



COUNTY ADMINISTRATOR'S OFFICE

PIMA COUNTY GOVERNMENTAL CENTER
130 W. CONGRESS, TUCSON, AZ 85701-1317
(520) 740-8661 FAX (520) 740-8171

C.H. HUCKELBERRY
County Administrator

June 30, 2011

Mr. Jim Upchurch
Forest Supervisor
Coronado National Forest
300 W. Congress Street
Tucson, Arizona 85701

Re: Administrative Draft Environmental Impact Statement for the Proposed Rosemont Mine

Dear Mr. Upchurch:

The Administrative Draft Environment Impact Statement (ADEIS) is a document consisting of hundreds of pages of text – two inches thick when printed double-sided. It is accompanied by electronic copies of reference material consisting of over 300 reports and articles, some of which has never previously been made available to the Cooperators. Appendices are comparatively brief, consisting primarily of a summary written by Rosemont Copper, new visualizations and a draft monitoring plan.

Cooperators have been given 30 days to review this material. Because Pima County has a broad range of jurisdiction and expertise, we have a number of review team members. We have consistently been able to provide the Forest Service with a high quality of review over the past several years; however, the short timeframe you have provided relative to the high volume of new material has limited our capacity to provide you comments this time. We join with the Arizona Game and Fish Department (AGFD) and the US Army Corps of Engineers (Corps) in requesting an extension of time for review of the ADEIS but fear our request will fall on deaf ears due to the rejection of the AGFD's request to the Service. We believe your rejection of AGFD's request is inappropriate and inadvisable and will lead the public to believe this process is proceeding on Rosemont's well publicized timeframe. We can provide numerous examples of Rosemont's pronouncements that they expect the Draft EIS to be published and released for public comment in August 2011 and acted upon

Mr. Jim Upchurch
Re: ADEIS for the Proposed Rosemont Mine
June 30, 2011
Page 2

by January 2012. Your denial of the AGFD's time extension appears to be adhering to the Rosemont-prescribed timeline for review and approval of this project. It also lends credence to concerns, as well as claims, that the outcome is predetermined and cannot and will not be altered by reasonable and factual analysis or argument.

In addition to the time factor, at the May 17, 2011 meeting, Forest Service staff stated the very narrow conditions under which changes would be made to the ADEIS. The overall impression our staff took away from this meeting is that the Forest Service would be reluctant to make changes in the ADEIS unless compelled by legal considerations. The rigid and narrow form and written instructions you provided for review have also limited our comments and leaves the Forest Service open to valid public criticism as well as litigation.

Nonetheless, Pima County staff reviewed parts of the ADEIS that relate to our jurisdiction and expertise. Please see the attached comments. Please do not assume, as you indicated in your transmittal letter, that we agree with other statements in the document that we did not specifically identify. Because of the short and limited timeframe to comment, we reserve the right to bring to your attention document deficiencies in the future. The failure to provide a reasonable review timeframe and appropriate review parameters is of concern and limits the thoroughness of our review.

Below we bring to your attention below a number of fatal flaws related to inadequate analysis and disclosure of impacts, inadequate adherence to process, inadequate and inconsistent consideration of indirect and cumulative impacts and inadequate commitment to effective and meaningful mitigation that may invalidate the ADEIS.

Failure to consider Cooperators' participation and input.

While Cooperator participation is acknowledged in the process of preparing this ADEIS, the document shows that Cooperator input has largely been ignored. Few, if any, changes have been made to the purpose and need statement, the alternatives, the mitigation measures or the monitoring plan as a result of the participation of Pima County or other Cooperators. Even simple requests were ignored, such as our repeated requests that the Regional Flood Control District be listed as a permitting agency in the permitting table that has been circulated for over two years and now appears as Table 2 in Chapter 2 of the ADEIS.¹ Rosemont may wish to give the appearance that they do not need County approval for some of their activities, but this is simply not true.

¹ Pima County's September 23, 2010 correspondence to Deputy Forest Service Supervisor Reta LaFord.

Mr. Jim Upchurch
Re: ADEIS for the Proposed Rosemont Mine
June 30, 2011
Page 3

We also expected to see more input from the other decision-making agencies in this ADEIS. The ADEIS does not bear evidence of coordination with the Corps, relying instead on Rosemont's statements regarding the Corps. No mention is made of the US Fish and Wildlife Service or AGFD roles.

Failure to commit to reclamation – the truth about mitigation.

Rosemont has exhibited two faces on the issue of mitigation. The first, its public relations face, would have you believe they are a new, modern mining company sensitive to the irreparable harm to our natural and cultural environment caused by their mining operations and that they practice environmentally friendly, sustainable mining. The other face, which is exhibited at their meetings with the Cooperators and the Forest Service, is one that opposes, minimizes and trivializes mitigation and reclamation efforts. When they are engaged in their public relations campaign, Rosemont speaks positively of environmental mitigation and reclamation while privately opposing any effort at real, modern mitigation or reclamation practices. Similarly, Rosemont disguises numerous times in the ADEIS voluntary measures that are, in fact, actually mandatory.

The ADEIS correctly indicates the direct loss or conversion of 6,225 acres of habitat and indirect impacts to 90,700 acres of natural resources, yet the impact assessment is much more narrowly restricted to the direct impacts from the Mine Plan of Operations with little or no consideration given to indirect impacts beyond the mine footprint. Moreover, the only mitigation requirement stems from Clean Water Act Section 404 permit compliance. Such mitigation measures are entirely and completely inadequate and do little, if anything, to offset the permanent and irreversible damage from both direct and indirect negative impacts of the mine on biological and land resources. The ADEIS provides no details at all regarding how much land would be acquired or committed to conservation or where these lands may be. How can the public, the Forest Service and affected agencies evaluate the effects of this mining proposal without knowing any details about offsite land mitigation? This is just another example of the significant omissions in this document. For five years, the County has requested mitigation commitments totaling over 8,800 acres.² To date, we have been largely ignored. In fact, in a Cooperators meeting, the Rosemont representative stated the County's requests for mitigation would be accommodated last, if at all. The irreparable harm to the natural and cultural resource base by this proposed action requires significant and substantial mitigation, none of which has been committed to by Rosemont.

Rosemont's claims regarding mitigation associated with land forms, ecosystem restoration and the like must be tempered with the reality of what has occurred in contemporary

² Pima County's October 6, 2006 correspondence to former Forest Supervisor Janine Derby and Rosemont Copper Senior Vice President Jaime Sturgess.

Mr. Jim Upchurch
Re: ADEIS for the Proposed Rosemont Mine
June 30, 2011
Page 4

mining operations in the immediately vicinity of Rosemont. I am attaching a series of photographs indicating the reclamation that has occurred at similar open pit mining activities within southern Arizona. This documentation clearly indicates that over a span of nearly 50 years, the irreparable harm that has occurred to our natural and cultural landscape by mining has not been repaired, lessened or mitigated. This barren landscape remains the same today in almost all of these open pit mining activities. Literally no restoration or mitigation has occurred. What assurances are contained in the ADEIS that this mitigation hoax will not be perpetuated?

References to mitigation are usually accompanied by the phrases "as required" or "in accordance with" a particular federal law or policy. This limitation on realistic mitigation is troubling and simply means that the impacts created by the mining action will not nearly be offset by actions to mitigate the effects. Land conservation is a well known and accepted contemporary mitigation principle and is applied routinely at the local government level when faced with significant losses of habitat, ecosystems or lands suitable for mitigation. As recently as 10 days ago, in approving a renewable solar energy project proposed by FRV Solar, the Board of Supervisors imposed mitigation standards of four acres replacement of undisturbed lands for each one acre of habitat being disturbed by the project. In the Rosemont example, this would mean 6,225 acres of natural ecosystem being impacted by Rosemont would require conserving 24,900 acres of equivalent habitat. It is clear Rosemont does not even intend to conserve more than one to two percent of their disturbance area. While the mitigation may not be required by federal law, it is required to offset the adverse impacts of the action; hence it can and should be required as a reasonable mitigation measure.

Failure to develop a viable alternative and seriously consider information and data other than that provided by Rosemont.

The ADEIS seems to rely heavily on information and direction provided by Rosemont Copper. The result is that despite the hefty volume of the document and the long reference list, the Forest Service's ADEIS reflects a narrow range of alternatives and inadequate mitigation and monitoring, and it contains relatively few statements that can be considered conclusive or adequate for impact analysis.

For instance, the County has repeatedly proposed, as both an alternative and mitigation measure, backfilling of the pit to reduce the irretrievable losses of habitat and other resources due to the Rosemont project. Contrary to a recent statement by Deputy Forest Supervisor Reta LaFord, the ADEIS does recognize that a hydrologic sink could be maintained. The ADEIS rejects backfilling based on representations by Rosemont that a small volume (10 percent) would be costly and would not provide sufficient reduction in

Mr. Jim Upchurch
Re: ADEIS for the Proposed Rosemont Mine
June 30, 2011
Page 5

the impacts of waste disposal. An optimization analysis to determine an appropriate and meaningful volume of backfilling to reduce impacts was not completed or provided. The conclusion to disregard pit backfilling was reached without any financial or economic forecast of the profits that are likely to be gained by Rosemont from the sale of the extracted minerals that could be reasonably used for pit backfilling.

The range of alternatives presented in the ADEIS is not of sufficient difference to produce meaningful reductions in impacts from the project. The present, four Forest Service-produced disposal alternatives that vary by less than 10 percent in area or volume are not alternatives. They are simply rearranging the waste pile. If the Forest Service chooses to dismiss a viable pit backfilling alternative based on a faulty or biased analysis, the National Environmental Policy Act (NEPA) process could be invalidated. An alternative that backfills the pit by 50 percent or more could form the basis of a real alternative.

Failure to disclose and analyze impacts to supposedly "valuable" minerals buried under tailings and waste.

On Page 8 of Chapter 1, the ADEIS states the Forest Service "cannot categorically prohibit ore processing or waste disposal or deny reasonable and legal mineral operations under the mining laws." This assumption would not be true for unpatented mining claims that are invalid. Rosemont's 850 unpatented lode mining claims, totaling approximately 12,000 acres somewhat adjacent to their 132 patented lode claims, have never been examined for validity. The County has requested, on a number of occasions, a validity analysis; however, such was rejected by the Coronado Forest Supervisor. The Forest Service possesses the discretion to conduct such an evaluation and has exercised this discretion in the past regarding mining in the Santa Rita Mountains portion of the Coronado National Forest. The validity of the unpatented lode mining claims is very much in question, particularly since the economic mineral evaluation to validate the claims has never been performed. Under the Rosemont Mine Plan of Operations, they simply plan to place waste material over the unpatented lode claims.

If the unpatented lode claims really do have valuable minerals, the ADEIS must disclose, under the Geology, Minerals and Paleontology section, the loss of mineral assets productivity due to the placement of waste materials over the unpatented lode claims. Failure to analyze this real loss of mineral assets is a serious flaw in the ADEIS. Furthermore, the failure to perform a validity analysis on the unpatented claims raises the possibility of a significant flaw in developing a valid Environmental Impact Statement to meet the Forest Service's legal responsibilities under NEPA.

Failure to evaluate the direct delivery of Central Arizona Project water as mine supply water.

Nowhere in the ADEIS is any consideration given to alternative water supply options other than the one selected, which is a recharge and recovery option. The option of direct use of Central Arizona Project (CAP) water by pipeline development to the mine site was not even considered in the water supply alternatives. We believe the pre-selection of the alternative without analysis of the alternative causes substantial and significant uncertainty with regard to water supply impacts from a number of affected property owners who face an uncertain future as to groundwater drawn-down effects associated with the irrational recharge and recovery scheme being offered as a suitable water supply source. To date, Rosemont Copper has not recharged any CAP water in the vicinity of their proposed groundwater withdrawal site. They have, instead, recharged water near the Town of Marana – nearly 36 miles and 800 feet lower than the Sahuarita wellfield site. How can such disconnected hydrologic recharge be considered a viable mitigation for excess groundwater pumping in the vicinity of Green Valley and Sahuarita? The ADEIS fails to accurately quantify the hydrological impact of groundwater use for mine operations.

Failure to meet national air quality standards.

Recently, it has been reported in the media that Rosemont intends to sue Pima County due to our failure to issue an air quality permit within the timeframes they believe reasonable. These timeframes are inappropriate and do not follow County Code. Rosemont, in their argument, invokes the Clean Air Act and the State Implementation Plan. It is our belief that based on the emissions reported by Rosemont, they will be in violation of National Ambient Air Quality Standards and their requirements as the State Implementation Plan requires air quality compliance at the property line or, in this case, the Mine Plan of Operations boundary or interface between lands utilized for mining purposes and federal lands. Hence, the ADEIS does not address the issue of possible, continuing and long-term violations of National Ambient Air Quality Standards, a serious omission in the document.

Failure to consider the negative economic impacts to important growth industries in southern Arizona.

No consideration is given to the impacts to existing investment, employment and planned expansion of facilities and research in astronomy, planetary sciences and space sciences. Existing investment in Arizona has expanded to approximately \$1.2 billion, with additional capital investment planned or underway. The total annual economic impact of research in astronomy, planetary sciences and space sciences in Arizona is estimated at more than \$250 million. Increased light pollution and particulate matter from the mine will negatively impact “dark skies” viewing clarity and the ability to conduct research. Damage to this

Mr. Jim Upchurch
Re: ADEIS for the Proposed Rosemont Mine
June 30, 2011
Page 7

significant industry and the resultant loss of jobs and investment in the region cannot be ignored.

