so speculative modeling for NO_x isn't based in part on a place with very small population. The permit has been based on information that now has been significantly changed. The projected impacts to current air quality should be evaluated rather than guessing. Rosemont should justify their decision to not install appropriate monitoring stations to

determine background concentrations. However, on the east side of the Rosemont site, is the scenic highway that has thousands of vehicle trips and on the north side are two limestone mines and to the west of Santa Rita is a transmission line project.

Response: The Rosemont modeling analysis was based upon projected pollutant emissions from the facility. The permit and impact analysis was processed based upon the information provided by the applicant. If the applicant's operating scenario changes based upon the EIS process, they may be required to have their permit amended to authorize a new operating scenario. The new scenario would be evaluated for emissions and impacts as necessary. Background concentrations were approved by ADEQ and include a mix of on-site and off-site representative monitoring locations. Because of the documented compliance with the nitrogen oxides ambient standards, the Department has not required ambient monitoring for nitrogen oxides.

Comment 151 – The permit does not adequately demonstrate that it will protect public health from the impacts of particulate pollution from the proposed mine.

Response: The modeling conducted by Rosemont Copper for ADEQ demonstrates compliance with all National Ambient Air Quality Standards, including particulate pollution, outside the facility boundary. NAAQS are established by U.S EPA to be protective of public health.

Comment 152 – The mine will have an adverse impact on our skies as a result of the mine's dust emissions.

Response: The modeling conducted by Rosemont Copper for ADEQ demonstrates compliance with all National Ambient Air Quality Standards outside the facility boundary. In addition, the permit includes stringent dust control measures to minimize impacts.

Comment 153 – The USFS DEIS and EPA has stated that the mine would violate the NAAQS for PM10, 2.5 or less as well as NOx and ozone. Therefore the proposed modeling and monitoring are inadequate and fail to provide proper margin of safety. The meteorological assumptions are unproven and will therefore likely lead to serious violations and threats to the public health.

Response: The modeling conducted by Rosemont Copper Company for ADEQ demonstrates compliance with all National Ambient Air Quality Standards outside the facility boundary. ADEQ has determined the meteorological inputs and air quality analysis conducted for the Rosemont Mine project meets applicable regulatory rules and guidelines. The permit also includes installation and operation of a PM10 ambient monitor that will serve to demonstrate NAAQS compliance.

Comment 154- The EIS has little discussion of wind direction. One wind rose plot indicates a westerly flow for 2008 at the site while the southeast Tucson have a southeasterly flow which is a large-scale effect of Arizona's subtropical latitude. It is unclear whether the exhaustive modeling of the diffusion of the air pollutants from the mine over the area includes the effects of the prevailing winds. If the model is based simply on isotropic diffusion from the open pit sources, it will strongly underestimate the effects on the public. The jobs and taxes outweigh the amount of dust and pollutants affecting the million people living very close by.

Response: The ambient air quality modeling for the project conducted for ADEQ includes approximately 3 years of on-site wind speed and wind direction measurements. These data were used in the modeling analysis and include an evaluation of wind direction in the project area. AERMOD is an EPA approved, steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

Comment 155 – Rosemont considered average wind speeds in the air modeling while the Santa Rita Mountains are frequented with higher wind velocities.

Response: The AERMOD modeling package used in this analysis evaluates air quality impacts in one hour average intervals. For this analysis, approximately 3 years of on-site one hour average wind speed and wind direction measurements were used. Short term wind gust measurements are not processed in the modeling application. Caution should be use when comparing hourly average wind speed to short term wind gusts.

Comment 156 – The speculative modeling and mitigation measures proposed fail to provide adequate margin of safety and are unproven, leading to likelihood that emissions will create eminent and substantial endangerment to the public health through violation of NAAQS for HAPs. The commenter specifies that no documentation or other materials that demonstrate the use of AERMOD modeling by Rosemont has been sufficiently reviewed and analyzed for quality and reliability.

Response: In response to comments received, the Department has evaluated the potential emissions expected from the facility. The analysis has shown that the facility's emissions will be below the major source thresholds for both criteria pollutants and HAPs. ADEQ reviewed the modeling protocol thoroughly and technical issues raised by ADEQ were addressed appropriately in the modeling analysis. The modeling approach taken was consistent with well established methodology for modeling. ADEQ would like to emphasize that the U.S. EPA has not set any NAAQS for HAPs. The modeling conducted for criteria pollutants has shown that the facility will not cause a violation of the NAAQS.

Comment 157 – The impacts of NOx and ozone have not been fully analyzed. The permit fails to clarify the amounts that will be released. Further, the permit does not clearly discuss how the wind conditions that are common at certain times of the year may disperse these chemicals that affect the air quality.

Response: The modeling conducted by Rosemont Copper for ADEQ demonstrates compliance with all National Ambient Air Quality Standards outside the facility boundary, including NO2. The emissions of NO2 were quantified and included in the Technical Support Document. Ozone emissions are not emitted directly from the mine but formed as a result of NOx and VOC combining with oxygen in the presence of sunlight. Dispersal of pollutants, including NO2, are evaluated in the ambient air quality modeling for the project includes approximately 3 years of on-site wind speed and wind direction measurements. These data were used in the modeling analysis and include an evaluation of wind direction in the project area.

Comment 158 – The baseline existing conditions/data from which modeling was performed is neither accurate nor adequate for this or for multiple components of the permit application and associated

document. Existing and planned environmental polluters such as Imrys, Andrada/Henderson, Charles Seel, Cal Portland were not adequately considered.

Response: *The modeling impacts from the existing operating facilities are considered in the background ambient pollutant concentrations derived from on-site data or estimated from other representative monitors. Similarly, any new facility proposed will be required to consider the impacts from all operating facilities.*

Comment 159 – Over-size loads on SR 83 and impacts related to commuting traffic stopped, idling and reaccelerating were not considered, especially during the construction phase of the proposed project.

Response: ADEQ's jurisdiction in an air quality permit is limited to emissions originating inside the facility, and only these emissions are included in the analysis. Emissions such as vehicle use on public roadways and truck traffic leaving the boundary are not considered in the ambient analysis.

Comment 160 – The proposed Cal Portland Limestone mine was circumvented by ADEQ without any consideration or impacts to the area and with no notification to the Empire-Fagin Coalition for the Section 401 permit. The current mine should include the cumulative impacts in the area with CalPortland, Charles Seel 11-112196 and W.R. Henderson (Andrada Holding LLC). The commenter included a copy of a Notice of Violation issued by PDEQ to Lamb Excavation., Inc.

Response: ADEQ clarifies that the permit issued to the Cal Portland Limestone mine was issued by Pima County DEQ and the permit was an activity permit for the construction of a roadway. The application for the mine has yet to be submitted to the County. ADEQ notes that the cumulative impacts of all existing sources are accounted for in the background concentrations as obtained from the nearby ambient monitors.

Comment 161 – Increased commuter traffic along the arterial roads by employees will aggravated dust particles as a result of silt/gravel deposits from the seasonal flooding.

Response: ADEQ's jurisdiction in an air quality permit is limited to emissions originating inside the facility and only these emissions are included in the analysis. Emissions such as vehicle use on public roadways and truck traffic leaving the boundary are not considered in the ambient analysis.

Comment 162 – The USNPS notes that the possible impacts of operations from the proposed mine on air resources, including potential visibility degradation and increased nitrogen deposition at Saguaro National Park that is less than thirty kilometers away need to be analyzed. The NPS is responsible to any proposals and changes to nearby lands that may impact park resources based on the Organic Act and the Redwoods National Park Act. NPS acknowledges that the predicted impacts to the Saguaro NP were disclosed in the associated National Environmental Policy Act (NEPA) air quality assessment, completed in support of the proposal to allow RCC mine operations on federal land.

The USNPS requests clarification on the fugitive NOx emission of 154 tons per year included in the Technical Support Document. USNPS does not consider blasting emissions of NOx as fugitives since the

emissions have velocity and buoyant heat in its plume; and are not passive such as windblown dust. Therefore these emissions must be included in the revised VISCREEN visibility analysis.

Response: The modeling analysis conducted for the facility includes NO₂ and NO_x emissions as proposed in the permit application. The requirement for visibility impacts modeling is limited to facilities whose potential emissions exceed thresholds that would trigger the New Source Review permitting program. Rosemont's emissions are below those thresholds. Consequently, the permitting process does not require visibility modeling. Visibility modeling was conducted through the Federal DEIS process.

It should be noted that the Department considers blasting-related emissions as fugitive emissions because of the determination that they cannot be reasonably released through a stack, chimney or a vent.