Failure to disclose transportation system costs to the taxpayer for impacts on public infrastructure as well as transportation safety impacts.

The ADEIS fails to adequately analyze or discuss the impacts on public infrastructure such as roads. The amount and distribution of passenger, as well as heavy truck traffic on a rural highway system will have significant adverse safety impacts. The ADEIS fails to adequately quantify these impacts. Excessive weight wheel loadings on the flexible pavements will occur as heavy copper concentrate loads and/or refined electrode copper are transported for further shipping. These excessive weight loads are quite problematic in pavement design, and a few heavy wheel load repetitions are equivalent to thousands of normal passenger vehicles.

The ADEIS fails to undertake an appropriate flexible pavement adequacy analysis should be undertaken regarding the weight wheel loading that will be anticipated during the life of the mine and the transport of heavy products – not only for shipping from the mining site in the form of copper concentrate or electrode copper but also the transport of heavy equipment and other heavy truck wheel loading from supplies and materials for the mining operation, such as acid transport to the copper oxide leaching site, has not been considered in the ADEIS. These excessive and heavy wheel loads are anticipated to create significant additional pavement stress and require appropriate reconstruction of the flexible pavement structural section for roadways over which the loads will travel.

Failure to disclose and mitigate the costs of such activities will result in saddling the taxpayers with costs that should be borne by Rosemont.

Failure to seriously consider the irretrievable and irreversible impacts to the Tohono O’odham and other Native American and traditional communities.

Cultural resources, including traditional cultural places, are nonrenewable resources for which there may be no adequate mitigation to offset their irretrievable and irreversible loss. Whether currently listed or determined eligible for listing in the National Register of Historic Places, such properties are often critical to the continuity of living cultures as expressed in their traditions, beliefs, practices, lifeways, arts, crafts and social institutions.

The proposed mine will destroy archaeological sites ancestral to the Tohono O’odham, and it will adversely affect and diminish the integrity of *Ce:wi Duag*, a traditional cultural place where archaeological sites, natural resources, natural landforms and viewsheds comprise a

Mr. Jim Upchurch
Re: ADEIS for the Proposed Rosemont Mine
June 30, 2011
Page 8

cultural landscape imbued with cultural meaning and value that is vital to the identity of the Tohono O'odham.

While the ADEIS acknowledges the "massive movement of rock and soil will irrevocably alter those landscapes...", the impacts to the Tohono O'odham people and culture that would result from the destruction of the integrity of *Ce:wi Duag* is not addressed. To not address these social and cultural impacts is disrespectful and dismissive of Tohono O'odham concerns and the vital significance of this traditional cultural place.

Failure to seriously consider the No Action Alternative.

Again, the lack of discussion and analysis of the impacts of burying supposedly valuable minerals under wastepiles leads to questions of whether Rosemont's unpatented lode claims are in fact valid. If an examination was conducted and if such claims were found to be invalid, the Forest Service would clearly have the discretion to select the No Action Alternative. Failure to undertake such a discretionary examination is a serious flaw in the ADEIS.

The issues raised in this letter reflect merely a fraction of the significant concerns of Pima County expert staff found throughout the ADEIS. In reviewing staff's 43 pages of comments, I find them to be numerous, detailed and well founded. These comments were prepared by staff that have significant expertise in the areas they commented upon; and their names, job titles, experience and relevant degrees are included to support their level of expertise.

Neither your agency nor the public will be well served if the Public Draft fails to address all of the serious errors and omissions in this ADEIS. Failure to address these issues in the Public Draft would likely result in the need for considerable additional research and analysis after the public comment period. We look forward to seeing a much improved Public Draft.

Finally, we believe it is important to restate our position on this proposed action. First, Pima County opposes the proposed Rosemont Mine. Second, we believe the Forest Service does have the ability to accept the No Action Alternative. Finally, if the Forest Service believes it is legally compelled to approve the proposed action, we request that such approval be conditioned, at a minimum, upon the following:

- Mitigation that includes complete filling of the pit and reestablishing the natural land form upon mine closure.
- Conservation of at least 8,800 acres of equivalent biological productivity and ecological value.
- Direct use of CAP water as mine supply water.

Mr. Jim Upchurch
Re: ADEIS for the Proposed Rosemont Mine
June 30, 2011
Page 9

- Avoidance and minimization of impacts to historic and cultural properties.
- Meaningful mitigation, if possible, of cultural and social impacts to the Tohono O'odham people and other traditional communities.
- Full mitigation of all historic and cultural impacts.
- Significant improvement of the transportation system to ensure the safety and convenience of public highway users.
- Significant and accessible financial resources to contain and remediate any air or water pollution.
- Mitigation of ambient air and visibility impacts through imposition of control requirements on fugitive and point source emissions.

Thank you for your consideration of our concerns.

Sincerely,



C.H. Huckelberry
County Administrator

CHH/mjk

Attachments

- c: The Honorable Chairman and Members, Pima County Board of Supervisors
Melinda Roth, Forest Service Coordinator, Coronado National Forest
Corbin Newman, Regional Forester, US Forest Service
Marjorie Blaine, Senior Project Manager, US Army Corps of Engineers
Larry Voyles, Director, Arizona Game and Fish Department
Nicole Fyffe, Executive Assistant to the County Administrator
Priscilla Cornelio, Director, Transportation
Carmine DeBonis, Jr., Director, Development Services
Ursula Kramer, Director, Environmental Quality
Linda Mayro, Director, Science and Conservation, Cultural Resources and Sustainability Office
Suzanne Shields, Director, Regional Flood Control District
Ben Goff, Deputy Director, Transportation
Julia Fonseca, Environmental Planning Manager, Science and Conservation, Cultural Resources and Sustainability Office
Kathy Chavez, Water Policy Manager, Regional Wastewater Reclamation

EXISTING MINE RECLAMATION IN PIMA COUNTY



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**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

Instructions:

1. Provide review comments, with reasonable basis, addressing technical accuracy and conformance with laws, regulations, and policies within your agency’s jurisdiction.¹ If your review confirms technical accuracy and conformance within your agency’s jurisdiction, please indicate such. Complete all fields and do not alter the format of this form.
2. Provide review comments, with reasonable basis, consisting of recommendations for improvement of materials where they are found to be incomplete, inadequate, or inaccurate within your agency’s jurisdiction. If your review confirms materials are complete, adequate, or accurate within your agency’s jurisdiction, please indicate such. Complete all fields and do not alter the format of this form.

Comment Location (Chapter/Section/Page/Line)	Jurisdiction Citation	Comment / Rationale / Basis
Cultural Resources	<p>Linda Mayro, Director Office of Sustainability and Conservation Loy Neff Program Manager Office of Sustainability and Conservation Co-manager, Cultural Resources and Historic Preservation Division</p>	<p>Responsible for overseeing cultural resources compliance for County private sector development review and other permitting, as well as external agency/jurisdiction compliance issues. Participated in the County’s Rosemont review team from its inception, representing the Office of Cultural Resources and Historic Preservation. First involvement with Rosemont was review and comment of the proposed Mine Plan of Operations, 9/26/2006.</p>
<p>Chapt.2/Permits/Table 2/page 9-10</p>	<p>Pima Co. R-O-W Use Permit CR Approval on County land Cultural Resources: Arizona Antiquities Act, Cultural Resources BOS Policy</p>	<p>A permit to use or enter Pima County lands or right of way for mine utilities or other purposes was not cited. Cultural resource inventory, evaluation, and treatment/ mitigation are required for right of way use permit to be issued. All cultural resources survey, evaluation and treatment including mitigation or data recovery on County land or right-of-way must be done according to a plan approved by the County and State and will require issuance of an Arizona Antiquities Permit from the Arizona State Museum per State statute.</p>

¹ Jurisdiction by law means agency authority to approve, veto, or finance all or part of the proposal (40 CFR 1508.15).

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Development Services Department</p>	<p>Sherry Ruther Environmental Planning Manager Master of Science-Renewable Natural Resources and Natural Resource Public Policy BS in Wildlife Biology</p>	<p>Appointed by DSD Director to be department's representative because of expertise in natural resources conservation and management as well as DSD regulatory authorities established in Pima County Zoning Code. Provided review and comment on Scoping and Mining Plan of Operation (2006).</p>
<p>ES-3; Lines 15-23 Ch. 2; Table 2; Pg 10 Ch. 2; Pg 18; Lines 38-42 Ch. 2; Pg 19; Lines 1-8 Ch.2 Utility Lines Alignment Altvs</p>	<p>Pima County Zoning Code 18.07.040.B.5.</p>	<p>Fails to include requirement for Pima County Substation Permit re: Rosemont Substation. All substations with input of 115kV or greater are required to obtain Board of Supervisors' issuance of a substation permit. Requires a public hearing.</p>
<p>Ch. 2; Pg 19; Line 8</p>	<p>Pima County Zoning Code 18.07.040.B.5.h.</p>	<p>DEIS states lines and poles will be removed as part of mine closure; If there is no power input or delivery mechanism to the substation, what happens to the substation? This necessary information is missing entirely. Incorporate substation closure plans into Mine Reclamation & Closure.</p>
<p>Department of Transportation</p>	<p>Benjamin H. Goff, P.E. Deputy Director B.S. College of Engineering Registered Professional Engineer</p>	<p>Over thirty years of experience preparing or reviewing traffic forecasts, traffic impact analysis, traffic safety reviews, roadway improvement project development, public transit service plans and budgets, and bikeway improvement plans within Pima County. Co-authored NEPA environmental documents related to roadway projects including: Kolb Corridor, Draft and Final EIS Palo Verde Corridor, Draft and Final EIS Campbell Corridor, Draft and Final EIS Kino Parkway Noise Analysis Report (principal author) River Road – La Cholla to Thornydale Section 4f Mitigation Report (principal author)</p>
<p>Executive Summary / Summary of the Proposed Action / ES-3 / Line 38-43</p>	<p>Arizona Revised Statutes § 11-251 Powers of the board -4. "... control and manage public roads...within the county.." § 11-562 Duties – B. "...the county engineer shall, under the direction of the board, have charge of all highways..." § 28-626 B. A local authority: "3. Shall adopt ordinances or regulations relating to the control and</p>	<p>Subject discussion of mine related traffic is limited to State Route 83 - Sonoita Highway only (a major shortcoming throughout the DEIS). What about other public roads such as Santa Rita Road and Sahuarita Road? County has jurisdiction over some of these. Discussion lacks quantification. Quantitative description only addresses total truck traffic <u>to</u> the site during construction period, not the equal number of trucks leaving the site after delivery, nor does it reflect the true magnitude of truck traffic generated by mine operation. The reference to 2 trucks per day grossly understates the number of trucks reported elsewhere in the document (see Transportation/Access, pg 16 lines 13-19). The 2 trucks per day statement itself assumes unrealistically uniform demand during the construction period. The discussion of construction related employment shows a range from 100 people to 900 people on-site (see Transportation/Access, pg 16, lines 6 – 12). Construction truck traffic to the site can be expected to follow a similar pattern.</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

	movement of traffic..."	
Executive Summary / Summary of the Proposed Action / Noise / ES-11 / Line11-12	Ditto	The discussion of noise is restricted to "nearby residents". The affected populations for traffic noise are those residents and activities in proximity (nearby) to the mine access routes, which may be many miles from the mine site. For a single example, there are approximately 100 residential lots within one-quarter mile of Sonoita Highway along the first .8 miles south of I-10. There is no assessment of traffic noise impacts on these affected populations.
Executive Summary / Summary of the Proposed Action / Public Health and Safety/ ES-11 / Line 14-16	Ditto	The statement "The proposed action would result in traffic increases up to 200 percent ..." is not supported by the traffic volume discussion (see Transportation/Access, pg 13, lines 7 & 14). If this statement is correct, then the reported 2008 AADT of 2,767 (Table 3.3) will be in excess of 8,000 vehicles per day. Also, the statement "200 per cent" by itself does not convey the magnitude of impact without reference to the base value subject to increase.
Executive Summary / Summary of the Proposed Action / Public Health and Safety/ ES-11 / Line 15	Ditto	The statement "The proposed action would result in traffic increases up to 200 percent by the end of mine life, with a corresponding decrease in traffic safety" does not convey the magnitude of the increase in traffic hazard. This is addressed in significantly more detail under Chapter 3, Public Health and Safety, page 9, lines 7 – 12. The quantified increase is 10 to 30 more traffic crashes per year with two additional fatal incidents every three years. This is a non-trivial effect. There is no discussion of possible safety impacts on County or Town of Sahuartia roadways --only State Route 83 – Sonoita Highway.
Executive Summary / Summary of the Proposed Action / Public Health and Safety/ ES-11 / Line 20-23	Ditto	The statements beginning "An accident during transportation..." provide an affect radius of 0.5 to 1.0 miles. Any event of the type described on a highway will close the road. The effect will propagate back to the available detour routes. The magnitude of a diversion will depend on the duration and the location of event on the highway. For example, in the case of an event on Sonoita Highway north of the proposed mine entrance; the detour routes are south on S.R. 83 to S.R. 82 (Sonoita) , to S.R. 90, to I-10 (Benson), or south on S.R. 83 to S.R. 82, to I-19 (Nogales), to I-10 (Tucson). Either route entails a distance in excess of 50 miles. An event or crash at the S. R. 83 / I-10 interchange could potentially propagate over several states.
Executive Summary / Summary of the Proposed Action /Transportation/ Access/ ES-12 / Line25-26	Ditto	The statement "The proposed action would result in increased traffic, which would decrease the level of service of existing roadways..." does not convey the extent of the impacts. While not addressed in this section, the quantitative discussion of impacts to level of service elsewhere in the document is limited to State Route 83 - Sonoita Highway only. There is no discussion of impacts on the identified secondary access route, Santa Rita Road, or on the one mentioned ancillary route, Sahuarita Road. Both of these roads are under the jurisdiction of Pima County.
Executive Summary / Summary of the Proposed	Ditto	The discussion of scenic quality impacts is quantified for State Route 83 – Sonoita Highway only for the proposed action and for several alternatives. Are there no impacts to other area roadways

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

Action /Visual Resources/ ES-13 / Line 1		outside the Forest, such as Sahuarita Road?
Chapter2 / General Overview of Required Permits /page 8 / Line23	<p>Arizona Revised Statutes § 11-251 Powers of the board -4. "... control and manage public roads...within the county.." § 11-562 Duties – B. "...the county engineer shall, under the direction of the board, have charge of all highways..." § 28-626 B. A local authority: "3. Shall adopt ordinances or regulations relating to the control and movement of traffic..." § 28-1103 Excess size and weight – A. "...a local authority ...may issue a special permit in writing authorizing the applicant to operate or move a vehicle or combination of vehicles of a size or weight of vehicle or load exceeding the maximum specified in this article..."</p>	<p>Reference and additions to Table 2:</p> <ol style="list-style-type: none"> 1. Pima County has the authority to require a permit to move oversize or overweight vehicles on highways under its jurisdiction. This applies to Kolb Road and Valencia Road in the vicinity of the Port of Tucson where the DEIS has stated railroad traffic to or from the Rosemont project will be transhipped to truck, among others. There is a formal application and fee for these permits (ref. Pima County Code Chapter 10.36). 2. Pima County has the authority to require a permit for any construction within roadway right-of-way under the authority of Pima County. This applies to Santa Rita Road, the identified secondary access to the Rosemont project, and any other so affected county road. Construction includes the activities of utilities (ref. Pima County Code Chapter 10.44)
Chapter3 / Transportation/Access /page 1 /Line 6 -7	Ditto	The document describes Santa Rita Road, a Pima County maintained unpaved road from Sahuarita to Helvetia, as the secondary access to the project site. There is no quantified discussion of impacts to this road anywhere in the pertinent sections of the document.
Chapter3 / Transportation/Access /page 2 / Line14 - 16	Ditto	"The analysis area for transportation / access encompasses a 2-mile buffer surrounding the proposed mine..." Roadway travel by its nature is widespread and diffuse, within the constraints of available routes. A 2 mile radius is insufficient to effectively capture the routes that will be impacted by traffic generated by the mine construction and operations. The proposed primary access to the mine connects to State Route 83 – Sonoita Highway approximately one-half mile south of Hidden Springs Road, a named easement (see Figure 3.4). All traffic to or from the mine oriented to the north must travel 8.5 miles to the first tributary route opportunity, Sahuarita Road, a county-maintained arterial roadway that extends west to the Town of Sahuarita and I-19. The next significant connection is at I-10, 11.8 miles north of the proposed access road. All traffic on S.R. 83 at the two mile buffer limit continues for at least another 6.5 miles. A similar analysis can be performed for traffic to and from the south. The use of a 2 mile buffer in the context of traffic effects and impacts appears contrary to NEPA policy (42 USC § 4331) on its face.

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

Chapter3 / Transportation/Access /page 4 /Line 42 -44	Ditto	Sahuarita Road, a Pima County-maintained paved roadway, is classified as a Rural Principal Arterial under USDOT / FHWA criteria. While it is mentioned by name in the DEIS, there is no quantitative discussion of potential usage or impacts from traffic generated by the proposed project.
Chapter3 / Transportation/Access /page 9 / Line 6 - 7	Ditto	Traffic data was collected in 2008 for S.R. 83 and the connections to I-10. The summary of data contained in Table 3.2 includes road segments well outside the 2 mile buffer zone. It is inconsistent treatment for other roadways that will carry project traffic, i.e. no quantitative discussion.
Chapter3 / Transportation/Access /page 9 / Line 12 – 13, 15 - 18	Ditto	Traffic vehicle counts are described as being collected for <u>one</u> weekday and <u>one</u> weekend (line 13), then in the subsequent paragraph data collection is described as being collected in each of three months, to capture off-peak and peak season travel. Are these two different data collection efforts and which collection period is actually summarized in Table 3.2?
Chapter3 / Transportation/Access /page 9 / Line 11	<p><u>Arizona Revised Statutes</u> § 11-251 Powers of the board -4. "... control and manage public roads...within the county.." § 11-562 Duties – B. "...the county engineer shall, under the direction of the board, have charge of all highways..." § 28-626 B. A local authority: "3. Shall adopt ordinances or regulations relating to the control and movement of traffic..."</p>	<p>"The analysis area included seven intersections and two roadway segments..." The data summary in Table 3.2 does list seven intersections. However, only the traffic on S.R. 83 is indicated; there is no data for the intersecting roadways. Therefore the statement regarding intersections is misleading as in essence the table is a list of segments. Furthermore, there is no discussion in the rest of this section or elsewhere in the document regarding traffic volume changes or level of service at these intersections. The table is irrelevant to the subsequent analysis.</p>
Chapter3 / Transportation/Access /page 10 / Line 1 – 13	Ditto	<p>The subject section of the document is a discussion and presentation of annual average daily traffic (AADT) for the period 2006 – 2008 as collected and presented by ADOT. The case is well made that this data is comprehensive and statistically sound. The data are shown as applicable to two roadway segments, defined by ADOT milepost references. However, none of the Figures in this section of the document show these locations, nor are they described. Given the statistical strength of these data, no attempt is made to use this to characterize the representativeness of the short term counts described on page 9. Furthermore, the heavy truck component of the ADOT data is stated as 4 percent of the daily volume (line 12). The short period count data presented on page 9, line 20 states that the heavy-duty component of the traffic is 6 to 12 per cent. This is a difference of 50 to 200 per cent. An accurate presentation of the heavy truck component is critical to subsequent discussions of the comparative increase in heavy trucks generated by the proposed project both during construction and operations. Heavy trucks are a key component of level of service, highway safety and traffic noise analysis.</p>
Chapter3 /	Ditto	The discussion of roadway capacity and level of service is presented for two segments of State

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Transportation/Access /page 10 / Line 16 – 17, 25 - 29</p>		<p>Route 83 – Sonoita Highway; I-10 to Hidden Valley [sic] Road and Hidden Valley Road to Greaterville Road. The reference to Hidden Valley Road is most likely to Hidden Springs Road. The segments are discussed, but no quantitative data is presented in a form that corresponds to the segments as defined. Level of service definition on two-lane rural roads is based on the extent travel is impeded, compared to a free flow condition, and uses percent time-spent-following and travel speed as the objective quantified criteria (ref. <i>Highway Capacity Manual 2000</i>, Transportation Research Board). The document makes no mention of how or if these measures are applied. Further, the Manual states "...all grades of 3 percent or more with a length of 0.6 mi or more must be analyzed as specific upgrades or downgrades" (page 20-1, <i>Highway Capacity Manual 2000</i>). State Route 83 in the vicinity of Greaterville road meets the conditions of this restriction but there is no indication that such an analysis was made. There is no discussion of how the variations in conditions along the segments were averaged into a single value applicable to miles of roadway.</p>
<p>Chapter3 / Transportation/Access /page 11 / Line 1 - 27</p>	<p>Ditto</p>	<p>The document describes Commercial Transportation (interstate bus, air and railroads) and Public Transportation (limited to school bus service as no other scheduled public busses travel S.R. 83 at this time), but says nothing about bicyclists and pedestrians which are legal modes on S.R. 83 and all other public roadways except the controlled access portions of I-10. Bicyclists are common on State Route 83 - Sonoita Highway and present special issues for level of service (overtaking and passing) and safety.</p>
<p>Chapter3 / Transportation/Access /page 12 / Line 1 - 3</p>	<p>Ditto</p>	<p>The document states that school busses must stop within the travel lanes of State Route 83 – Sonoita Highway during student loading and unloading (also common on all of the other local public roads which will experience increased traffic). The document does not address how this operation will affect level of service under increased mine traffic or how these interruptions in traffic flow may impact safety with the increased number of heavy trucks traveling to and from the mine site.</p>
<p>Chapter3 / Transportation/Access /page 13 /Line 1 - 2</p>	<p>Ditto</p>	<p>Under discussion of impacts on level of service under all action alternatives, the document presents results (Tables 3.6 and 3.7) "...for State Route 83 only." There is no discussion of impacts on roadways under the jurisdiction of Pima County (Sahuarita Road, Santa Rita Road, Kolb and Valencia Roads adjacent to the Port of Tucson, for specific examples) which will have increased traffic, especially heavy trucks, due to Rosemont mine construction and operations.</p>
<p>Chapter3 / Transportation/Access /page 13 /Line 7 - 22</p>	<p>Ditto</p>	<p>These two paragraphs are the heart of the quantified analysis and presentation of traffic volume impacts created by the Rosemont mine, yet they are almost devoid of any actual traffic numbers. The values that are presented are nonsensical in this context:</p> <ol style="list-style-type: none"> 1. "This assumes a partial carpooling scenario in which 25 percent of employees would not carpool and would each generate a single trip, while 75 percent of employees carpool, resulting in a total of 183 trips per day." The DEIS says there will be 450 annual average workers during the course of the 20 year mine operating life (Chapter 3 / Socioeconomics

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

		<p>and Environmental Justice / page 43 / line 28). If 25 percent are in single occupant vehicles that accounts for 113 of the 183 daily trips. That means that the average carpool has more than 4.8 occupants, which is not supported by any observed behavior. Also, this number only represents travel to the site; the return trip is not accounted for.</p> <ol style="list-style-type: none"> 2. The discussion relates these traffic volumes to future level of service (although that is not appropriate for LOS determinations on two-lane roadways as discussed previously), yet it does not appear that the analysis includes the effect of trucks or other heavy vehicles which are discussed elsewhere. 3. "As shown in table 3.8, during non-peak season, there would primarily be a level of service D during the weekday, which is likely attributed to an overall population growth in the region plus mine traffic". The DEIS states that in year 5 of operations the mine will account for 57.2 percent of traffic on State Route 83 (line 7). This is well over half of the traffic on the roadway. The DEIS further states that during year 20 of operations the mine will account for 47.8 percent of the traffic, almost half. Since the total daily mine traffic will be constant over the 15 year period, the growth in traffic without the mine is only 19.7 percent. Clearly reducing the total forecast traffic by half (the mine impact) will not degrade the level of service to D (using the document's own, flawed, approach). 4. "During peak season, as shown in table 3.9, the level of service would remain at C..." According to the existing level of service analysis presented in tables 3.4 and 3.5, the P.M. peak hour level of service is lower (C v. B) during the peak season. How can the level of service be higher in the peak season than the non-peak in year 20 of operations? If the table represents a true result, what analysis and assumptions support this finding? 5. "Compared to existing conditions, there would be direct, adverse impacts to those traveling on State Route 83". This statement is true for all action alternatives. There is no discussion in the DEIS of any potential action by the project sponsor that could mitigate the adverse impacts; like for example the construction of truck climbing lanes on the upgrades of S.R. 83.
<p>Chapter3 / Transportation/Access /page 14 / Line 19 - 24</p>	<p>Ditto plus Pima County Code Section 10.44.020, Right-of-Way Permit</p>	<p>The DEIS says that a secondary access will be constructed to the west, connecting the mine site to Santa Rita Road in the vicinity of Helvetia. Santa Rita Road is under the jurisdiction of Pima County. It is presumed that the proposed connection will be in the vicinity of Rosemont parcels that currently about the road right-of-way (parcel tax code numbers 305-570-04D and 305-570-05B). The connection will require a Right-of Way Permit . A similar permit or permits will be required for any utility facilities that are located within the Santa Rita Road right-of-way.</p>
<p>Chapter3 / Transportation/Access /page 16 /line 6 – 10</p>	<p>Ditto</p>	<p>The document says that during construction of the mine as many as 900 workers will be bussed to the site (26 busses) from staging areas along I-10 or in Sonoita. Where will these "staging areas" (parking lots) be located, will they involve permitting (ADOT, local jurisdictions), and will they disturb new ground not accounted for in the DEIS? Construction will occur in one shift (line 6); what will be</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