Comment 163 – The pollution generated by the I-10 traffic and dust blowing from the mine tailings near Green Valley created a brown smog layer thereby obscuring visibility of the Santa Rita Mountains. The near-field ambient air quality analysis area is too limited geographically. All emissions data is under-reported because of unaddressed traffic pollution and daily commuter and large diesel-fired heavy trucks hauling ore and equipment on I-10 between SR83, Kolb Road and the Port of Tucson. The analysis area must be expanded to provide accurate data on emissions of NO₂, CO, SO₂, VOCs, PM_{2.5}, and PM₁₀ throughout the affected area. The commenter also noted that the NO_x emissions increase by 4% leading to a risk of exceedance or actual exceedance of ozone NAAQS threshold in Tucson area. USDEIS noted on page 191 that the mine operations “will lead to reduced visibility in Saguaro National Park East, a Class I area 27 miles northwest of the project area.” Further page 185 of the USFS DEIS states that “PM₁₀ levels in the Tucson area near Saguaro National Park East are already elevated, with average levels at 111 micrograms per cubic meter and maximums at 146 micrograms per cubic meter. The action alternatives could increase the risk of exceeding the NAAQS for PM₁₀.” On Page 186 of the USFS DEIS states “In addition, O₃ levels in the Tucson area near Saguaro National Park East areas are also already elevated, with the 8-hour NAAQS at 0.075 ppm, average O₃ levels at 0.038 ppm, and maximum levels at 0.074 ppm, or 99 percent of the NAAQS. The operation of the Rosemont Mine could increase Pima County NO_x emissions by 5 percent and are projected to increase annual average NO_x levels in the Saguaro National Park East area by approximately 1 percent. Increases to the 8-hour average NO_x levels could be higher. NO_x are a key precursor to O₃ formation and the operation of the Rosemont Mine could increase the risk of exceeding O₃ NAAQS in Saguaro National Park East and the Tucson area.” Therefore the commenter suggests that ADEQ must evaluate and consider cumulative detrimental effects of emissions of various pollutants and greenhouse gases throughout the entire affected geographic area rather than the near-field area. ADEQ must consider how the increase in pollutants from Rosemont Mine will impact: decrease in property values due to loss of views, decrease in quality of life for those of us who moved to Tucson because of the clean air, and potential increased health hazards from increased carcinogens in the air we breathe from mine operations and diesel truck exhaust

Response: The comment regarding blowing dust from the mine tailings near Green Valley is noted for the record. The air permit process is limited to emissions from the subject facility.

The near-field modeling analysis extends to approximately 40 kilometers which approaches the operational limit of the AERMOD model. ADEQ has determined the air quality analysis conducted for the Rosemont Mine project meets applicable regulatory rules and guidelines.

Regarding the commenter's suggestion of under reporting of emissions due to daily commuter traffic and I-10 traffic, ADEQ's jurisdiction in an air quality permit is limited to emissions originating inside the facility process area boundary. These emissions are included in the analysis. Emissions such as vehicle use on public roadways and truck traffic leaving the boundary are not considered in the ambient analysis.

The commenter suggests that the analysis area must be expanded. ADEQ has determined the air quality analysis conducted for the Rosemont Mine project meets applicable regulatory rules and guidelines and has addressed NO₂, CO, SO₂, PM_{2.5}, and PM₁₀ impacts within approximately 40 kilometers of the facility.

ADEQ refers the commenter to the USFS regarding accuracy of PM₁₀ statistics presented on page 185 of the DEIS. These values appear to show modeled concentrations near the facility rather than at Saguaro National Park. Modeling analysis conducted for ADEQ shows maximum PM₁₀ concentrations occur near the facility boundary and decrease significantly with increased distance from the facility. The commenter's notation regarding visibility impacts in Saguaro National Park should be addressed through the USFS EIS process.

The commenter suggests that NO_x increases may lead to future ozone exceedances at Saguaro National Monument. The 2009-2011 design value, the form of the ozone NAAQS, for the Saguaro National Monument ozone site is 0.070ppm is currently below the ozone standard of 0.075ppm. The design value is calculated as the 3 year average of the 4th highest annual ozone concentration. NAAQS compliance for the Pima County airshed is not addressed through the individual permit process but through a regional air planning process.

The comment regarding decrease in property values is noted for the record. The air permit process is limited to air quality issues. Regarding comments about an increase in health hazards from carcinogens, the modeling conducted by Rosemont Copper for ADEQ demonstrates compliance with all National Ambient Air Quality Standards outside the facility boundary. Additionally, the Department has evaluated the potential HAPs emissions from the facility and determined that the facilities emissions will be below the major source threshold.

Comment 164 – Why was the air quality analysis limited to the mine site? Given the number of vehicle trips that will take place between the mine and location in the Tucson area, the tailpipe emissions from these vehicles and dust and particulate emissions from the loads must be considered. This is especially necessary given the route along I-10 which passes just south of Saguaro National Park East. The prevailing winds are from south and southwest, which will blow the diesel and particulate emissions toward the National Park.

Response: ADEQ's jurisdiction in an air quality permit is limited to emissions originating inside the facility process area boundary only these emissions are included in the analysis. Emissions such as vehicle use on public roadways and truck traffic leaving the boundary are not considered in the ambient analysis.

Comment 165– Does ADEQ look at the cumulative environmental effects of all mining, existing and proposed, of any kind in a geographic area or region?

Response: No, ADEQ's jurisdiction in an application air quality permit is limited to emissions originating inside the facility process area boundary..

Comment 166 – The computer model prediction can be seriously flawed and appear to be skewed when compared to actual on site samples. The meteorological monitoring (wind, T & RH), is incorrect since the monitoring station is located in a natural geographical bowl which is basically leeward 360 degrees. There is no reference to ISO metric standards instead IP is used. There are four accurate methods to measure airborne particles by number and size are 1)airborne particle counter, 2)cascade impactor, 3)CNC Counter, and 4)Witness plate and manual count employing SEM. The average airborne particle count for one cubic foot of ambient air in the Rosemont Theater of operations exceeds 1,000,000 particles ranging in measurable (Traceable to NBS) size from 10 micros to 0.16 microns, and with a sample flow rate of one CFM,. No mention has been made of Radon or Radon daughters when identifying VOCs and HAPs. The primary geological composition of the proposed mine site is granite. Radon is trapped in granite until it is released. Blasting will release at least 10^{70} particles (Radon Daughters) size less than 0.1 microns and larger with a half-life of four days. These particles will be deposited and cause harm to the biological organisms both above and below ground. How is the weight of airborne particles measured in a sample of air? The data could be extrapolated using a forward light-scattering photometer, otherwise the sample must be collected and weighed Airborne particles less than 5 microns in size tend to remain suspended indefinitely until they agglomerate or receive electrical charges which ultimately lead to their deposition to a substrate. How is molecular contamination measured?

Response: The commenter suggests that computer model prediction can be flawed and appear to be skewed compared to actual on-site samples. ADEQ has determined the air quality analysis conducted for the Rosemont Mine project meets applicable regulatory rules and guidelines. Further, the modeled impacts of the source cannot be compared to actual on-site samples because those samples do not include contributions from the facility (i.e. they represent pre-construction, pre-activity particulate concentrations).

The site selection for meteorological data collection has been explained in other responses.

ADEQ acknowledges the information regarding particle measurement methods.

The commenter notes that radon release was not identified. At the current time EPA has not listed major source categories of radionuclide emissions.

ADEQ assumes the commenter's question regarding determination of airborne particle weight is in reference to the on-site PM10 samples collected by Rosemont. The air samplers used by Rosemont were Federal Reference Method samplers utilizing PM10 size selective sampling inlets. Post sample mass collection was calculated by gravimetric analysis. This method does not evaluate molecular contamination.

Comment 167 - Modeling understates wind velocities that frequently occur in southern Arizona therefore fugitive emissions are understated.

Response: The EPA approved AERMOD modeling package used in this analysis evaluates air quality impacts in one hour average intervals. For this analysis approximately 3 years of on-site one hour average wind speed and wind direction measurements were used. Short term wind gust measurements

are not processed in the modeling application. Potential high wind episodes and associated wind blown emissions from the facility are addressed through control requirements in the air quality permit.

Comment 168 - Is the integrity of the meteorological protocol and data quality good if there is a 3 month lapse in data collection.

Response: ADEQ has determined the on-site ambient data collected by the applicant meets required applicable quality assurance and quality control requirements. The approximately 3 months of missing data was attributed to an unavoidable equipment failure and did not affect the quality of data collected at the site prior to and after the failure.

Comment 169 - On-site meteorology data in a location removed from the pit location and does not measure high speed easterly winds in the lower valley. Empire RAWS site should be included in AERMOD modeling.

Response: ADEQ has confirmed that the on-site meteorological data was collected within the boundary of the proposed pit location. Additionally, the majority of the facility emission sources are located within 2 miles of the on-site meteorology site and the entirety of the facility boundary is within 3.5 miles of the site. Further, the AERMOD model utilizes wind speed and wind direction at the point of release to disperse pollutants in the down wind direction. Considering the model characteristics and location of the Empire RAWS station approximately 7.5 miles southwest of the pit location, ADEQ has determined that the Empire RAWS site would not provide any additional benefit to the modeling effort.

Comment 170 - The modeled PM_{10} $147\mu\text{g}/\text{m}^3$ impact is 7 times the commonly observed level of $20\mu\text{g}/\text{m}^3$ for the area. Impact evident and should be modeled accurately.

Response: ADEQ has determined the ambient PM_{10} impacts have been modeled accurately. The maximum modeled PM_{10} value of $147\mu\text{g}/\text{m}^3$ occurred near the facility property boundary and does not represent concentrations across the entire modeling domain. ADEQ was unable to determine the origin of the suggested commonly observed level of $20\mu\text{g}/\text{m}^3$ for the area.

Comment 171 – Rosemont should include potential impacts of Tucson’s urban plume on their modeled air quality. The purpose of the modeling is to add expected emissions to what already exists in the ambient air, including any residual Tucson plume. Rosemont fails to do this.

Response: The modeling analysis considers ambient pollutant concentrations prior to construction of the proposed facility in the estimates of background ambient concentrations. The background estimates are added to the future air quality impacts from the facility to estimate future total pollutant concentrations. Ozone background concentrations were obtained from the CASTNET ozone monitor at the Chiricahua National Monument. The hourly maximum ozone concentrations of the Chiricahua site are comparable or higher than the Pima County Green Valley site, the nearest ozone monitoring site to Rosemont. The use of Chiricahua data provides a conservative estimation for ozone concentrations in the area based upon the similarity to Green Valley and will, therefore, reflect the potential of Tucson plume at the facility. The maximum modeled pollutant concentrations occur near the process area boundary and represent the worst case conditions.