		the impacts on State Route 83 traffic and level of service from the platoons of buses headed to the mine at about the same time? If the buses leave the project site after delivering workers there will be up to 104 additional bus trips per day on S.R. 83. at the height of the construction activity. This is not addressed in the DEIS.
Chapter3 / Transportation/Access /page 16 / Line 10 - 12	Ditto	The document estimates that the construction of the mine will entail 1,000 truck shipments of equipment and materials to the site during the course of the 18 month construction period (plus the 1,000 empty trucks leaving the site). This activity will follow the same pattern as the level of construction employment at the site. What is the actual estimated peak daily truck trip generation and how will it impact traffic safety and level of service on State Route 83 (in addition to the 104 busses)? This is not addressed in the DEIS.
Chapter3 / Transportation/Access /page 16 /Line 13 - 19	Ditto	The document provides an estimate of heavy truck traffic generation during the 20 year mine production life. 88 roundtrips (176 one-way daily trips) will have a greater impact on level of service on State Route 83 and other affected roadways than the simple number would indicate. The DEIS does not address how the effects of heavy vehicles in the traffic stream are taken into account in the estimation of level of service impacts.
Chapter3 / Transportation/Access /page 16 / Line 35 - 36	Ditto	The document says "Portions of the primary and secondary access roads will be closed..but may be open to the public after closure". This is an apparent conflict with page 17, lines 38 – 40 which says that "forest service roads throughout the project area will never be able to be rebuilt". Are these two statements applicable to different roads? If so, which ones?
Department of Environmental Quality	Ursula Kramer Director, Pima County Department of Environmental Quality B.S. Civil Engineering	Involved in air quality regulatory issues for more than 25 years. Oversees all air quality permitting for projects within Pima County.
Chapter 2/ Permits an Permit Processing/ pg 11/line21	ARS 49-402 40 CFR 52.120	The report inaccurately identifies PDEQ's authority as coming from ADEQ. PDEQ has original jurisdiction to issue air quality permits in Pima County pursuant to state law.
Chapter 2/ Design Elements and Mitigation Measures Common to the Proposed Action and Action Alternative/ pg 22/line38	ARS 49-480 PCC 17.12.185 PCC 17.16.050 PCC 17.16.060 PCC 17.16.070 40 CFR 51.120	The report inaccurately states that the air quality permit will specify speed limits within the project area so that dust will not be produced. The permit will require that Rosemont stabilize all roads so that winds do not produce dust and all vehicles must be operated in a manner so that excessive amounts are not produced.
Chapter 2/Resource Protection Plans Common to the Proposed Actions and Action Alternatives/ pg 31/line	ARS 49-402 PCC Title 17 40 CFR 52.120 40 CFR 60.4	The report inaccurately states that PDEQ receives delegated authority from ADEQ. PDEQ has original jurisdiction pursuant to state law and receives delegated authority from EPA to implement and enforce applicable federal air quality standards.

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

12	40 CFR 63.99 66 FR 63175 59 FR 26129	
Chapter 3/ Air Quality Affected Environment/ pg7/ Table 3.2	ARS 49-402 40 CFR 52.120	The report inaccurately states that ADEQ has CAA authority within Pima County. While ADEQ has limited authority for some sources in Pima County, PDEQ has original jurisdiction pursuant to state law and receives delegated authority from EPA to implement and enforce applicable federal air quality standards
Chapter 3/ Air Quality Affected Environment/ pg 9/ Line 12	ARS Chapter 3 Article 3 PCC Title 17 Chapter 7.08	The report inaccurately states that AAC Title 18 Article 2 establishes the NAAQs in Pima County when in fact it is PCC Title 17 Chapter 17.08
Chapter 3/ Air Quality Mitigation Effectiveness and Remaining Effects/ pg 25/ Line 23	ARS Chapter 3 Article 3 PCC 17.12.185 PCC 17.12.190 PCC Title 17 Chapter 16 40 CFR 51.120	The report states that Rosemont is committed to using voluntary measures to minimize emissions and their impacts when in fact some of the listed items are required under federal and local regulations.
Chapter 3/ Air Quality Mitigation Effectiveness and Remaining Effects/ pg 25/ Line 25	ARS Chapter 3 Article 3 PCC 17.12.185 PCC 17.12.190 PCC Title 17 Chapter 16 40 CFR Part 60 Subpart LL	The report states that point source pollution control equipment will be used on all significant emission sources as a voluntary measures when in fact the use of the control are mandatory to meet federal air quality standards
Chapter 3/ Air Quality Mitigation Effectiveness and Remaining Effects/ pg 25/ Line 29	ARS Chapter 3 Article 3 PCC 17.12.185 PCC 17.12.190	The report states that Rosemont has committed to emission limits that are lower than federal standards. While Rosemont may propose such standards be included in their air quality permit, once issued, the standards will be mandatory and Rosemont may face enforcement actions such as fines and even permit termination for failing to comply with the standards in the permit.
Chapter 3/ Air Quality Mitigation Effectiveness and Remaining Effects/ pg 26/ Line 1	ARS 49-480 PCC 17.12.185 PCC 17.16.050 PCC 17.16.060 PCC 17.16.070 40 CFR 51.120	The report states Rosemont is voluntarily committing to use dust control on access, haul, and maintenance roads during construction, operation, and closure periods when such dust control measures are mandatory.
Regional Flood Control District	Evan Canfield Chief Hydrologist PhD in Agricultural Engineering, Minor Hydrology; MS and BS Geology	Canfield: Involved with Rosemont review since 2006. Reviewed Surface Water Hydrology report and APP permit report. Over 25 years experience working in hydrology and water resources, the last 15 in Pima County. Arizona Professional Civil Engineer with specialty in water resources. ASFPM Certified Floodplain Manager. Extensive experiences in hydrologic modeling, analysis and reviewing hydrology and hydraulic studies. Familiar with the Pima County Title 16, Floodplain and

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Chapter 2, P. 8 Line 23 & Chapter 3, p 5 Line 2 - Permitting</p>	<p>Akitso Kimoto Principal Hydrologist PhD Agricultural Science Frank Postillion Chief Hydrologist, Section Manager, Water Resources MS, Watershed Management and Hydrology Tom Myers Hydrologic Consultant PhD Hydrology/Hydrogeology</p> <p>Pima County Code (PCC)16.04.020, 16.12.020,</p>	<p>Erosion Hazard Management Ordinance. Developed technical policies (hydrology, hydraulic) and guidance for the Pima County Regional Flood Control to be used in all hydrologic and hydraulic analysis for development in Pima County. Supervise the section of the Flood Control District that maps floodplains. Experience evaluating extreme hydrologic events such as the 2006 floods in Pima County and the flooding following the Los Alamos Fire.</p> <p>Kimoto: Review Hydrology sections of EIS and APP permit report. Extensive experiences in hydrologic modeling, analysis and reviewing hydrology and hydraulic studies. ASFPM Certified Floodplain Manager, Responsible for managing a floodplain mapping project in Pima County, Familiar with the Pima County Title 16, Floodplain and Erosion Hazard Management Ordinance, Experiences in reviewing applications for developments in regulated floodplain and riparian areas, Developed technical policies (hydrology, hydraulic) for the Pima County Regional Flood Control</p> <p>Postillion: Responsible for coordination of review for impacts to water supply, water resources, shallow groundwater for this projects (2006). 35 years of experience in water resource and water quality evaluations in the public and private sectors. Evaluated the effects of Tucson Copper Mining District copper mining and the effects tailing pond recharge on the ground-water quality of the Upper Santa Cruz Basin. His affiliation and management of the Upper Santa Cruz Basin Mines Task Force led to modeling and management recommendations to pump interceptor wells at a sufficient rate to contain the mineralized sulfate and TDS plumes, and to avoid contamination of public supply wells. Evaluated the effects of coal mining on the hydrology of Black Mesa in Northern Arizona.</p> <p>Myers: Preparation of a conceptual and numerical groundwater model for the Rosemont area Review of hydrology studies and ground model reports completed by Tetra Tech and Montgomery and Associates. Specializes in groundwater modeling, hydrogeology, environmental forensics, regulatory compliance, water rights, NEPA analysis, and environmental and water policy. He focuses on mining and water resource development issues, coal-bed methane development and groundwater contamination.</p> <p>Floodplain Use permitting must be added to Table 2-Permit for authorizations applying to the proposed Rosemont Copper Mine. In Chapter 3 of the DEIS, Rosemont recognizes the authority of RFCD to regulate flooding, erosion and riparian habitat for private land in Pima County. However, in Chapter 2, no permits are being requested from RFCD. According to statutes above Flood Control District has authority to</p> <ol style="list-style-type: none">1.) regulate floodplains on private land with discharges > 100 cfs.2.) regulate structures that divert, retard or obstruct flood water. <p>Furthermore, RFCD may not regulate tailings dams and waste disposal areas connected with mining.</p> <p>Since water is being diverted on private land, and Rosemont's surface hydrology model prepared by</p>
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**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

TetraTech indicates a 100-yr discharge exceeding 100cfs, all drainage on private land that is not tailings dams or waste disposal is subject to jurisdiction of RFCD and applicable permitting. The following should be added to Table 2.

Agency	Permit or Authorization	Purpose
Pima County Regional Flood Control	Floodplain Use Permit	Regulate floodplains on private land with discharges > 100 cfs (16.08.600) Regulate structures that divert, retard or obstruct flood water (16.12.020)

Private parcels on which structures are proposed to divert, retard or obstruct flood flow in the proposed alternative and for which Rosemont's hydrologic model indicates a 100-yr peak flow exceeding 100 cfs include, but are not limited to, Tax IDs:

- 30564008A
- 305640040
- 305640060
- 305640020
- 305640050
- 305640070
- 305640030
- 30562012C
- 30562012A

PCC 16.04.020 A (1)
Authority

PCC 16.08.600
Regulatory floodplain or floodprone area.

PCC 16.12.020 C
Review of plans-Uses authorized without permit.

Chapter 2, P. 8 Line 23 &
Chapter 3, p 5 Line 2 -
Permitting

We will need Rosemont to supply geo-referenced plans of the different alternatives. Please provide geo-referenced plans of the alternatives. Then we can more precisely identify which proposed activities occur on land where RFCD has jurisdiction.