Comment 172 – The AERMOD study poorly describes wind erosion emissions from the tailings piles and characterizes emissions from a single tailings pile with unknown dimensions and undefined wind speeds. The reclamation and Closure Plan (July 2207, pg 36) describes two tailings piles.

Response: AERMOD is the EPA approved model for estimating the concentration of air pollution in the ambient air. The modeling analysis conducted for the facility includes wind erosion estimates from the sulfide ore stockpile (source ID PC01) and the tailings storage (Source ID TDS10) including dimensional estimates. The AERMOD model analysis used hourly average wind speeds collected at the facility meteorological site.

Comment 173 – The reclamation and Closure Plan (July 2207, pg 23) has a total waste rock capacity of approximately 980M tons with lower Barrel Canyon area reserved for tailings. It is claimed that the course grind (80% <150 mesh (104µm)) as opposed to the more commonly used fine grind (80% <250-325 mesh (63.5µm-43.2µm)) will help to control windblown dust but will the proposed higher efficiency concentrator operations be obtained from a finer grind thereby neutralizing this dust control measure?

Response: ADEQ understands this comment to note that RCC intends to use a less common grinding process that results in more coarse particulate matter (80% of the ground material to be less than 104 µm) and asks whether the more common grinding process (80% of the ground material to be less than 250 to 325 µm) with a high efficiency concentrator will result in the same or fewer emissions.

In ADEQ's experience is it more difficult for the wind to entrain larger particles of dust as they are heavier, less aerodynamic, and tend to settle out of the air more quickly. Larger particles are also more easily controlled by dust control practices such as fabric filters, scrubbers, and the application of dust palliatives such as water or chemical suppressants. As a result ADEQ does not expect there to be a neutral or negative impact associated with RCC's choice of grinding operations.

Comment 174 – Rosemont states that it will use dozers to place the tailings, and smooth drum rollers to pack the edge of the tailings near the buttress but this appears to have been ignored in the AERMOD modeling. Rosemont also alludes to the fact that it is considering the use of a binder, but they never actually commit to doing so. Why not continuously roll the entire tailings pile and amend the surface with a binder?

Response: The modeling analysis conducted for ADEQ includes contributions from equipment operations at the sulfide stockpile, waste dump, and leach pad derived from VMT estimates at each area of the mine. RCC is required to submit details of the tailings management plan as part of a permit revision that is required prior to the operation of the facility. This revision will be available for public review and comment.

Comment 175 - The Mine Plan of Operations calls for a mine that will operate 24-h/day, 365 day/y for 21 years. This accounts for the 2 million miles traveled per year. Just a small error in the vehicle emissions factor/mile will be magnified into a huge error in annual PM estimates. The AERMOD model should be used to run sensitivity tests to determine how uncertainties in emissions factors will propagate into uncertainty in ambient PM.

Response: ADEQ understands that a degree of variability can exist in any emissions estimates. Most of the emissions factors used in the case of RCP were developed by EPA which represent the best available information for estimating emissions. The AERMOD model also uses the best available information and mathematical equations to change the emissions rates into temporal and spatial concentrations of air pollution. In ADEQ's experience ambient dispersion modeling tools over predict the total impact associated with the estimated emissions rate. These over predictions help to provide reasonable assurance that future concentrations of air pollution will remain below the NAAQS even if there is some variability in the emissions factor or the meteorological conditions that are observed. In response to numerous public comments, ADEQ added a permit condition that requires RCC to install and operate an ambient PM monitor at the facility. The results from this monitor will assist ADEQ and RCC in the future evaluation of dust control techniques. As a result, ADEQ has determined that it is not necessary or appropriate to run the requested sensitivity tests.

Comment 176 – The waste rock buttress will be built around the tailings perimeter and that this will advance ahead of the tailings stack to reduce wind exposure, but what heights above the tailings will the buttress be built, and what is the open wind fetch over the tailings? The buttress will only protect a limited area downwind, and its effect is dependant on its height.

Response: RCC will submit details of the tailings management plan as part of a permit revision that is required prior to the operation of the facility. The draft permit revision and the application will be available for public review and comment.

Comment 177 - Apparently dust suppressants will be used on the haul roads but not on the tailings piles or other fugitive dust sources. The Reclamation and Closure plan (pg. 37; Tetra Tech July 2007) stated binders such as Enviro Tac are currently being investigated for use during the operational phase of the mine. There is still no plan for active dust suppression on tailings or conveyor systems. Fugitive emissions, including those from tailings piles, which dominate all PM sources, are not considered by ADEQ because Rosemont is a non-categorical source under state law.

Response: Dust suppressants will be used on haul roads that are actively travelled on. This will ensure particulate matter is not entrained back into the atmosphere by the trucks. The permit requires submission of a tailings management plan that addresses all aspects of dust control as part of a permit revision prior to the operation of the facility. ADEQ notes that the requirement to reduce and control fugitive emissions is required under state law. ADEQ agrees that the Rosemont Mine meets the non-categorical definition. This definition, however, only defines the type of permit required. Fugitive emissions were considered in the ambient impact analysis and the permit contains requirements to control fugitive emissions.

Comment 178 – According to the Mine Plan of Operations (2007) a second conveyor will apparently be built along the upper ridge area to allow temporary disposal of tailings for placement by dozers. This source was not modeled.

Response: The modeling performed by Rosemont included all equipment identified in the facility application and issued permit. An equipment list is available in Appendix I of the July 2012 AERMOD modeling analysis. Rosemont is obligated to inform the Department of changes to its

equipment and processes. Changes that result in increases of emissions or differences in air pollution dispersion are likely to require a revision to the air quality permit and the dispersion modeling.

Comment 179 – Method 22 will be used to assess fugitive dust sources within 300ft of property boundary line while modeling was assessed at the PAB. Rosemont did not follow guidelines when setting the PAB.

Response: ADEQ disagrees. Rosemont identified the process area boundary in accordance with ADEQ’s Air Dispersion Modeling Guidelines.

Comment 180 – Rosemont chose to use an extremely low NO₂/NO_x ratio and a very low background ozone level when implementing the ozone limiting method (OLM). The result minimizes predicted NO₂ thereby allowing them to meet the NAAQS. Rosemont should use EPA default of 50% rather than 5% for engines. The relative amounts of NO and NO₂ are variable, temperature-dependent and engine specific, Rosemont should therefore be required to take the conservative approach to predict air quality and use the higher ratio of 50%.

Response: ADEQ disagrees. The in-stack ratios for mobile sources and internal combustion engines were determined based on testing data or data published in scientific literatures. The ratio selected for mobile and internal combustion sources and supported by the testing data and scientific literature was 0.05. Due to the absence of in-stack ratios for blasting sources, a default in-stack ratio of 0.5 was used, per the EPA’s guidance memorandum.

Comment 181 – In the OLM analysis Rosemont used an ozone background annual average of 45ppb which means that no matter how much NO is injected into the air the predicted NO₂ cannot exceed 45ppb. Chiricahua is also not representative of ozone concentrations in the mine area and another background concentration should be used.

Response: ADEQ disagrees. The OLM analysis utilizes hourly average rather than annual average ozone data. Predicted NO₂ emissions are based upon hourly iterations considering hourly ozone concentration and therefore considers a wide range of ozone concentrations, both above and below 45ppb.

Regarding Chiricahua ozone data, background concentrations were obtained from the CASTNET ozone monitor at the Chiricahua National Monument. The hourly maximum ozone concentrations of the Chiricahua site are comparable or higher than that of the Pima County Green Valley site (the nearest monitoring site to Rosemont). ADEQ has determined the use of Chiricahua data provides a conservative estimation for ozone concentrations for the area.

ADEQ considered other nearby monitoring stations before choosing the data from Chiricahua. Ozone data from the Saguaro National Park site represents the highest concentrations measured downwind of the Tucson metropolitan area with values higher than both Green Valley and Chiricahua. The Saguaro site best represents maximum area ozone concentrations attributable to general background combined with the impact from Tucson. The intent of identifying a background concentration is to provide data representative of the site to be modeled not the maximum values measured. Considering this, Saguaro National monument is not appropriate to represent ozone concentrations at the mine site.

Comment 182 – Rosemont uses a background NO₂ value of approximately 2ppb in the modeling analysis. The predicted source contribution results in a background concentration of 14ppb.

Response: ADEQ disagrees. The modeling analysis for the Rosemont facility used a NO₂ 1-hour background concentration of 24.5ppb and an annual background concentration of 4.0ppb. In year 1 of operations, adding the background concentration to the modeled maximum concentration results in total a 1-hour NO₂ average of 154.2ppb and an annual average of 26.3ppb. ADEQ notes that both concentrations comply with the applicable National Ambient Air Quality Standards.

Comment 183 – Alamo Lake is not representative of NO_x in the area.

Response: ADEQ has determined that the Alamo Lake NO_x site provides a reasonable background concentration reflecting pollutant concentrations in a rural area with few local emissions, similar to the project area. Urban core data, such as that available from the Tucson area, more appropriately represent conditions in a more densely populated area with extensive automobile emissions.

Comment 184 – Because predicted NO₂ is nearly at the NAAQS, and since Pima County is already close to exceeding the ozone standard, modeling should be redone with conservative assumptions, including the use of a detailed photochemical model rather than using OLM.

Response: The modeling analysis conducted for this facility predicts near-field pollutant impacts, including NO₂ emissions. Currently, EPA has not approved photochemical modeling tools to evaluate single source impacts on ozone. Until EPA develops and approves such a model, applications such as OLM are the preferred analytical approach. Additionally, the use of regional scale photochemical model to evaluate ozone impacts from a single emission source is unproven and impractical considering the geographic scope and intensive data needs for such an exercise.

Comment 185 - Data used from Chiricahua National Monument, Alamo Lake, and the Tucson airport are not representative of the area and measurements should be confirmed with the Tucson Doppler radar system.

Response: ADEQ disagrees. In accordance with EPA and ADEQ modeling guidance, ADEQ has determined that background pollutant data from Chiricahua National Monument and Alamo Lake provide a reasonable background concentration reflecting pollutant concentrations in a rural area with few local emissions. Urban core data, such as that available from the Tucson area, more appropriately represent conditions in a more densely populated area with extensive automobile emissions. Background ozone concentrations were obtained from the CASTNET ozone monitor at the Chiricahua National Monument. The hourly maximum ozone concentrations of the Chiricahua site are comparable or higher than that of the Pima County Green Valley site (the nearest monitoring site to Rosemont), the use of Chiricahua data provides a conservative estimation for ozone concentrations for the area. Upper air data obtained from the Tucson Airport are adequate to represent upper air profiles as input to the AERMOD model. These data are used routinely in modeling applications across central and southern Arizona and are the only data of this type available for use. The Tucson doppler radar system is unable to estimate ambient air pollutant concentrations and cannot confirm upper air conditions measured with upper air soundings.

Comment 186 – The use of non-homogeneous time series data from NWS sites due to a change of site location during the period of background studies renders the meteorological time series measurements and correlations of Rosemont unusable. The NWS site at Tucson airport was shut down and moved to the NWS site at University of Arizona campus. The result is an interrupted series which is not statistically homogeneous in its two parts but which is used by Rosemont's consultants for dispersion calculation parameters.

Response: ADEQ disagrees. While ADEQ would prefer uninterrupted data sets, ADEQ acknowledges that it is necessary to move a monitor from time to time. ADEQ has reviewed the data and has determined that the change in location of the National Weather Service (NWS) station did not adversely affect the modeling analysis. EPA guidance requires the use of the nearest NWS data in lieu of or as a supplement to on-site data and the NWS information is the best available information.

Comment 187 – The proposed permit has relied on uncritically analyzed data of dispersion modeling, essentially accepting a “data dump” without commentary or explanation in Rosemont's revised submission. Rosemont has submitted additional air quality data in response to inquiries from the Forest Service with respect to its Draft EIS, to Pima County with respect to its subsequently rejected air permit, and to ADEQ with respect to the proposed take over of a permitting operation from the County. The data presented are not accompanied by information to suggest that these additional data correct modeling problems previously pointed out to the Forest Service in comments on the Draft EIS. Rosemont has indicated that they have taken the various comments on the Draft EIS into consideration in submitting a revised Mine Plan of Operations, although no changes with respect to correcting the past problems appear in that document. The material submitted to ADEQ shows no evidence that deficiencies in methodology, quality control or measurement analysis and statistics have been corrected. There is no new context for the information given, and it is not clear whether these additional data are reruns of existing scenarios which have been tweaked with a modified modeling algorithm, or are indeed new modeling analyses designed to respond to previously indicated deficiencies. Rather, it appears that the data submissions are simply “computer data dumps” designed to overwhelm the reader and leave it to the reader to figure it all out.

Response: ADEQ disagrees. The modeling analyses were performed by the applicant in accordance with a modeling protocol that was negotiated with ADEQ. ADEQ provided significant feedback to the company during this time. After the protocol was agreed upon, Rosemont ran the model and submitted the results. ADEQ compared the modeling inputs against the agreed upon protocol and was satisfied with both the inputs and the results. If the applicant's operating scenario changes based upon the EIS process, they may be required to have their permit amended to authorize a new operating scenario. The new scenario would be evaluated for emissions and impacts as necessary. ADEQ has determined the air quality analysis conducted for the Rosemont Mine project meets applicable regulatory rules and guidelines.

Comment 188 – The AERMOD analyses are based on a faulty quality assurance plan, and the latest data submissions show no evidence of corrections and improvements for this plan. Rather they repeat the information from previous submissions unamended. In the original submission of data using the AERMOD model, the consultant report indicated that problems with the meteorological weather package caused a loss of one-quarter year's worth of data, and chose to impute repeat the data from the same quarter of the following year. Further, the start-up operation occurred three months before the quality assurance plan was

in place. In presenting additional and new data, there was no discussion on improvements or changes in the quality assurance plan, only a rehash of the preceding information. Additional concerns about the plan relate to the selection of data from stations with reference data, the choices and justification for stations, and relationships between the locations of these stations and the reference site being studied. None of these have been addressed in the additional documented submissions.

Response: ADEQ has determined the on-site ambient data collected by the applicant meets required applicable quality assurance and quality control requirements. The approximately 3 months of missing data was attributed to an unavoidable equipment failure and did not affect the quality of data collected at the site prior to and after the failure. Regarding other data selected for this evaluation, ADEQ has determined that background pollutant data from Chiricahua National Monument and Alamo Lake provide a reasonable background concentration reflecting pollutant concentrations in a rural area with few local emissions. Urban core data, such as that available from the Tucson area, more appropriately represent conditions in a more densely area with extensive automobile emissions. Background ozone concentrations were obtained from the CASTNET ozone monitor at the Chiricahua National Monument. The hourly maximum ozone concentrations of the Chiricahua site are comparable or higher than that of the Pima County Green Valley site (the nearest monitoring site to Rosemont), the use of Chiricahua data provides a conservative estimation for ozone concentrations for the area. Upper air data obtained from the Tucson Airport are adequate to represent upper air profiles as input to the AERMOD model. These data are used routinely in modeling applications across central and southern Arizona and are the only data of this type available for use.

Comment 189 – The meteorological characterization of the mine site suffered from faulty experimental design. The placement of the meteorological instrumentation at the Rosemont site for background studies shows that the instrument package for a single site was sheltered considerably from the conditions it was supposed to monitor. Regardless, the meteorological data reported from that site are highly flawed and limited and cannot be considered representative of the entire meteorology of the site, and those data cannot support Rosemont's conclusions.

Response: ADEQ disagrees that the meteorological site was sheltered and has confirmed that the on-site meteorological data was collected within the boundary of the proposed pit location. Additionally, the majority of the facility emission sources are located within 2 miles of the on-site meteorology site and the entirety of the facility boundary is within 3.5 miles of the site. Further, the AERMOD model utilizes wind speed and wind direction at the point of release to disperse pollutants in the down wind direction. Considering characteristics of AERMOD and the location of the on-site meteorological site relative to the emission sources, ADEQ has determined the data used in the modeling analysis are appropriate.

Comment 190 – AERMOD as a modeling strategy does not address the problems of aerosols very well, yet aerosols are expected to become a significant component of atmospheric emissions, especially the fugitive ones. One of the environmental treatment processes with respect to the dry stack disposal of waste rock involved spraying to prevent aerosol formation and to control dusting. Under some of the severe wind conditions at the site, these processes can actually encourage aerosol formation rather than suppress it. Another problem is the aerosols will become photochemically active, and cause the formation of sulfuric acid mist, because of the high sulfur content of the waste rock.

Response: The modeling analysis conducted for the permit, using the EPA approved AERMOD model, includes impacts of PM10 and PM2.5 but does not include secondary aerosol formation. The contribution from fugitive PM10 and PM2.5 emissions are included in the modeling analysis. ADEQ has not found, and was not provided any evidence supporting the statement that spraying waste rock will increase aerosol formation under severe wind conditions or that the aerosols will become potential photochemically reactive.

Comment 191 – AERMOD does not have a chemical reaction component and cannot address chemical reactions that occur from the interactions of various pollutant plumes under various meteorological conditions. There is a very strong possibility given the meteorological conditions at the Rosemont mine site that photochemical reactions involving aerosols and particulate matter will occur, which increase the possible emissions of arsenic, selenium, chromium and manganese. AERMOD will not accommodate this situation. Further, AERMOD will not be able to handle any chemical interactions between the pollutant plume from the Rosemont mine as it interacts with other urban plumes from stationary and mobile sources in the City of Tucson.

Response: ADEQ acknowledges that AERMOD, the EPA approved dispersion model does not have a chemical reaction component. The modeling exercise intends to represent near-field impacts of criteria pollutants; this includes the ozone precursor NO₂. The commenter offers no support or citation regarding photochemical reactions leading to emissions of arsenic, selenium, chromium and manganese.

Comment 192 – ADEQ has reduced the potential for NO_x emissions from vehicular traffic servicing the mine operations. This particular pollutant is the catalyst and main reactant in many photochemical reactions. In the presence of sulfur oxides, it will produce sulfuric acid, and this in turn will concentrate arsenic and selenium and photochemically oxidize them. Chromium and manganese, because they have many stable valence states, can also be photochemically oxidized if they are in the aerosol plume. Both elements are powerful oxidizing agents and can also catalyze chemical reactions among the toxic geochemical constituents in the waste streams and dry stack. Arsenic can be photochemically oxidized to arsenate providing another mechanism for arsenic release.

Response: Please see the responses to Comments 191 through 196 for detailed discussions of emissions and interactions of NO₂. The commenter offers no support or citation regarding photochemical reactions leading to emissions of HAPs.

Comment 193 – AERMOD was used in part to predict the dispersion of atmospheric emissions from the site on the urban areas of Tucson and surrounding communities. At best, AERMOD can only look at the linear interaction of urban plumes. The possibility of ozone formation in the urban environment related to the photochemical reactions of mine emission with the urban plumes is not covered in the background information which Rosemont has supplied, nor in the materials of the proposed draft air permit. However, the issue of nitrogen oxide control is totally related to the possibility that Tucson could become a nonattainment area for ozone.