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Chapter 3, p 3 Line 4 – Analysis Methodology, Assumptions, Uncertainty and Unknown Information</p>	<p>PCC 16.04.020 A (1) Authority</p> <p>PCC 16.08.600 Regulatory floodplain or floodprone area.</p>	<p>RFCD has guidance on implementing hydrologic investigation. Applicable Tech Polices include, but are not limited to,:</p> <p style="padding-left: 40px;">Tech 010 – Rainfall Input for Hydrologic Modeling Tech 015 – Acceptable Methods for Determining Peak Discharges Tech 018 – Acceptable Model Parameterization for Determining Peak Discharge</p> <p>Tech Policies 010, 015 and 018 have not been followed in the hydrologic investigation. Therefore, the hydrology results are not suitable to evaluate for permitting purposes.</p>
<p>Chapter 2, P. 36 Line 17 – Central Drain</p>	<p>PCC 16.04.020 A (1) Authority</p> <p>PCC 16.08.600 Regulatory floodplain or floodprone area.</p> <p>PCC 16.12.020 C Review of plans-Uses authorized without permit.</p>	<p>The Central drain is problematic in design and must be permitted through RFCD. The Central drain gathers the flow in Wasp Canyon and routes it through private land. On parcel 30564008A, Barrel and Wasp Canyons come together. The discharges in the existing conditions model prepared for Rosemont by Tetrattech are 1836 cfs (Wasp) and 1106 cfs (Barrel). While RFCD continues to have concerns about the hydrologic methods, there can be no doubt that the discharge will exceed 100 cfs and is therefore regulatory wash. Since the Central Drain is a feature that diverts water and is neither tailings dam nor waste disposal area, it is subject to jurisdiction by RFCD under 16.04.20 A(1). For this reason, the Central Drain should be permitted through RFCD.</p> <p>As described in the report by Westland (2010b), ‘However additional engineering and hydrologic evaluation of the central drain design indicated that long-term maintenance of the drain could be a concern.[p.2]’), experts doubt the effectiveness of the Central Drain, or the Flow Through Drain. Given that the drain must function in perpetuity, RFCD seeks documentation that such a design has been constructed and shown to be effective throughout the life of a mine and through closure as Rosemont is proposing here.</p>
<p>Chapter 3, P. 4 Line 6 – Summary of Effects by Alternative</p>	<p>PCC 16.26.050 Structures - Construction restrictions. A.</p>	<p>The proposed alternative does not provide the minimum obstruction to the flow of floodwaters as required by 16.26.50. In fact, the summary table documents that the proposed alternative has a greater impact on stormwater peak, flow volume, and impact on downstream users than all other alternatives.</p>
<p>Chapter 3, P. 3, Line 8 – Use of the 100-yr Storm as Extreme Event</p>	<p>PCC 16.26.055 Critical facilities. (A and C)</p>	<p>Given that the heap leach facility and other facilities will be handling toxic or reactive materials, they qualify as critical facilities and should be regulated to the 0.2 percent chance flood (500-yr) floodplain.</p>
<p>Executive Summary, P.12, Lines 11-18- Surface Water Quality</p>	<p>Title 16 of the Pima County Code (Ordinance NO. 2010-FC_5), 16.04.030</p>	<p>Rosemont recognized that “the proposed action would result in the loss of 494 acres of important riparian areas as defined by Pima County”. The ordinance codified in Title 16 of the Pima County Code (Ordinance NO. 2010-FC_5) regulates lands within the regulatory floodplain including riparian</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Chapter 2, P. 8 Line 23 & Chapter 3, p 5 Line 2 – Riparian Permitting</p>	<p>Pima County Ordinance NO. 2010-FC_5, 16.12.600, 16.12.020, 16.30.050</p>	<p>habitat and erosion hazard areas managed by the Pima County Flood Control District to preserve and enhance natural values and expressed resource management goals (16.04.030). This means that the project needs to be reviewed and approved by Pima County Regional Flood Control District.</p> <p>Riparian permitting should be added to Table 2-Permit for authorizations applying to the proposed Rosemont Copper Mine. In Chapter 3, P.5-6, Rosemont acknowledged that Pima County Regional Flood Control District regulates flood prone and erosion hazard areas and protects natural resources such as riparian habitat. However, in Chapter 2, Rosemont failed to include Pima County Regional Flood Control District as a regulatory agency. The following should be added to Table 2.</p> <table border="1" data-bbox="1033 631 1906 911"> <thead> <tr> <th>Agency</th> <th>Permit or Authorization</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>Pima County Regional Flood Control</td> <td>Mitigation Plan</td> <td>Required when more than 1/3 of an acre of regulated riparian habitat is disturbed (16.30.050)</td> </tr> <tr> <td>Pima County Regional Flood Control</td> <td>Board of Supervisor's approval</td> <td>Required for disturbance of Important Riparian Area (IRA) whenever more than 5% of a property's regulated riparian habitat is disturbed (16.30.050).</td> </tr> </tbody> </table> <p>Rosemont should add the following event: Pima County Regional Flood Control District will review Riparian Mitigation Plan required by Ordinance NO. 2010-FC_5.</p> <p>Private parcels which contain Important Riparian Area and would be affected by the project are:</p> <p>30565003D, E, F, 305600170, 30565003H, J, K, L, 30561007D, E, F, L, 30562034A, B, C, 30562012A, C, 305640030, 305640020, 305640040, 305640050, 305640060, 305640070, 30564008A, 30562008C, F, G, H, J.</p> <p>Daily job responsibilities include the review of regional water policy and water resource issues; evaluation of water resource impacts to county facilities. Involved in the CAP water issues in Green Valley.</p>	Agency	Permit or Authorization	Purpose	Pima County Regional Flood Control	Mitigation Plan	Required when more than 1/3 of an acre of regulated riparian habitat is disturbed (16.30.050)	Pima County Regional Flood Control	Board of Supervisor's approval	Required for disturbance of Important Riparian Area (IRA) whenever more than 5% of a property's regulated riparian habitat is disturbed (16.30.050).
Agency	Permit or Authorization	Purpose									
Pima County Regional Flood Control	Mitigation Plan	Required when more than 1/3 of an acre of regulated riparian habitat is disturbed (16.30.050)									
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<p>Chapter 2, P. 8 Line 23 & Chapter 3, p 5 Line 2 – Riparian Permitting</p>	<p>Pima County Ordinance NO. 2010-FC_5, 16.04.030</p>	<p>The DEIS states that groundwater levels at the water supply well field in the Santa Cruz Valley would decrease and the specific impacts are not known. Further the drawdown is estimated at 3-4</p>									
<p>Regional Wastewater Reclamation Department</p>	<p>Kathleen M. Chavez, P.E. Water Policy Manager BS Civil Engineering</p>	<p>The DEIS states that groundwater levels at the water supply well field in the Santa Cruz Valley would decrease and the specific impacts are not known. Further the drawdown is estimated at 3-4</p>									
<p>Exec Summary, page ES-9, lines 12-31</p>	<p>Pima County Board of Supervisors Policy 50.1</p>	<p>The DEIS states that groundwater levels at the water supply well field in the Santa Cruz Valley would decrease and the specific impacts are not known. Further the drawdown is estimated at 3-4</p>									

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

	<p>http://www.pima.gov/cob/policy/F50-1.pdf</p> <p><i>All departments and units of Pima County Government shall comply with applicable environmental laws, statutes, regulations, rules and guide lines promulgated by Federal, State and Local law in a consistent, uniform and timely basis.</i></p>	<p>miles from the well field. Pima County has three sites that have wells that could be impacted by Rosemont's pumping:</p> <ul style="list-style-type: none"> • RWRD owns 2 non-exempt groundwater monitoring wells at the Green Valley WRF. These wells are used for aquifer protection permit compliance purposes. Declines in water levels could require Pima County to replace the wells at significant cost • PCDEQ owns one non-exempt wells and two exempt monitoring wells at the Sahuarita Landfill. The monitoring wells are used for aquifer protection permit compliance purposes and for dust control • NRPR owns a well that provides irrigation water to the Sahuarita District Park and adjacent Edge Charter High School playing fields. Declines in the water levels could require Pima County to replace the well at significant cost and there will be increased pumping costs due to the additional lift required by dropping the groundwater level • Declines in water levels could require Pima County to replace the wells at significant cost and there will be increased pumping costs due to the additional lift required by dropping the groundwater level <p>The executive summary says the specific impacts of the Rosemont wells are not known. Additional analysis should be requested to determine if Pima County wells will be impacted. If there are impacts, Rosemont should be required to mitigate the impacts so Pima County can continue to provide irrigation water to the park and compliance data to ADEQ</p>
<p>Chapter 2, pages 9-10, Table 2, Permits</p>	<p>ARS 49-107.A</p> <p>http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/49/00107.htm&Title=49&DocType=ARS</p> <p><i>The director may delegate to a local environmental agency, county health department, public health services district or municipality any functions, powers or duties which the director believes can be competently, efficiently and properly performed by the local agency if the local agency accepts the delegation and agrees to perform the delegated functions,</i></p>	<p>The Pima County permits missing from the DEIS Table 2 include hazardous waste management and drinking water system registration. Water storage permits (to store CAP water) from ADWR are also omitted.</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

	<p><i>powers and duties according to the standards of performance required by law and prescribed by the director.</i></p>	
<p>Chapter 2, page 52. lines 7-13</p>	<p>Administrative Procedure 54-2</p> <p>http://www.pima.gov/cmo/procedures/5402realprop.pdf</p> <p><i>This procedure for acquisition of real property has been adopted to ensure a consistent approach to the negotiation and acquisition of real property by Pima County. This procedure will apply to all acquisition of an interest in vacant or improved real property, whether in fee or in easement.</i></p>	<p>Two water line alignments are proposed; however, on page 16, Figure 6, the proposed alignments are not clearly depicted especially from the two well field sites. It appears portions of the alignments are on Pima County right-of-way and will require easements from the County.</p>
<p>Chapter 3-Groundwater Quantity, Page 4, lines 16-21</p>	<p>Pima County Board of Supervisors Policy 50.1</p> <p>http://www.pima.gov/cob/policy/F50-1.pdf</p> <p><i>All departments and units of Pima County Government shall comply with applicable environmental laws, statutes, regulations, rules and guide lines promulgated by Federal, State and Local law in a consistent, uniform and timely basis</i></p>	<p>The DEIS states the lateral extent of the cone of depression from 20 years of groundwater pumping of the water supply well field in the Upper Santa Cruz Sub-Basin will continue to expand after pumping stops. Pima County is concerned this will impact County wells that are used for regulatory compliance purposes (see comment above under Exec Summary).</p>
<p>Chapter 3-Groundwater Quantity, Page 43, lines 10-18</p>	<p>Pima County Board of Supervisors Policy 50.1</p> <p>http://www.pima.gov/cob/policy/F50-1.pdf</p> <p><i>All departments and units of Pima</i></p>	<p>Rosemont's groundwater model was conducted for 20 years and at the request of the USFS was extended to 140 years. The results indicate the ten-foot drawdown is projected to expand an additional one to two miles laterally before reaching equilibrium. Therefore, it can be expected that additional Pima County wells at the Green Valley WRF and Sahuarita Landfill will be impacted. These wells are used for aquifer protection permit compliance purposes and in the case of the Green Valley WRF, the depth of the wells are such that new wells will have to be drilled, if the groundwater levels decrease as projected in the DEIS</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
 JURISDICTIONAL REQUIRED COMMENT FORM**

AGENCY: Pima County

	<p><i>County Government shall comply with applicable environmental laws, statutes, regulations, rules and guide lines promulgated by Federal, State and Local law in a consistent, uniform and timely basis.</i></p>	
<p>Chapter 3-Groundwater Quantity, Page 67, lines 1-26</p>	<p>Pima County Board of Supervisors Policy 50.1 http://www.pima.gov/cob/policy/F50-1.pdf <i>All departments and units of Pima County Government shall comply with applicable environmental laws, statutes, regulations, rules and guide lines promulgated by Federal, State and Local law in a consistent, uniform and timely basis.</i></p>	<p>Mitigation for the impacts to Pima County wells should be included. These would consist of drilling replacement wells the county's wells that will no longer function at a result of Rosemont's pumping.</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

Instructions:

1. Provide review comments, with reasonable basis, addressing technical accuracy and conformance with laws, regulations, and policies within your agency’s special expertise.¹ If your review confirms technical accuracy and conformance within your agency’s special expertise, please indicate such. Complete all fields and do not alter the format of this form.
2. Provide review comments, with reasonable basis, consisting of recommendations for improvement of materials where they are found to be incomplete, inadequate, or inaccurate within your agency’s special expertise. If your review confirms materials are complete, adequate, or accurate within your agency’s special expertise, please indicate such. Complete all fields and do not alter the format of this form.

Comment Location (Chapter/Section/Page/Line)	Special Expertise Citation	Comment / Rationale / Basis
County Administrator’s Office	Nicole Fyffe Executive Assistant to County Administrator Masters in Public Administration	Administers Pima County’s Conservation Acquisition Program since 2004 Coordinated the purchase of 50 properties totaling almost 50,000 acres Involved in reviewing the Rosemont Mine proposal since 2006
Chapter 2/p.29/lines 28-43 Chapter 2/p.30/lines 1-6	Land acquisition for conservation	This section provides 2 small paragraphs on off-site land mitigation stating that Rosemont will develop and implement a land mitigation plan that addresses offsite compensatory land mitigation as required by US Army Corps. There are no specifics what so ever on the number of acres, types of lands, location of lands, and the types of conservation instruments that will be used to ensure mitigation in perpetuity. This leaves the entire issue of land mitigation very uncertain. The lack of specificity in this section will make it very difficult for the public and affected agencies to evaluate impacts of the mining proposal.
Chapter 2/p.24/lines 11-15	Land acquisition for conservation	This section references a report titled “ Santa Rita Mountains Community Endowment Trust” (Rosemont Copper 2010). But the report was not included in the references and was not made available to cooperating agencies.

¹ Special Expertise means statutory responsibility, agency mission, or related program experience (40 CFR 1508.26).

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Office of Sustainability and Conservation</p>	<p>Julia Fonseca Environmental Planning Manager Office of Sustainability and Conservation M.S. Geology, 25 years experience in inventory and protection of natural resources in Pima County Arizona. Hydrologist and Environmental Manager at Pima County Flood Control 1986-2007. Neva Connolly Senior Planner, Office of Sustainability and Conservation BS Biology, Masters in Landscape Architecture</p>	<p>Fonseca: In my capacities at Pima County Regional Flood Control District, Pima County Natural Resources, Parks and Recreation, and Pima County Office of Sustainability and Conservation I worked to develop the natural resource inventories, plans and policies for the Sonoran Desert Conservation Plan. I currently oversee the development of a multi-species habitat conservation plan under the Endangered Species Act, and a related Environmental Impact Statement under the National Environmental Policy Act. In 2004 I evaluated the natural resources of Rosemont Ranch as a potential County acquisition, and have continuously maintained involvement in the Rosemont Ranch on behalf of Pima County, including participation in scoping, defining work objectives for staff and consultants and representing Pima County in Cooperator’s meetings. Pima County has entered into two different agreements with the Forest Service, one to cooperate in the EIS, and another agreeing to participate in other planning exercises. My participation is the result of those two documents. Connolly: County responsibilities include contributions towards planning efforts for the Sonoran Desert Conservation Plan, Section 10 permit, and comprehensive NEPA training in 2007. Involved in review of the Rosemont proposal since 2006.</p>
<p>Chapter 1, no section, p. 6, lines 5-7; Chapter 1, no section, p. 8, line :19-21, Chapter 1, page 12, Issue not identified so no line or section known; Chapter 2, page 52 Alternative not considered so no line or section reference is possible; Chapter 3 Geology, p. 7, no lines address the issue.</p>	<p>See above for basis of expertise.</p>	<p>The Forest’s decision not to examine validity of Rosemont’s claims is not identified or discussed the AD-EIS. Chapter 1 of the AD-EIS states that “Rosemont Copper is entitled to conduct operations that are reasonably incidental to exploration and development of mineral deposits on its mining claims pursuant to U.S. mining laws” (p.5). This assumption is true only if the claims are valid. If the claims are invalid, then the Forest Service would have the discretion to deny or significantly alter the terms of the mining alternatives analysis, and mitigation. In response to Pima County’s written requests to examine validity of Rosemont’s claims, the Coronado Forest Supervisors have rejected the possibility of conducting an exam of the validity of claims on federal lands that Rosemont proposes to use for disposal of mine waste. See Forest Service letters dated Dec. 10, 2008 from Ms. Derby; Jan 7. 2009 from Robert Bushuk, and Feb. 25, 2011 from Jim Upchurch. The Forest Service possesses the discretion to conduct such an evaluation, and has undertaken such examinations in the Coronado National Forest in the past that resulted in curtailment of mining operations. The Coronado’s decisions not to request a validity examination for the Rosemont claims, indeed any discussion of the entire validity issue as a public issue identified in scoping is missing from the AD-EIS. See http://rosemonteis.us/node/344 Locatable Minerals for basis.</p>
<p>Chapter 2, no section, page</p>	<p>Sonoran Desert Conservation</p>	<p>These sections only identify the mitigation required by law. Rosemont has stated its intention to be</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

29, line 27-43 and page 30, lines 1-6	Plan and County Comprehensive Plan http://www.pimaxpress.com/Planning/Conservation/PlanAmendCLS.htm	consistent with the Sonoran Desert Conservation Plan in publicity materials, but they have not met local standards for mitigation. This would require them to provide compensatory mitigation for impacts to the SDCP's Conservation Lands System. For the location of impacts in the proposed MPO, which is situated primarily in the Multiple Use category of the SDCP, this would require approximately 8800 acres of lands be managed, monitored and protected for ecosystem structure and function. Pima County and other cooperating agencies have repeatedly requested compensatory mitigation for loss ecosystem functions from the Forest Service. The proposed mitigation plan does not meet local planning guidelines of the Sonoran Desert Conservation Plan.
Chapter 2, no section, page 55, lines 4-5.	Same as above	If the Forest Service is obligated to ensure Rosemont has "access to the full ore body" then cite the statute or regulation. Please provide the economic feasibility report to back up the statement that the mining using shafts and adits is economically infeasible. I did not see such a report in the reference materials. Your appendix references "Rosemont Copper, Doc. X" for finding that an underground mine is infeasible. Please provide that report.
Chapter 2, no section, page 55, lines 14-18	Same as above	Please provide the pit configuration report and Coronado's review of this, referenced to line 14. I did not see such a report in the reference material provided to Cooperators. If the Forest Service is obligated to ensure Rosemont can "fully access all of the minerals to which they own valid rights" then cite the basis for this standard. If the Forest Service has determined Rosemont's valid rights, then cite that report.
(Chapter 2, no section, pages 56, lines 28 and following).	This comment pertains specifically to ecology, surface and groundwater resources, as identified in the County's MOU with the Forest, expertise as documented above.	Backfilling could materially reduce the long-term direct and indirect losses of wildlife habitat due to the Rosemont project, and was proposed as both an alternative and mitigation measure by Pima County. The AD-EIS rejects backfilling the pit with 10% of the volume, based on Rosemont's analysis that this little volume would not appreciably reduce the impacts. An optimization analysis to determine an appropriate level of backfilling to reduce impacts is not proposed. Instead, the Forest Service analyzes four disposal alternatives that vary less than 10% by volume or area.
Chapter 2, no section, page 57, lines 7-15	Same as above	The document states that the volume of waste and tailings is relatively fixed by Rosemont's legal right to access mineral resources. Please cite legal rationale for this constraint on volume. Add limiting the project to fee simple and patented mining claims (examined in Rosemont Copper's Doc. X) and provide the report.
(Chapter 2, no section, pages 58, lines 21-23).	Expertise as above	Please provide a copy of the referenced mill analysis that was the basis for the 20 year life of mine.
Chapter 3, Section Geology (Introduction) p. 1, line 8	Expertise as above	You state "Even though impacts to geology, minerals, and paleontology were not identified as major issues during the public scoping process, the following section addresses the alternatives' impacts on these resources in order to provide a full impact analysis..." Strike the first clause and insert "Because locatable minerals were identified as a major issue in the scoping process" see FS

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

		<p>scoping report at http://rosemonteis.us/node/368 and http://rosemonteis.us/node/344 which identify Locatable Minerals as a common theme.</p>
<p>Chapter 3, Section Geology (Affected Environment) p. 2, no lines</p>	<p>County Comprehensive Land Use Plan: see http://www.pimaxpress.com/Documents/planning/ComprehensivePlan/PDF/Policies_Legend/Land%20Use%20Legend%20(pp%201-18).pdf and http://www.pimaxpress.com/Planning/ComprehensivePlan/Landuse_Maps.htm</p>	<p>The County land use plan includes land use categories called “Resource Extraction”. The purpose of RE category is to designate mining lands for their extractive capabilities and to protect these areas from encroachment by incompatible use. The Rosemont proposal is not designated Resource Extraction. The public lands in the Rosemont area are designated Resource Conservation and the private lands are Resource Transition. The RC designation intended to protect existing public open space land necessary to achieve objectives regarding environmental quality, public safety, open space, recreation and cultural heritage and to promote an interconnected regional open space network, including parks, trails desert belts and other open space area. RT is private land with environmentally sensitive characteristics. Recommended development shall emphasize design that blends with the natural landscape and supports environmentally sensitive linkages in the developing areas See http://www.pimaxpress.com/Documents/planning/ComprehensivePlan/PDF/Planned%20Land%20Use%20Map%20RinconSE%20S%20COLOR%20Nov09.pdf and supporting definitions.</p> <p>The Rosemont mining proposal is inconsistent with this aspect of the local plan. While local land use plans do not have the force of law on mining, the County’s local plan did not designate this land for extractive capabilities nor offer it protection against land use encroachment. The Rosemont proposal is incompatible with County’s land use plan.</p>
<p>Chapter 3, Section Geology , p. 3, lines 2-38</p>	<p>Expertise as above.</p>	<p>Evidence elsewhere in the ADEIS is presented that the lode claims on which waste would be placed do not contain a valuable mineral deposit. No reference is made to the fact that the Forest has the power to conduct a discretionary investigation of whether discovery exists in areas of waste disposal. No reference is made to the fact that the Forest chose NOT to exam the lode claims in question, or that this was even a significant scoping issue. If this EIS rests on the assumption that the mineral deposits exist under the waste, the EIS should analyze alternatives and impacts of burying and impairing the supposed valuable mineral deposits. A finding that a valuable mineral discovery did not exist would invalidate the claims and give the Forest Service wider discretion in decision-making and change the terms of alternative analysis.</p>
<p>Chapter 3, Section Geology , p. 23, lines 32-42, p. 24, lines 1-20, p. 25, lines 1-34, p. 26, lines 1-45.</p>	<p>Expertise as above</p>	<p>Based on my participating in cooperator’s meetings, I understand potential for future mineral recovery outside the confines of the Rosemont pit was considered in placement of waste and tails. This is necessary because there are other valuable mineral deposits in the area. ADEIS must disclose degree to which the alternatives for waste and tailings disposal were constrained by consideration of the need not to impair future recovery of other valuable mineral deposits. Impacts to mineral resources that remain in the ground and which are common to all alternatives must be disclosed along with any unique impacts of an alternative to future recovery of valuable mineral deposits. If there are none, then this should be disclosed. ADEIS must classify effects on</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

		remaining mineral resources as to whether these are direct, or indirect, and whether irreversible or not. No mitigation measures are identified.
Chapter 1, no section, p. 6, lines 5-7; Chapter 1, no section, p. 8, line :19-21, Chapter 1, page 12, Issue not identified so no line or section known; Chapter 2, page 52 Alternative not considered so no line or section reference is possible; Chapter 3 Geology, p. 7, no lines address the issue.	See above for basis of expertise.	<p>The Forest's decision not to examine validity of Rosemont's claims is not identified or discussed the AD-EIS. Chapter 1 of the AD-EIS states that "Rosemont Copper is entitled to conduct operations that are reasonably incidental to exploration and development of mineral deposits on its mining claims pursuant to U.S. mining laws" (p.5). This assumption is true only if the claims are valid. If the claims are invalid, then the Forest Service would have the discretion to deny or significantly alter the terms of the mining alternatives analysis, and mitigation.</p> <p>In response to Pima County's written requests to examine validity of Rosemont's claims, the Coronado Forest Supervisors have rejected the possibility of conducting an exam of the validity of claims on federal lands that Rosemont proposes to use for disposal of mine waste. See Forest Service letters dated Dec. 10, 2008 from Ms. Derby; Jan 7. 2009 from Robert Bushuk, and Feb. 25, 2011 from Jim Upchurch. The Forest Service possesses the discretion to conduct such an evaluation, and has undertaken such examinations in the Coronado National Forest in the past that resulted in curtailment of mining operations. The Coronado's decisions not to request a validity examination for the Rosemont claims, indeed any discussion of the entire validity issue as a public issue identified in scoping is missing from the AD-EIS. See http://rosemonteis.us/node/344 Locatable Minerals for basis.</p>
Chapter 3, Visual Resources/page 9/Assumptions and Unknowns—no lines give	Ecology	There is no basis for the assumption that the project revegetation will be successful.
Chapter 7, Glossary/Page 10, M	General Comment	Include and define the term, "mitigation."
Chapter 3, Recreation and Wilderness/Page 37 Irretrievable and Irreversible Commitment-entire section	Outdoor recreation	Include the acreage that will be considered "irretrievable and irreversible" due to the mine project.
Cultural Resources Department	Loy Neff Program Manager Office of Sustainability and Conservation Co-manager, Cultural Resources and Historic	Responsible for overseeing cultural resources compliance for County private sector development review and other permitting, as well as external agency/jurisdiction compliance issues. Participated in the County's Rosemont review team from its inception, representing the Office of Cultural Resources and Historic Preservation. First involvement with Rosemont was review and comment of the proposed Mine Plan of Operations, 9/26/2006.

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

	Preservation Division	
Chapter 2., Perimeter Fence, p14 lines 8-16	Section 106, NHPA	The brief discussion of perimeter fencing around the implemented Action Alternative does not mention cultural or Heritage Resources. Perimeter fences are only mentioned in a few places in the DEIS, such as Appendix B USACOE Alternatives, so this comment about cultural resources is here. There should be discussion recognizing the potential for impacts to cultural resources from perimeter fencing to be installed around the mine. Mitigation measures to address impacts from the fencing also need to be discussed.
Chapter 2., Cultural Resources, p23 lines 29-37; p24 lines 1-15	Section 106, NHPA; NAGPRA	This section describing the elements developed to avoid or reduce impacts on cultural resources is extremely limited and needs to be expanded. The section should provide more detailed discussions about how and by what criteria the project Area of Potential Effects would be defined, as is pertinent to the implemented Action Alternative. Avoidance measures should be detailed according to strategies employed relevant to specific categories of impacts on different prehistoric and historic site types and/or Heritage Resource categories. The proposed inventory surveys need to be described in more detail, including defining the review process and reviewers, and the standards to which they would be executed (cite SHPO standards for survey and appropriate federal and/or ASM site recording standards). Please state if this section refers to the surveys that have already been done (cf. surveys conducted by SWCA for the MPO and its proposed APE and the later supplemental survey for the Alternatives, and the ethnohistoric study; as well as the surveys for the TEP utility corridor alternatives surveyed by EPG). If this is so, the discussion should provide detailed descriptions of the work, survey results, and documentation. If this section refers to proposed surveys to be conducted after the Preferred Alternative is selected, then please provide detailed descriptions of the proposed inventory survey research designs, what historic contexts would be cited, what relevant research questions would be addressed by the anticipated data collected, and the necessary data requirements to address the research questions. Describe the survey method, including variations in systematic or reconnaissance-level surveys that would be required by the variations in environments and physiographic differences in the defined APE. Also provide detailed discussions of recording and documentation methods, mapping and artifact collection policies employed. Survey documentation needs to be addressed, including project record keeping, site records, and the project reports to be generated. Include the proposed dissemination of project reports, to public agencies, responsible private sector entities, etc., and for what purposes. Include provision for production and circulation of redacted versions of project documentation for public release. Discuss any phasing of implementation of proposed mitigation, including Phase I testing and Phase II data recovery sequencing for the project and/or individual sites, site types, or Heritage resource categories. Also provide justification and discussion of mitigation phasing that is tied to phases of mine construction, operation, decommissioning, and reclamation, including direct and indirect impacts from the implemented Action Alternative and

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

		connected actions, such as access roads and utility corridors. Mitigation strategies should be detailed that maximize potential recovery of human burial remains and associated grave goods and ceremonial objects. It should be emphasized that in spite of the proposed mitigation, there is great potential for irretrievable loss of burial remains.
Chapter 2., Historic Properties Treatment Plan, p32 lines 8-5	Section 106, NHPA	This section briefly outlines the proposal by Rosemont Copper to develop a Historic Properties Treatment Plan to address the requirements of Section 106, NHPA. The discussion is too brief and does not provide details about the scope and scale of mitigation (even in general terms relative to the anticipated scale of impacts from the Action Alternatives). The section needs to be expanded to provide a detailed synopsis of how this process would work and a timeline for development and implementation. The synopsis should review the full consultation process, development of an MOA (including requirements, standards, and guiding mitigation strategies it would contain), and the implementation of mitigation (phased? If so, how and in what sequencing and time frame).
Chapter 3, Cultural Resources/Issues, Cause and Effect Relationships of Concern, p2 lines 10-43, p3 lines 1-39,	Section 106, NHPA	Discussion is good regarding consultation with Indian Tribes, but lacking references or discussions of identifying and/or consulting with other, non-Native American descendant groups. Please address this gap with proposed strategies for identifying and engaging descendant groups and outline how consultation would be implemented, in a similar way as is done for consultation with Tribes.
Chapter 3, Cultural Resources/Issues, Cause and Effect Relationships of Concern, p3 lines 16, 17, 27, 39	Section 106, NHPA	These bullet points refer to prehistoric and historic sites likely to have burials (lines 16 & 17); and to number of traditional resource collection acres impacted (line 39), but numeric values are not assigned. Need to put in numbers (numbers are given in a later section).
Chapter 3, Cultural Resources/ Analysis Methodology, Assumptions, Uncertain and Unknown Information, p4 lines 1-12	NEPA	The analysis areas for indirect effects are determined by reference to the location of the perimeter fence for each alternative. This is inadequate to evaluate indirect effects, including vibration and audible impacts. Expand the analysis areas and provide justification.
Chapter 3, Cultural Resources/Consultation with Tribal Governments, Results of Consultation, p18 lines 33-43; p19 lines 1-8	Section 106, NHPA	This section discusses the Tohono O’odham Nation’s (TON) Tribal Resolution, which includes considering the Santa Rita Mountains as a Traditional Cultural Place/Property. The discussion states that the Coronado is conducting an evaluation of the eligibility of the proposed TCP, under NRHP criteria of significance, but does not say whether SHPO consultation to request a determination of eligibility will result from the evaluation, nor does it give a timeframe for the evaluation and what possible actions might result from a SHPO determination of eligibility (says only that the evaluation will be sent to SHPO for review and comment). The discussion is too brief; needs to be significantly expanded to address the issues listed above. It is worth noting that Pima County supports the nomination of a TCP as proposed by the TON.