Response: ADEQ notes that AERMOD is the EPA approved model to evaluate source related emissions. Additionally, ADEQ recognizes that AERMOD does not have a chemical reaction component. The modeling exercise intends to represent near-field impacts of criteria pollutants; this includes the ozone precursors NO₂. The modeling analysis demonstrates compliance with the NO₂ NAAQS. Please see comment 91 regarding Tucson ozone attainment.

Comment 194 – AERMOD does not have a chemical reaction component but CALPUFF does. However, it is not clear from either the materials that Rosemont's consultants have used or language in the proposed permit that the chemical reaction component of CALPUFF was used.

Response: The modeling analysis conducted for ADEQ by Rosemont did not include an evaluation using the CALPUFF model. The CALPUFF model is typically used for Class I area visibility impact analysis and is not the EPA recommended model to evaluate a single source's near-field compliance with the NAAQS, which this work targeted. The Class II permit issued for this facility does not require a Class I area impact analysis and AERMOD is the EPA approved model for near-field regulatory decisions regarding the NAAQS.

Comment 195 – The modeling failed to require modeling of the exposure from all primary air pollutants under NAAQS, especially carbon monoxide and lead.

Response: The initial modeling analysis included an assessment of one hour average and eight hour average carbon monoxide impacts. Compliance with the NAAQS is demonstrated for both averaging periods. Additionally, supplemental modeling analyses associated with the permit application demonstrate compliance with the lead NAAQS.

Comment 196 – Carbon monoxide has a special connection to the production of HAPs under Section 112(b). The blasting process produces thermal effects with very high temperatures sufficient to allow certain chemical interactions between carbon monoxide and heavy metals in the particulates. The process behaves like an uncontrolled coke oven, and the reactions involved are coke oven reactions. Coke oven emissions are specifically listed in Section 112(b). Carbon monoxide is a powerful chemical reducing agent, and can combine under high temperatures with nickel, iron and other metals to form metal carbonyl compounds. These carbonyl compounds are established airborne carcinogens. There are no statements in any of the background documents or technical analyses presented which discuss this chemical reacting system, nor are there technically supportable statements that negate or contradict the possibilities of these specific chemical reactions. Therefore, having mentioned them in this submission, ADEQ must now address the failure to model carbon monoxide exposure as a health problem and primary air pollutant under NAAQS, as well as address the special HAP possibilities associated with carbon monoxide reactions in revisions to its proposed permit.

Response: The modeling analysis did include an assessment of one hour average and eight hour average carbon monoxide impacts. Compliance with the NAAQS is demonstrated for both averaging periods. The Department has evaluated the potential HAPs emissions from the facility and has determined that the facilities emissions will be below the major source threshold.

Comment 197 - The State of Arizona is required to re-initiate in 2012 monitoring of levels of atmospheric lead. This element is also a primary air pollutant under the Clean Air Act. Simply because leaded gasoline is

no longer sold in the United States does not mean lead is not a problem. There is no discussion or provision for monitoring lead in any of the Rosemont background documents or the proposed permit. Thus the proposed permit potentially violates the Clean Air Act with respect to lead.

Response: ADEQ disagrees with this comment. In response to this comment and other similar comments, ADEQ evaluated the emissions of lead based on the concentration tested as part of the APP permit process in a report titled “*Baseline Geochemical Characterization, Rosemont Copper*”. The potential emissions of lead from the mine were estimated to be 0.078 tons per year. In its guidance for implementing the lead National Ambient Air Quality Standards EPA recommended installing ambient lead monitors near sources that actually emit more than 0.5 tons per year of lead. Rosemont’s potential lead emissions are approximately 85% lower than this threshold. The modeling analyses associated with the permit application demonstrate compliance with all of the applicable NAAQS, including lead and carbon monoxide.

Comment 198 – The proposed permit does not include sufficient information and requirements on monitoring or monitoring plans to assure that the proposed mine meets requirements of protection of human health and protection of environmental values.

Response: The air quality analyses submitted with the application show that the proposed mine should not pose a threat to public health. In particular, the air quality should continue to comply with the NAAQS which are standards for air quality that have been set by USEPA to protect public health and welfare. The permit requires periodic monitoring, recordkeeping, and testing to ensure that the limits established in the permit are not exceeded. RCC is also required to submit a semiannual certification noting the compliance status of every permit condition every six months. In addition, ADEQ inspectors will conduct announced and unannounced on-site inspections to determine compliance.

Comment 199 – Aerosols also cause haze and visibility reduction but are not included in the analyses presented.

Response: The requirement for visibility impacts modeling is limited to facilities whose potential emissions exceed thresholds that would trigger the need for the New Source Review and Prevention of Significant Deterioration permitting programs. Rosemont’s emissions are far below those thresholds. Consequently, the permitting process does not require visibility modeling. Sources that are not subject to these programs are periodically reviewed as a part of Arizona’s Regional Haze State Implementation Plan.

Comment 200– There are problems with estimates of wet deposition in Class I areas because Rosemont has used faulty rainfall analyses. This is tied to problems with the selection of reference sites for meteorological data and in the use of data from selected reference sites of other networks.

Response: Class I area impact and wet deposition were not considered in the modeling analysis conducted for this facility. Class I area impact analysis is not required for a Class II permit. Further, ADEQ has seen no evidence that the meteorological data or the location of the monitor was inappropriate.

Comment 201 – The small scale (microscale and mesoscale) weather patterns in the Rosemont project area and their impact on air quality is a concern. Commenter stated that Barrel and Davidson canyons “will be the principal pathway for cool-air drainage winds away from the site” and that cool, stable drainage from the project area will reach the Tucson metropolitan area via the Davidson Canyon and Pantano Wash.

Response: AERMOD is a source-receptor based model and evaluate pollutant concentrations at pre-define receptor grid points. The modeling analysis conducted for the Rosemont project followed ADEQ guidance in defining the receptor grid and consisted of modeling for the receptor spacing: 1) receptors spaced at 25 meters along the Process Area Boundary (PAB), 2) receptors spaced at 100 meters from the PAB to 1 kilometer, 3) receptors spaced at 500 meters from 1 kilometer to 5 kilometers, 4) receptors spaced at 1000 meters from 5 kilometers to 10 kilometers, and 5) selected receptors at population centers out to approximately 40 kilometers. The modeling conducted by Rosemont Copper for ADEQ using this receptor spacing demonstrates compliance with all National Ambient Air Quality Standards, including particulate pollution, outside the facility boundary. While it is possible that the drainage will reach the Tucson metropolitan area, ADEQ has determined that it will not lead to a NAAQS violation in that area.

Comment 202 - Seven weeks of missing data were replaced (from 1700 MST Dec. 22 to 1600 MST Feb. 13, 2007) by duplicating the on site data obtained from Dec. 2007 to Feb. 2008.

Response: ADEQ has determined the substitution method was appropriate and represents seasonally matched data for the missing period.

Comment 203 - The completeness of data and the mixture of different data types obtained onsite from April 2006 to April 2009 used to document onsite weather and run air quality models are questionable. In addition, the adequacy of the onsite data gathering period (April 2007 to March 2009) to define long-term weather conditions and continuous precipitation data were only gathered on site from April 2007 to March 2009 are not adequate.

Response: ADEQ has determined the on-site data is temporally complete with the exception of the substitution of missing data. As responded to previously, ADEQ has determined the substitution method was appropriate and represents seasonally matched data for the missing period. ADEQ has also determined that the meteorological information used was the best available, most representative data that meets EPA’s criteria for use in the AERMOD model. Finally, on-site rainfall data was not used in the AERMOD analysis conducted for this permit.

Comment 204 - Precipitation and evaporation pan data were not mentioned in the monitoring and quality assurance plan which he states is dated July 1st, 2006. Commenter also states that the weather station began routine operation on April 1, 2006.

Response: Precipitation data were not used in the ADEQ modeling analysis for this facility.

Comment 205 - Concerns regarding the location of the on site weather station and its adequacy to characterize meteorological conditions at the site due to complexities in the diurnal wind cycle and terrain.

Commenter noted that the weather station is located on the west side of the project area, at the approximate center of the mining pit about 4,000 ft east of the south to north ridgeline of the Santa Ritas and approximately a mile due north of a distinct west to east ridge. Commenter stated that the weather station would be sheltered from large scale winds when they are from the northwest to west to southwest. Commenter also stated that no data had been gathered on wind gusts at the site.

Response: ADEQ has confirmed that the majority of the facility emission sources are located within 2 miles of the on-site meteorology site and the entirety of the facility boundary is within 3.5 miles of the site. Further, the AERMOD model utilizes wind speed and wind direction at the point of release to disperse pollutants in the down wind direction. Considering characteristics of AERMOD and the location of the on-site meteorological site relative to the emission sources, ADEQ has determined the data used in the modeling analysis are appropriate. The AERMOD modeling package used in this analysis evaluates air quality impacts in one hour average intervals. For this analysis approximately 3 years of on-site one hour average wind speed and wind direction measurements were used. Short term wind gust measurements are not processed in the modeling application.

Comment 206 - Concerns regarding the adequacy of merging above-surface data (e.g. Tucson upper air soundings) taken at low elevations in the Santa Cruz watershed area with on site wind and temperature data. Commenter suggests that vertical profilers or a tethersonde be operated on site to provide complete characterization of project area meteorology.