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Chapter 3,Cultural Resources/ Destruction of Cultural Landscapes, p24 lines13-22; p29 lines 26-27</p>	<p>Section 106, NHPA</p>	<p>These discussions regarding the Action Alternatives and the Utility Lines also include consideration of the TON Tribal Resolution mentioned in the previous comment, which includes considering the Santa Rita Mountains as a Traditional Place/Property. The discussions are related to the previous section (p18 lines 33-34; p19 lines 10-19), but there is no reference to the earlier discussion. These sections should be expanded to explain what is meant on p2 lines 21-22, “The Coronado is pursuing additional documentation for the Traditional Cultural Property,” and on p29 lines 26-27. Pima County supports the nomination of a TCP as proposed by the TON.</p>
<p>Chapter 3, Cultural Resources/ Destruction of Historic Properties and Their potential to Contribute to Future Scientific Knowledge, p21 lines 12-13, 18-22, 26-29</p>	<p>Section 106, NHPA</p>	<p>Discussion of identified prehistoric cultural resources emphasizes numbers of sites, and the Hohokam ballcourt site and other villages, but does not synthesize the combined results of survey data to reflect new knowledge of regional settlement history and patterns of settlement distribution revealed in the Santa Rita Mountains. This approach would reveal new perspectives on the identified Hohokam upland complex and allow for more detailed inter-regional comparisons with other contemporaneous settlement groups in geographically or physiographically constrained settings. Valuable synthetic interpretive analyses, with significant potential to contribute to new scientific knowledge, can never be made if any Action Alternatives are implemented. This is a serious scientific loss that should be considered in this section.</p>
<p>Chapter 3,Cultural Resources/ Destruction of Historic Properties and Their potential to Contribute to Future Scientific Knowledge, Cumulative Effects, p29-31.</p>	<p>Section 106, NHPA; NAGPRA</p>	<p>This section continues the discussion of regional comparisons, particularly with regard to Zone 1, upland environments, in which prehistoric and historic resources are discussed. These sections expand on the discussion mentioned in the previous comments, but the discussion remains primarily descriptive and would benefit from expansion to incorporate a synthetic interpretive comparison. The potential for loss of human burial remains and associated burial objects should be discussed, in spite of mitigation strategies designed to recover these categories of remains, there is great potential for irretrievable loss of burial remains.</p>
<p>Chapter 3, Cultural Resources/Destruction of Historic Properties and Their potential to Contribute to Future Scientific Knowledge, p21 lines 14-18, 35-43; p22 lines 1-7</p>	<p>Section 106, NHPA</p>	<p>Discussion of historic resources is mixed in with prehistoric and Protohistoric resources, but the same comment as posted above applies regarding lack of synthetic discussion of the complex of historic sites in the Santa Rita Mountains, considered within a regional context, and with a similar potential for significant loss of scientific knowledge.</p>
<p>Chapter 3,Cultural Resources/ Mitigation Effectiveness and Remaining Effects, p31 lines 41-43; p31</p>	<p>Section 106, NHPA</p>	<p>These sections effectively describe the scope and scale of impacts from the Action Alternatives and Utility Corridors and the mitigation measures proposed by Rosemont Copper as well as the Coronado’s intention to enter into a MOA with Arizona SHPO to formulate and implement mitigation strategies. This comment concerns the huge and inadequately justified scale of irretrievable loss of</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>lines1-43; and Irretrievable and Irreversible Commitment of Resources, p22 lines 1-21</p>		<p>cultural and natural resources that will result from implementation of any Action Alternative, in spite of any proposed mitigation measures. Pima County supports and shares the concerns expressed by consulted Tribal representatives; the value of the proposed mine to the people of Pima County is extremely limited, but the short- and long-term costs and permanent losses are immense and simply cannot be justified.</p>
<p>Development Services Department</p>	<p>Sherry Ruther Environmental Planning Manager Master of Science- Renewable Natural Resources and Natural Resource Public Policy BS in Wildlife Biology</p>	<p>Appointed by DSD Director to be department's representative because of expertise in natural resources conservation and management as well as DSD regulatory authorities established in Pima County Zoning Code. Provided review and comment on Scoping and Mining Plan of Operation (2006).</p>
<p>Ex Summary/ES-12</p>	<p>Pima County Comprehensive Land Use Plan – 2001 Update: Water Resources Regional Element</p>	<p>One of the stated purposes of this policy is to protect groundwater-dependent ecosystems of Pima County, including springs, perennial and intermittent streams and shallow groundwater areas. Surface Water Quantity discussions for all alternatives document Davidson Cyn flow decrease and loss of 80 plus springs. These impacts/losses are inconsistent with the Comprehensive Plan Policy.</p>
<p>Chapter 2; Pg 29; Lines 28-43</p>	<p>Pima County Comprehensive Land Use Plan – 2001 Update: Natural Resources Regional Element</p>	<p>This policy calls for mitigation of impacts to the Conservation Lands System in order to preserve the biodiversity of Pima County. There is no mitigation mentioned or proposed for such impacts caused by any of the action alternatives. This is inconsistent w/the Comprehensive Plan. This inconsistency can be remedied by including mitigation for impacts to the Conservation Lands System into the Land Mitigation Plan at ratios specified by this policy.</p>
<p>Chapter 3; Dark Skies; Pg 5; Line 12</p>	<p>Outdoor Lighting Code – Ordinance No. 2006-91; Exhibit H.</p>	<p>Ordinance No. 2001-138 is incorrect. Correct citation: Ordinance No. 2006-91; Exhibit H.</p>
<p>Chapter 3; Dark Skies/Direct, Indirect and Cumulative Effects/page 8</p>	<p>Outdoor Lighting Code – Ordinance No. 2006-91; Exhibit H.</p>	<p>This section isolates the analysis to measurable differences to the night sky and fails to discuss the ramifications these measurable differences will have on local, but nationally significant observatories (neither does this discussion occur in the Socio-economic Section). Information from Buell Jannuzi, former director of Kitt Peak National Observatory & presently w/NOAO, indicates that Kitt Peak and the other area observatories are, for US astronomers, the most economically cost-effective opportunities v. out-of-country observatories. We request a review by local observatory experts to identify and assess how conditions during mine operation will affect the continued ability of these observatories to persist in providing top-rated cost effective viewing opportunities for US astronomers. Cumulative effects should also discuss the implications of 'lost opportunities' that area observatories would likely experience due to increased night sky pollution. In other words,</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Chapter 3; Dark Skies; Pg 10; Lines 23-24.</p>	<p>Outdoor Lighting Code – Ordinance No. 2006-91; Exhibit H.</p>	<p>what opportunities will area observatories miss out on because increased light pollution will reduce their competitiveness with other facilities.</p> <p>Establishing a not-to-exceed threshold for unshielded light sources may assist in accomplishing the intent of the Outdoor Lighting Code without strict conformance to the code requirements. We recommend that lamp source for unshielded lighting not exceed 3500 degrees Kelvin.</p>
<p>Chapter 3; Dark Skies; Pg 1; Lines 31-33; Pg 7; Lines 12 – 16; and Pg 10; Lines 21 - 31</p>	<p>Outdoor Lighting Code – Ordinance No. 2006-91; Exhibit H.</p>	<p>It is clear that lighting for the mine is exempt from County zoning & building codes, that Rosemont intends to meet the intent of the Outdoor Lighting Code, and that mitigation opportunities are subject to Mine Safety & Health Administration requirements. That said, clarification of what opportunities would exist is appropriate to include in the Rosemont Lighting Plan – a matrix format showing what the code requires v. Mine Safety & Health Admin requirements along with Rosemont’s recommended actions would be useful.</p>
<p>Chapter 3; Dark Skies; Pg 1; Lines 31-33; Pg 7; Lines 12 – 16; and Pg 10; Lines 21 - 31</p>	<p>Outdoor Lighting Code – Ordinance No. 2006-91; Exhibit H.</p>	<p>Several years will have passed before Rosemont has the necessary approvals to commence operation. Relying on the outdated 2006 version of the Outdoor Lighting Code to inform lighting considerations in the future is inappropriate. Stipulations should be made that require the Outdoor Lighting Code in effect at that time be used to develop the Final Rosemont Lighting Plan.</p>
<p>Chapter 3; Socio-economic & Env Justice;</p>	<p>Comprehensive Land Use Planning authority granted by the State in ARS Title 11 as executed in Pima County Comprehensive Land Use Plan.</p>	<p>This entire section (with the exception of Property Values) only provides a generalized, gross-level look at the effects of the action alternatives, and stops short of actually providing an analysis that (as stated on Pg 5; Line 10-11) examines impacts on those <i>living near the forest</i>. Tiering the analysis into zones (e.g.; 10, 25, 50 miles from the mine site) would facilitate a more accurate disclosure of impacts. Census Track data is available and can be queried to accomplish such a tiered analysis.</p>
<p>Chapter 3; Socio-economic & Env. Justice; Pg 3; Lines 25-27 and Pg 38; Lines 11-14; and Pg 50; Lines 43-44; and Pg 51; Lines 1-11.</p>	<p>Comprehensive Land Use Planning authority granted by the State in ARS Title 11 as executed in Pima County Comprehensive Land Use Plan.</p>	<p>As stated above, analyzing potential consequences for minority populations and communities of low income or below poverty level at a gross – county scale is inadequate to truly evaluate the potential consequences on any such communities that are geographically within the sphere of influence of the mine. Again, Census Track data can be queried to determine whether an “environmental justice community” exists. There are, for example, designated colonias and neighborhoods that exist between I-10 and the mine that would meet the definition. Refine the level of analysis to remedy this deficiency.</p>
<p>Chapter 3; Socio-economic & Env Justice; Property Values; Pg 46 Lines 34-38; and Pg 47; Lines 20-21.</p>	<p>Comprehensive Land Use Planning authority granted by the State in ARS Title 11 as executed in Pima County Comprehensive Land Use Plan.</p>	<p>Pg 46; Lines 34-38 the stated assumption that there are no impacts to property values because there is limited information is not justified given the conclusion on Pg 47; Lines 20-21 stating that a reduction in property value would be expected on at least 13 properties within 2 miles of the mine.</p>
<p>Department of</p>	<p>Ursula Kramer</p>	<p>Involved in air quality regulatory issues for more than 25 years. Oversees all air quality permitting</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Environmental Quality</p>	<p>Director, Pima County Department of Environmental Quality B.S. Civil Engineering</p>	<p>for projects within Pima County.</p>
<p>Chapter 3/ Air Quality/Table 3.1, 3.9, 3.10</p>	<p>Air quality regulatory agency</p>	<p>It is important to note that any predicted pollutant concentration is made up of the sum of the existing background level plus the new Rosemont emissions. A high background level will thus drive up the predicted total concentration and thereby simulate the worst case scenario, as required by the EPA. It appears that Rosemont has not taken the recommended approach, instead, choosing low background levels in order to minimize the modeled total, at least in the case of PM₁₀ and PM_{2.5}. (see below for further detail)</p> <p>The Forest Service notes in the draft EIS that the predicted maximum 24-hour PM₁₀ (144.9 µg/m³) will be in "near exceedance" of the National Ambient Air Quality Standard (NAAQS) of 150 µg/m³ (Table 3.9. Year 1).</p> <p>Rosemont monitored PM₁₀ at the proposed mine site for three years in order to establish the background level. The average of the highest 24-hour value recorded during each of three years is to be used as the 24-hour maximum PM₁₀ background level, according to the EPA. In fact, the predicted maximum 24-hour PM₁₀ will exceed the NAAQS when the correct background PM₁₀ level is used.</p>
<p>Chapter 3/Air Quality/ Page 21/Table 3.9</p>	<p>Air quality regulatory agency</p>	<p>Rosemont monitored PM₁₀ at the proposed mine site for three years in order to establish the background level. The average of the highest 24-hour value recorded during each of three years is to be used as the 24-hour maximum PM₁₀ background level, according to the EPA.</p> <p>However, Rosemont ignored their highest observed PM₁₀ value declaring it to be an anomalously high outlier. If that high observation is included in the background PM₁₀ calculation, as it should be, then the correct background value becomes 47.7 µg/m³, and the predicted 24-hour maximum PM₁₀ becomes 159.6 µg/m³, which exceeds the NAAQS.</p> <p>Justification for ignoring their own data is weak. Rosemont arbitrarily claims that it is an "outlier", whereas their statistical analysis shows that it is not. Besides, the EPA provides no guidance for selecting outliers. Indeed, their guidance makes it clear that a high background should be used to provide for a worst case analysis.</p>
<p>Chapter 3/ Action Alternatives' Projected Effects on National Ambient Air Quality Standards/page 19/</p>	<p>Air quality regulatory agency</p>	<p>Because Rosemont did not measure PM_{2.5} onsite they correctly use PM_{2.5} observations made elsewhere. They should have selected the closest comparable site which is Saguaro National Park East just 30 miles distant, but instead they selected two sites to serve as backgrounds for two different modeling studies: Chiricahua National Monument (100 miles distant at an elevation of</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>beginning on line 32</p>		<p>approximately 5100 ft) for the fence-line background PM10 prediction; and Saguaro National Park East for the visibility background.</p> <p>Analyzing the Saguaro National Park East data, results in a background 24-hour maximum PM_{2.5} of 13.6 µg/m³, which is 19% higher than their value of 11.4 µg/m³, and 40% higher than their Chiricahua National Monument background of 9.7 µg/m³ (for the 98th percentile). Although the higher background does not lead to a predicted exceedance of the NAAQS, it will have an effect on visibility estimates in the region because it is the smaller PM_{2.5} particles that interact most strongly with visible light.</p> <p>Table 3.1 of the EIS observes that the expected NO_x increase risks causing an ozone exceedance in Pima County. This is important because the County is already on the verge of exceeding the NAAQS ozone standards and may soon be required to undertake expensive remedial action. Ironically, the highest ozone levels are consistently observed at Saguaro National Park East, close to Rosemont, and so even a small increase in ozone production might cause the County to violate the Federal ozone standard.</p>
<p>Chapter 3/Air Quality and Climate Change/Table 3.1/Page 5</p>	<p>Air quality regulatory agency</p>	<p>Addition of small amounts of NO_x to the atmosphere could significantly increase ozone concentrations, especially under the NO_x-limited conditions which most likely prevail in the vicinity of Rosemont. The photochemical reactions involved in <i>ozone formation</i> are complex and <i>nonlinear</i>. Ozone yields are dependent upon both the absolute concentrations of NO_x and VOCs and also upon the ratios of these species. Thus, increased ozone production might occur downwind of this new rural NO_x source as a result of mixing with biogenic VOCs produced in downwind forests including Saguaro National Park East, Chiricahua National Monument, and the Galiuro Wilderness. Injecting even small amounts of NO_x into this NO_x-starved air could have a disproportionately large effect on ozone levels.</p>
<p>Chapter 3 throughout the document</p>	<p>Air quality regulatory agency</p>	<p>Modeling studies should treat the dry-stack tailings system as a conventional tailings impoundment. Rosemont suggests that their proposed dry-stack tailings system will reduce windblown dust but there is no direct evidence for this. The tailings pile will be made up of dry, finely ground, “sandy” particles that will most likely not adhere to each other, even if compacted. Dust suppression is proposed to result from progressive reclamation including partial covering with waste rock, revegetation, compaction, and perhaps application of binders and wetting agents to promote agglomeration. However, there will always be large area of active dry tailings susceptible to erosion in this windy location.</p> <p>In Green Valley, the tailings impoundments created by conventional slurry pumping are managed by the application of water, especially in advance of forecast strong winds. Historically the tailings in Green Valley have resulted in excessive emissions when the tailings were dry.</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