Response: ADEQ has determined upper air data obtained from the Tucson Airport are adequate to represent upper air profiles as input to the AERMOD model. These data are used routinely in modeling applications, including a merge with on-site data, across central and southern Arizona and are the only data of this type available for modeling use.

Comment 207 -Due to complex terrain near the project area, surface data from Hopkins RAWs (located 13 miles south-southwest of the project area) and Rincon RAWs stations (located 28 miles north-northeast of the project area) should be included in the air quality and visibility modeling (CALPUFF) done by AEC/JBR.

Response: For reasons described in responses to other comments, the modeling conducted for the ADEQ permit did not include CALPUFF analysis.

Comment 208 - Concerns regarding the suitability of using the 18 inch annual rainfall figure cited in the Tetro Tech technical memorandum due to spatial variation in annual rainfall amounts and suggested that other data indicate the “site rainfall might be near 25 inches at the highest project elevations”. Commenter cited concerns that only one complete calendar year of rainfall data observed at the site (2008) and stream flow data from USGS gage 09484580 (Barrel Canyon at Highway 83) for only 17 years (1962-1977 and 2011) were used as the basis for the 18 inch annual rainfall figure cited in the memorandum. Commenter also expressed concern with the basis (i.e. comparison of the one complete calendar year of rainfall data to the observed rainfall data at Nogales) used to justify the use of the 18 inch annual rainfall across the whole Rosemont project area.

Response: Precipitation data were not used in the ADEQ modeling analysis for this facility.

Comment 209 - “All calculations and model results, having precipitation as an input submitted by Rosemont and its consultants are highly questionable” based on rainfall data obtained from the University of Oregon PRISM system. Commenter states that the 3-year average annual precipitation data from PRISM using an 800 m grid resolution indicates 30-year average annual rainfall amounts ranging from 21 to 25 inches and that “the strongly sloped terrain at the project site produces a very substantial gradient in rainfall” and therefore the single value of 18 inches used by Rosemont is not representative of the site’s annual rainfall. Commenter provided PRISM data for average annual rainfall for the period 1971-2000 for Barrel Canyon = 21.25 in., on site weather station (center of pit) = 24.87 in., and highest terrain on ridge above pit = 25.22 in.

Response: Precipitation data were not used in the ADEQ modeling analysis for this facility.

Comment 210 - Concerns regarding wind gusts and their potential to generate fugitive dust emissions from unpaved roads, disposal piles and operation areas. Commenter stated that data collected on site by AEC/JBR does not provide indication of local wind gusts and variability of wind speed across the site. Commenter added that the AEC/JBR wind observations indicate the strongest hourly average wind measure on site was approximately 25 mph for a single hour on March 4, 2007.

Response: The AERMOD modeling package used in this analysis evaluates air quality impacts in one hour average intervals. For this analysis approximately 3 years of on-site one hour average wind speed and wind direction measurements were used. Short term wind gust measurements are not processed in the modeling application. Potential high wind episodes and associated wind blown emissions from the facility are addressed through control mechanisms in the air quality permit.

Comment 211 - Concerns with permit condition II.A.9, which allows termination of fugitive dust suppression procedures during strong and gusty wind conditions and indicated that dust suppression measures are most needed during such conditions. Footnote to the comment (bottom of page 6): Commenter remarked that the Beaufort Scale referenced in the permit condition is “an antique relic and can not replace the need for continued, scientific weather observing at the Rosemont site”. Commenter also indicated concern with the wind speed indicator standards in the Beaufort scale. Commenter also stated that “there has not been a U.S. Weather Bureau since 1970, when the National Weather Service was established”.

Response: Potential high wind episodes and associated wind blown emissions from the facility are addressed through dust control requirements established in the air quality permit and discussed in detail in responses to other comments.

Comment 212 - Commenter expressed concerns about the use of meteorological data from the NWS station located at Tucson International Airport, stating that the diurnal wind regime and cloud cover at Tucson are much different from the Rosemont project area due to lower annual rainfall at Tucson and its greater distance from the Santa Rita Mountains. Commenter adds that the “Santa Rita sky island is a very effective generator of organic clouds (clouds produced by mesoscale wind flows up the mountain slopes – particularly during the warm season) and rainfall – both considerably in excess of what occurs over Tucson”.

Response: ADEQ has determined upper air data obtained from the Tucson Airport are adequate to represent upper air profiles as input to the AERMOD model. Additionally, ADEQ has determined

cloud cover observations obtained from the Tucson National Weather Service meet EPA guidance which requires the use of the nearest NWS data in lieu of or as a supplement to on-site data. These data are used routinely in modeling applications, including a merge with on-site data, across central and southern Arizona and are the only data of this type available for modeling use.

Comment 213 - Due to the lack of cloud detection above 12,000 ft AGL by NWS ASOS cloud sensors and the lack of human observers at the Tucson airport, the cloud cover data used in the air quality models and EIS were incomplete and are not representative of the project area and suggests that solar radiation data from the Empire RAWS site be used to improve cloud information used in the modeling.

Response: ADEQ has determined upper air data obtained from the Tucson Airport are adequate to represent upper air profiles as input to the AERMOD model. Additionally, ADEQ has determined cloud cover observations obtained from the Tucson National Weather Service meet the EPA guidance which requires the use of the nearest NWS data in lieu of or as a supplement to on-site data. These data are used routinely in modeling applications, including a merge with on-site data, across central and southern Arizona and are the only data of this type available for modeling use.

Comment 214 - The upper air data used in the modeling are not representative of the Rosemont site below 700 mb (approximately 10,000 ft MSL) due to the complex terrain in and around the Rosemont project, the elevation difference between the University of Arizona NWS and the site, and the distance of Tucson sounding sites from the Santa Rita Mountains. Commenter added that the mixing depths, and other parameters, estimated within AERMOD are unreliable due to this limitation.

Response: EPA guidance recommends the use of the nearest NWS data in lieu of or as a supplement to on-site data. Upper air data obtained from the Tucson Airport are adequate to represent upper air profiles as input to the AERMOD model. These data are used routinely in modeling applications across central and southern Arizona and are the only data of this type available for use.

Comment 215 - The surface character of the upper-air balloon launch site was changed (due to relocation of location site from the airport runway area to U of A campus 7 miles to the north) from essentially open desert to an urban setting with nearby tall buildings, which causes substantial perturbation of low-level winds, thereby impacting near surface data, particularly the low-level winds. Commenter stated that the changes “result in a flawed, heterogeneous upper-air data set” used in the air quality modeling.

Response: ADEQ has determined the change in location of the upper air measurements from Tucson airport location to the U of A campus did not adversely affect the modeling analysis. EPA guidance recommends the use of the nearest NWS data in lieu of or as a supplement to on-site data. The NWS monitor represents the best available data.

Comment 216 - Concerns with the new upper air sounding instrumentation package (installed June 2007) and stated that there have been flawed RH (relative humidity) measurements, citing humidity sensor issues. Commenter stated that the humidity sensor problem can lead to data that are too moist due to lagged response to dry layers aloft and that “these errors not systematic and can not be bias-corrected”. Commenter stated that “a consistent and homogeneous three-year period of sounding data, preceding these

system changes, should have been used in the Rosemont project air-quality modeling”, and that the AEC/JBR report did not indicate changes in the upper air instrumentation and launch location.

Response: ADEQ is unaware of potential quality issues associated with relative humidity measurements made with upper air profiles at the Tucson location. The commenter provided no evidence supporting the statement that the data was flawed. A review of the NCDC Web site provides no warning or qualifier regarding this issue to potential users of upper air data. As a result, ADEQ has determined that use of this data was appropriate.

Comment 217 - AERMOD predicted concentrations can vary substantially due to changes in Albedo, Bowen Ratio and surface roughness, citing the Grosch/Lee study. Considering the complex terrain of the Rosemont project area, the specifications of these parameters are extremely important to obtain realistic modeled design concentrations.

Response: ADEQ agrees that AERMOD modeled concentrations are sensitive to some surface characteristic parameters, for example, surface roughness length. However, ADEQ has determined that the surface characteristic parameters Rosemont used are appropriate for estimating modeled design concentrations. For details, see the following comments and responses (Comments 218-221).

Comment 218 - AEC/JBR uses single parameter values to characterize the project area and did not determine more accurate, site-specific condition. Due to its complex surface characters, the project area should be partitioned into multiple sectors for the determination of surface characteristics with AERSURFACE.

Response: Following the EPA’s guidance, the AERSURFACE program was utilized to generate surface roughness within a 1 kilometer radius of the meteorological monitoring site. According to *The AERMOD Implementation Guide* and *AERSURFACE User’s Guide*, the recommended upwind distance of 1 kilometer radius represents the turbulent processes that may impact conditions at the meteorological monitoring site. Using an upwind distance that is too large could misrepresent the amount of mechanical turbulence and bias model results, especially for low-level releases. Therefore, AERSURFACE does not utilize the entire project area as input.

Surface roughness may be defined based on multiple sectors (up to a maximum of 12) if land cover varies significantly from one direction to another. ADEQ reran AERSURFACE by using 12 sectors and found that the land cover for all sectors are very uniform, dominated by shrubland as specified in NLCD92 21-Land Cover Classification System. Since there is no or little variation in land cover within 1 kilometer radius of the Rosemont meteorological monitoring site, ADEQ has determined that the single parameter (one sector) approach is appropriate.

Comment 219 -The summer monsoon season causes strong vegetative growth and is not arid as specified in the modeling. Commenter noted that summer monsoon rainfall at the Rosemont site during July, August and September has been comparable with Milwaukee and St. Louis, and only slightly less than Houston during that same time period.

Response: ADEQ disagrees that the project area should be specified as “non-arid” during the summer monsoon season. The rainfall data are not sufficient to determine whether an area is arid or not. The

evaporation or runoff data should also be taken into account. Regarding the determination of surface characteristics, the AERSURFACE program does not allow the users to define “Arid Region” for one season while define “Not-Arid Region” for another season.

Comment 220 - Commenter states that the constant Albedo value of 0.25 (used for all seasons) is in error due to the varying surface characteristics due to increased vegetation growth during June, July and August. Commenter provided two photographs of the area, one from September, 2007 and another from November, 2007 and stated that substantial land surface changes (due to changes in vegetative cover) were not properly accounted for in the air quality modeling. The Albedo values Commenter proposed are 0.18-0.25, 0.15-0.20, and 0.20-0.25 for spring, summer and fall/winter seasons, respectively.

Response: According to *Surface Characteristics Tables in AERSURFACE User’s Guide*, the number of 0.25 represents the Albedo value for Shrubland (arid region), the dominant land cover through Rosemont project area during most of seasons. ADEQ agrees that the albedo value may change during the summer monsoon season. However, ADEQ has determined that the modeled design concentrations will not change by using the commenter’s proposed albedo values of 0.15-0.25 instead of 0.25. In general, AERMOD is fairly insensitive to changes in albedo. As shown in the Grosch/Lee study the commenter cited, the model-predicted concentrations are very uniform with varying albedo (0.1-0.45) across all averaging periods for surface sources or sources with low release heights like Rosemont’s sources.

The commenter provided a range of albedo values for different seasons. However, the AERMET meteorological data preprocessor for AERMOD, cannot use a range of surface characteristics to process the meteorological data. The surface characteristics for each season or month must be specifically defined for AERMET processing.

Comment 221 – The surface roughness values used by AEC is not reasonable. They should range from 0.05 to 0.30 during the course of the seasonal cycles. The surface roughness values Commenter proposed are 0.05-0.15, 0.1-0.3, and 0.1-0.15 for spring, summer and fall/winter seasons, respectively.

Response: ADEQ is uncertain how the range of the surface roughness values for each season was determined. Based on the results of the AERSURFACE run, the land cover of the Rosemont project area is dominated by shrubland (>98%), no matter how the seasons are defined. As shown in the *Surface Characteristics Tables in AERSURFACE User’s Guide*, the surface roughness is 0.15 and 0.3 for shrubland (Arid Region) and shrubland (Non-arid Region), respectively. ADEQ has determined that the surface roughness value of 0.15 used in the AERMOD modeling is appropriate for most seasons. ADEQ does agree that the surface roughness length may be higher than 0.15 during the summer monsoon season due to the vegetative growth. However, using a higher surface roughness value, such as 0.3, will likely result in higher mixing heights due to increased mechanical mixing and thus lower modeled results. Therefore, using a surface roughness of 0.15 should provide a conservative estimation for modeled concentrations during the summer monsoon season. Additionally, AERMET cannot use a range of surface characteristics to process the meteorological data.

Comment 222 - The average rainfall data for the Rosemont site from February 2007 to March 2009 is not a valid average.

Response: Rainfall data were not used in the AERMOD modeling analysis.

Comment 223 - Commenter stated that July and August rainfall at all other sites is more than twice that of the rainfall observed at Tucson, U of A and that the lower monsoon rainfall in the lower elevation of the Tucson area shows that the relative humidity and cloud information from the NWS at Tucson are not representative of conditions at the Rosemont site.

Response: Rainfall data were not used in the AERMOD modeling analysis.

Comment 224 – Concerns regarding the duration of maximum wind gusts at the project site, stating that Rosemont did not measure wind gusts. Commenter also stated that there is a design deficiency site characterization and data collection since the site only accounts for average wind speeds and does not account for minute-to-minute variations in wind speed and maximum wind gusts.

Response: The AERMOD modeling package used in this analysis evaluates air quality impacts in one hour average intervals. For this analysis approximately 3 years of on-site one hour average wind speed and wind direction measurements were used. Short term wind gust measurements are not processed in the modeling application. Potential high wind episodes and associated wind blown emissions from the facility are addressed through control mechanisms in the air quality permit.

Comment 225 - Maximum gusts could create emissions from the dry disposal site that could exceed the combined HAP threshold of 25 tpy.

Response: The Department has evaluated the potential HAPs emissions from the facility and determined that the facilities emissions are limited to well below the major source threshold. Tailing emissions due to future winds in excess of levels evaluated in the analysis will be addresses through the tailing management plan which will be submitted as a revision to the permit. The revision will be subject to public review and comment. Potential high wind episodes and associated wind blown emissions from the facility are addressed through the dust control provisions in the air quality permit.

Comment 226 - The dispersion and transport modeling are inadequate and faulty.

Response: The commenter provides no additional information supporting the allegation. ADEQ has determined the air quality analysis conducted for the Rosemont Mine project meets applicable regulatory rules and guidelines.

Comment 227 – Particulate matter was the only pollutant for which specific data was collected and that monitoring of sulfur dioxide and nitrogen oxides relied on information from other sources such as monitoring networks run by the State of Arizona, Pima County and the Federal Government.

Response: ADEQ has determined that background pollutant data from Chiricahua National Monument and Alamo Lake provide a reasonable background concentration reflecting pollutant concentrations in a rural area with few local emissions. Urban core data, such as that available from the Tucson area, more appropriately represent conditions in a highly populated area with extensive

automobile emissions. Background ozone concentrations were obtained from the CASTNET ozone monitor at the Chiricahua National Monument. The hourly maximum ozone concentrations of the Chiricahua site are comparable or higher than that of the Pima County Green Valley site (the nearest monitoring site to Rosemont), the use of Chiricahua data provides a conservative estimation for ozone concentrations for the area.

Comment 228 – Increased amounts of blasting (due to discarding of oxide based ores) as specified in Rosemont’s amended proposals would produce higher levels of carbon monoxide that could possibly exceed the 250 tpy major source threshold for new sources.

Response: The permit contains limitations on the amount of blasting to ensure that it is not possible to exceed the emissions estimates included in the application. If the applicant’s operating scenario changes based upon the EIS process, they may be required to have their permit amended to authorize a new operating scenario. The new scenario would be evaluated for emissions and impacts and, as necessary, an evaluation of permit class will be conducted.

Comment 229 – The amended protocol document (AERMOD Modeling Protocol to Assess Ambient Air Quality Impacts) submitted to ADEQ in April, 2012 does not correct previously mentioned modeling deficiencies and that it is not clear whether the additional data provided in the document are reruns of existing scenarios using a modified modeling algorithm or are new modeling analyses. Commenter stated that the data submissions are “computer data dumps designed to overwhelm the reader with materials and leave the reader to figure it all out”.

Response: The commenter does not provide specific examples of previously mentioned deficiencies, therefore ADEQ cannot comment specifically to those items. ADEQ did, however, review and approve the protocol as consistent with ADEQ and EPA’s modeling guidance. ADEQ also reviewed the modeling analysis to ensure that the inputs conformed to the modeling protocol.

Comment 230 - One commenter noted that due to the relative frequency of high wind gusts, that the statistical analysis of wind data should have included an analysis based on extreme value statistics (referenced E.J. Gumbel, Statistics of Extremes, Columbia University Press, 1958) but that no extreme value analysis was included. Commenter also stated that if more than 10% of the basic data for a year shows “various extreme analysis properties”, that a revision of most of the analyses would be required and that the data would now be categorized as regular occurrences and not potential outliers. Commenter inferred that if more than 36 days in a calendar year show extremes in meteorological parameters (e.g. temperature, wind speed, rainfall intensity etc. etc.) that omission of an extreme value analysis calls into question the validity of using meteorological data in support of meteorological behavior conclusions. Commenter further stated that apparently the 36 days per year limit may have been exceeded in every year that was used for background studies and continues into this year due to extreme climate and weather patterns in Arizona.

Response: The AERMOD modeling package used in this analysis evaluates air quality impacts in one hour average intervals. For this analysis approximately 3 years of on-site one hour average wind speed and wind direction measurements were used. AERMOD is not designed to accept wind gust as an input, nor has EPA provided guidance regarding such a process.

Comment 231 – The proposed changes to the proposed operations, a major component of the fugitive emissions will now be in the form of aerosols and that the improved particulate removal equipment will not control aerosols and mists effectively. Commenter adds that AERMOD will not adequately address the impact of aerosols. Commenter also states that it is not clear if AERMOD was used to model fugitive emission transport off the dry disposal site either as particulates or modified aerosol/particulate mixtures.

Response: This permit is being process based upon the information provided by the applicant. If the applicant's operating scenario changes based upon the EIS process, they may be required to have their permit amended to authorize a new operating scenario. The new scenario would be evaluated for emissions and impacts and, as necessary, an evaluation of permit class will be conducted. The modeling analysis conducted for the permit includes impacts of NAAQS pollutants PM10 and PM2.5 but does not include secondary aerosol formation. The contribution from fugitive particulate PM10 and PM2.5 emissions from the tailing and stockpile areas were included in the modeling analysis.

Comment 232 – Class I areas are have not been effectively protected by the proposed draft permit and that the CALPUFF modeling submitted to the Forest Service is deficient due to the following reasons: -Grid sizes used in 2001 and 2003 were 36 km², while the grid size in model year 2002 was 12 km² and that use of the different grid sizes make the time series data non-homogeneous, which prevents using the time series as a continuous and seamless record. Commenter states that that the lack of stationary and homogeneity of the data, preclude effective use of the data to characterize long term trends and phenomena.

Response: The use of CALFUFF for Class I area visibility impact analysis is not required for a Class II permit. The requirement for visibility impacts modeling is limited to facilities whose potential emissions exceed thresholds that would trigger the need for the New Source Review and Prevention of Significant Deterioration permitting programs. Rosemont's emissions are below those thresholds. Consequently, the permitting process does not require visibility modeling. Visibility impacts from minor sources such as Rosemont will be addressed through future versions of the Arizona Regional Haze State implementation Plan.

Comment 233 - Concerns regarding the rainfall and precipitation data used in the dispersion modeling.

Response: Precipitation data were not used in the ADEQ modeling analysis for this facility.

Comment 234 – Commenter noted that the number of modeled unloading sources reduced from Year 1 to Year 5 for 1-hour NO₂ air quality modeling. In particular, the commenter pointed out that additional 20 volume sources were modeled in Year 1 while only an additional 4 volume sources were modeled in Year 5.

Responses: In Year 1, the 20 volume sources from unloading areas include:

- unload to leach pads, 6 sources;
- unload to waste dump, 10 sources; and
- unload to sulfide stockpile, 4 sources.

In Year 5 of the mine plan, a berm that essentially covers the leach pads and the waste dump will be developed. Therefore, the emissions generated at the leach pads and waster dump were combined and modeled as a second pit in Year 5, eliminating 6 sources from the leach pads and 10 sources from the

waste dump. The original 4 volume sources from the sulfide stockpile were kept and modeled in Year 5.

Comment 235 – Commenter requested additional clarification and a specific breakdown of the mining source emissions in the PTE summary that are included in the PM₁₀ and PM_{2.5} air quality modeling. Commenter was unable to confirm how some of modeled sources (unloading, hauling, and paving sources) directly translate to the listed sources in the PTE summary. Moreover, commenter was unable to determine how loading sources were included in the modeling.

Responses: All PM₁₀ and PM_{2.5} mining emissions listed in the PTE tables have been modeled. All emissions generated within the open-pit (drilling, loading, hauling, water truck use, and support vehicle use inside the pit) were combined and modeled as a pit source. Emissions from hauling, water truck use and support vehicle use outside the pit were modeled as a series of haul road volume sources. Emissions from paved entrance road and paved industrial road were modeled as a series of paved road volume sources. Emissions from unloading ore to leach pads, unloading ore to sulfide stockpiles, and unloading waste rock to waste rock storage area were modeled as volume sources. The blasting emissions were modeled as volume sources as well. A detailed breakdown of the emissions estimates is available on the ADEQ website at <http://www.azdeq.gov/environ/air/permits/rcc.html>.

APPENDIX A

Listing of Significant Changes Between Proposed and Final Permit

Condition II.A.1. – The requirement for a person certified in EPA Reference Method 9 to be available on-call has been excluded.

Condition II.A.3. – The condition has been clarified to require annual comprehensive preventative maintenance checks according to vendor-supplied O&M instructions or the facility's O&M plan on all dust control equipment used at the facility.

Condition II.A.6 – In response to a public comment, the requirement to calculate the tons per day rock mined has been revised to “per calendar day basis” in place of “rolling 24-hour basis”. The recordkeeping requirement in Condition II.C.2 has also been eliminated as a result.

Condition II.C.2. – The requirement to calculate annual average by rolling the daily mined rock has been deleted since there is no underlying annual limit to comply with.

Condition V.F.2.b.1 – The boiler requirements have been amended to reflect the latest final rule.

Condition VII.C.2 – The citation to require installation of an hours-meter has been amended to reflect A.A.C R18-2-306.A.3.c instead of 40 CFR 60.4209.a.

Condition VII.F.2.b – The requirements under 40 CFR 60.4211(g)(2) for ICE units greater than or equal to 100 hp and less than or equal to 500 hp is included in this condition. As a result the condition VII.F.2.b has now been renumbered as VII.F.2.c.

Condition VIII.B.1.a.(4)(i) – In response to a public comment, the requirements for operation of mineral tailings as required under AAC R18-2-608 has been included. The condition reads as follows: **“Operate mineral tailings piles by taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director.”**

Condition VIII.B.1.a.(5) – In response to a public comment, the condition has been clarified to indicate that the length of the operational unpaved roads do not exceed that estimated in the application. The following was added **“such that the total lengths of operational unpaved roads do not exceed the estimates in the permit application”**.

Condition VIII.B.1.b.(1) – In response to a public comment, the requirement to pave the entrance road and other industrial roads are clarified by including a map of the mine site that identifies these roads. The map is included as part of Attachment “E”.

Condition VIII.B.1.b.(5) – In response to public comments requesting review of the mineral tailings plan, RCC is required to submit the tailings management plan as part of a significant revision at least 180 days prior to start of dry tailings deposition.

Condition VIII.B.1.c.(2) – The word **“average”** has been deleted to clarify that the speed limit is a maximum number and not an average limit. The monitoring requirements have been amended to require recordkeeping

that demonstrates compliance with the speed limit. The requirement to provide Payload Management Reports has been deleted since this is duplicative of the records required to demonstrate compliance with the speed limits.

Condition VIII.B.1.d.(3)(a) – The condition has been clarified to reflect that the weekly visual survey does not apply to the mineral tailings since the requirements for mineral tailings is at least twice daily.

Condition VIII.B.1.d.(3)(b) – The condition has been amended to require opacity observations at least twice daily starting from the day the buttress construction begins.

Condition VIII.B.1.d.(3)(c) – The condition has been moved to Condition VIII.B.1.d.(4)(b) since the requirement to inspect the tailings during high winds are not part of the opacity monitoring but part of the mineral tailings section. The condition also has been amended to require inspections of the tailings at least once daily for easily erodible areas when forecast of high winds or gusts are predicted. The requirement to inspect for loose soils, weakened areas of the surface crust or cracks in the tailings has been deleted.

Condition VIII.B.1.e.(2) – The requirements have been clarified to reflect the recordkeeping of site-specific meteorological data

Condition XIV – In response to public comments, the permit includes a requirement to submit a protocol for installation and operation of continuous ambient monitoring of PM₁₀ including meteorological data within 180 days of issuance of the permit. The data collection will start at least 90 days prior to the start of mine operations. The protocol will identify the location of the monitors and is required to follow US EPA guidance for the collection of the meteorological data.

APPENDIX B

Listing of Typographical/Minor Changes between Proposed and Final Permit

References to the facility name have been corrected from “Rosemont Copper Company” to “**Rosemont Copper Project**”.

Condition II.A.5. – Included the word “further” in the second sentence to read as “The Permittee may implement proposed changes to the dust control plan upon submission to the Director if necessary to **further** minimize fugitive dust.

Condition II.A.6 – The citation has been corrected to read “**A.A.C. R18-2-306.A.2**” in place of “A.A.C.R18-2-306.01”

Condition II.B. 4 & 5 – The reference to six minute “opacity” has been replaced by six minute “**Method 9 observation**”.

Condition II.C.1 – The condition was missing the units for ANFO recorded and now reads “...and the amount of ANFO **in tons** used...”

Condition II.C.5 – The condition incorrectly worded when excess emissions report was to be submitted. The word “Unless” is replaced with “**When**”. In addition, the missing citation A.A.C.R18-2-306(A)(2) has been added to this condition.

Condition II.C.7 – The citation has been corrected to read “**A.A.C R18-2-306.A.5**” in place of “A.A.C.R18-2-306.A.3.c”.

Attachment “B”– Table 1 – The emissions points controlled for PCL02, PCL03, and PML04 have been corrected to reflect those identified in the amended application. In addition, the emissions points controlled under PCL12 are corrected to read Pebble “**Conveyor**” from Pebble “Crusher”.

Condition III.D.2.g.(2) – The reference to “Molybdenum Packaging” has been corrected to read “**Copper Packaging**”

Condition III.D.2.j - The condition has been clarified by identifying the transfer point “**Unloading ore to the Primary Crusher Dump Hopper from Haul Trucks or the Run of Mine Stockpile**” where water sprays are used to control emissions in place of “Process Sources”.

Condition III.D.3.a – The reference to “**PCL07**” has been included to identify the scrubber.

Condition III.D.3.c – The word “each” has been replaced by “**the**” since only one scrubber exists.

Condition III.D.3.e – Missing parenthesis around unit identification “PCL07” has been added.

Condition III.E.1.a – The word “stack emissions” repeated twice has been excluded.

Condition V.F.1 – The fuel has been corrected to read “**diesel-fired**” in place of “oil-fired”.

Condition VI.A. – The term “**exclude the hot water generator**” has been added to the applicability section to clarify the equipment subject to the section.

Condition VI.C.2 – The term “**dilute**” has been added before sulfuric acid to correctly reflect the operations.

Condition VII.C.5 – The term “**and/or**” and “**as they may apply to the Permittee**” has been added to reflect the rule.

Condition VIII.B.1.c.(1) – The word “enforce” has been replaced with “**provide training, and implement**” to clarify the requirement.

Condition VIII.B.1.c.(3)(b) – The condition has been renumbered to VIII.B.1.c.(3)(c).

Condition IX.B.2& 3 – The reference to the rule has been corrected.

Attachment “D” – Available equipment information has been included.

List of Changes Made to Responsiveness Summary Document after Permit Issuance

Date Revised	Updates
February 20, 2013	Comment 25 – The last sentence was updated to exclude the phrase “that will be”. The sentence now reads as follows: In addition, in response to comments received, ADEQ has required ambient monitoring of PM10 emissions. that will be
February 20, 2013	Comment 217 – The references in the last sentence under the response should read as Comment 218 – 221. The sentence now reads as follows: For details, see the following comments and responses (Comments 218 – 221 238-241).