Chapter 3/Air Quality/
ANALYSIS
METHODOLOGY,
ASSUMPTIONS,
UNCERTAIN AND
UNKNOWN
INFORMATION/Page 3

Air quality regulatory agency

Evan Canfield

Chief Hydrologist
PhD in Agricultural
Engineering, Minor
Hydrology; MS and BS
Geology

Akitso Kimoto

Principal Hydrologist
PhD Agricultural Science

Frank Postillion

Chief Hydrologist, Section
Manager, Water Resources
MS, Watershed Management
and Hydrology

Tom Myers

Hydrologic Consultant
PhD Hydrology/Hydrogeology

**Regional Flood Control
District**

The mine will be constructed in the eastern foothills of the Santa Rita Mountains. The complex terrain will have a dramatic effect on air flow patterns and on the dispersal of pollutants downwind. So it is critical that the spatial resolution of the model be sufficiently high to accurately resolve all important topographic features. It is also critically important for the modeled domain to extend far enough upwind and downwind to establish unperturbed boundary conditions. However, from the report, it is not clear if the model was run with sufficient resolution to adequately model the topographically influenced wind patterns, and nor is it clear that modeled domain is sufficiently large.

Meteorological data collected onsite show the dominance of winds coming from the west – down slope winds caused by the steep topography of the Santa Rita Mountains. Observed wind speeds approach 20 m/s which is more than twice the threshold velocity necessary to generate dust from mine tailings. These strong westerly winds will transport dust and other pollutants across eastern Pima County and into remote parks and wilderness areas degrading visibility and air quality.

Canfield: Involved with Rosemont review since 2006. Reviewed Surface Water Hydrology report and APP permit report. Over 25 years experience working in hydrology and water resources, the last 15 in Pima County. Arizona Professional Civil Engineer with specialty in water resources. ASFPM Certified Floodplain Manager. Extensive experiences in hydrologic modeling, analysis and reviewing hydrology and hydraulic studies. Familiar with the Pima County Title 16, Floodplain and Erosion Hazard Management Ordinance. Developed technical policies (hydrology, hydraulic) and guidance for the Pima County Regional Flood Control to be used in all hydrologic and hydraulic analysis for development in Pima County. Supervise the section of the Flood Control District that maps floodplains. Experience evaluating extreme hydrologic events such as the 2006 floods in Pima County and the flooding following the Los Alamos Fire.

Kimoto: Review Hydrology sections of EIS and APP permit report. Extensive experiences in hydrologic modeling, analysis and reviewing hydrology and hydraulic studies. ASFPM Certified Floodplain Manager, Responsible for managing a floodplain mapping project in Pima County, Familiar with the Pima County Title 16, Floodplain and Erosion Hazard Management Ordinance, Experiences in reviewing applications for developments in regulated floodplain and riparian areas, Developed technical policies (hydrology, hydraulic) for the Pima County Regional Flood Control
Postillion: Responsible for coordination of review for impacts to water supply, water resources, shallow groundwater for this projects (2006). 35 years of experience in water resource and water quality evaluations in the public and private sectors. Evaluated the effects of Tucson Copper Mining District copper mining and the effects tailing pond recharge on the ground-water quality of the Upper Santa Cruz Basin. His affiliation and management of the Upper Santa Cruz Basin Mines Task Force led to modeling and management recommendations to pump interceptor wells at a sufficient rate to contain the mineralized sulfate and TDS plumes, and to avoid contamination of

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

<p>Executive Summary/ES-3/line 8-9</p>	<p>Water Resources</p>	<p>public supply wells. Evaluated the effects of coal mining on the hydrology of Black Mesa in Northern Arizona. Myers: Preparation of a conceptual and numerical groundwater model for the Rosemont area Review of hydrology studies and ground model reports completed by Tetra Tech and Montgomery and Associates. Specializes in groundwater modeling, hydrogeology, environmental forensics, regulatory compliance, water rights, NEPA analysis, and environmental and water policy. He focuses on mining and water resource development issues, coal-bed methane development and groundwater contamination. Change to “potentially estimated mine life of 100,000 acre-feet”. Rosemont indicates a mine life of 20-years. However, based upon similar mines in the Tucson Copper Mining District, mines there have been in operation over 45-years.”</p>
<p>Exec. Sum/ES-9/lines 21-22</p>	<p>Water Resources</p>	<p>If specific impacts to the wells are unknown, a systematic evaluation of the 300-350 registered wells in the vicinity of Rosemont production wells is needed to assess what wells could be dewatered based upon the Montgomery West Side Model results. This should be done as part of the mitigation to prepare for dewatering of local wells. Well construction will need to be evaluated to assess if the screens will be dewatered and what wells will needed to be deepened or replaced.</p>
<p>Exec. Sum/ES-9/lines30-31</p>	<p>Hydrology</p>	<p>If specific impacts to the wells are unknown, a systematic evaluation of the 300-350 registered wells in the vicinity of the pit dewatering area is needed to assess what wells could be dewatered based upon the three model’s east side results. This should be done as part of the mitigation to prepare for dewatering of local wells. Well construction will need to be evaluated to assess if the screens will be dewatered and what wells will needed to be deepened or replaced.</p>
<p>Executive Summary, P.9, Lines 34-37 – Reduced Flow Analysis</p>	<p>Hydrology</p>	<p>The evaluation of the reduction in flow 4-8% is not based on reasonable analysis.</p>
<p>ES/Table 3B/p70/row7, column 3</p>	<p>Hydrology</p>	<p>A footnote or caveat is needed to indicate that the Rosemont proposal is 20 years. However, as witnessed with the Tucson Copper Mining District, mine life can extent to 40-50 year and beyond. In addition, the duration of effect on water level will continue beyond 20 years. Recovery of the water table from continuous stress for 20 years will not take place instantaneously. Recovery of the aquifer back to baseline conditions may take another 20 years.</p>
<p>Chapter 2/Water supply and control/page14/line 28-30</p>	<p>Water Resources</p>	<p>The project description indicates that process water will be obtained from wells in Santa Cruz Valley as well as from pit dewatering. The DEIS should note whether all dewatering water will be used onsite. Especially if they collect the water from sumps on the pit floor, the water could have poor quality. It may require treatment before it can be used for process. The DEIS should discuss the</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

		alternative uses for this water. Dust control is one obvious use for dirty water, but there may be more dewatering water than needed for dust control.
Chapter 2/Water Resources/Pages 25-26	Hydrology	Mitigation on the east side must include a system of water level monitoring wells to verify the predicted changes in the water level due to dewatering. The mitigation plan should also include triggers for action if the drawdown at certain points reaches certain levels. Domestic wells in the Singing Valley Hilton Ranch Road areas will need baseline and future monitoring to evaluate the impacts of pit dewatering. There is also a need for water quality monitoring wells.
Chapter 2 /Water Resources /Pages 25-26/	Hydrology	Additional mitigation should include plans to accommodate more dewatering than currently forecast. If there is more water in the bedrock than currently estimated, the dewatering needs could exceed forecasts substantially. Alternatively, if the pit intersects a fault zone, the pit could start drawing groundwater from much further than expected, which could cause drawdown outside the current expected drawdown cones. Therefore, representative water level monitoring wells should also be constructed side gradient to the primary groundwater flow directions to monitor complete area drawdown conditions.
Chapter 2/Dry Stack Tailings Facility/Pages 35/line 34	Water Resources	The DEIS refers to “dewatered tailings” that will have just 8% water content. The DEIS should explain how they are dewatered and how the water is disposed of. If it is through evaporation, the DEIS should analyze the air quality issues with surface drying and desiccation.
Chapter 2/Process Water Temporary Storage/Page 35/line 41	Water Resources	The DEIS should define “process water”.
Chapter 2/Central Drain/Page 36/line 18	Hydrology	There will be a central drain under the waste rock dump to pass storm water from upgradient watersheds. Apparently it will be just large rocks piled to form the drain. There are several concerns with this design. First, fine material from above could settle into the space between the rocks and decrease the flow capacity. Second, a substantial amount of water will contact this waste rock, including the settled fines, and could leach contaminants. Third, seepage through the waste rock will discharge into this drain and create potential poor water quality downstream.
Chapter 2/Central Drain/Page 36/line 18	Hydrology	The central drain also must be included in mitigation. There must be a plan to inspect the drain after the mine closes to assure it, and the storage pond upstream, are working properly. The mine owner must prepare for the central drain to plug during mining operations or in the decades following mining operations. What is the resultant impact on the mine site, stormwater management, and environmental contamination caused by development of a significant upstream pool of water?
Chapter 2, p 25 Line 21 – Water Resources	Hydrology	The DEIS uses design scenarios that assume the 24-hr 100 yr storm for storage facilities which is inadequate. Because multi-day volumes can substantially exceed single-day return-period rainfall values, containment systems should be sized for volumes are generated by multi-day storms, such

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

		as the 72-hour 500-yr event. Again because of the higher elevation and orographic effect, multiple day storms are common in mountain areas of southern Arizona.
Chapter 2/Partially or Completely Backfilling the pit/ Page 56/lines 29-40	Water Resources	The DEIS improperly dismisses complete or partial pit backfill. The primary reasoning appears to be the desire to create a hydrologic sink in the pit lake, rather than having a flow-through system as backfill would potentially create, unless it is backfilled just to the level that would maintain the pit as a sink. This reasoning is flawed for three reasons. First, the DEIS notes elsewhere that surface water seepage through waste rock will not degrade the ground water. If this is the case, groundwater flowing through backfilled rock in the pit will not degrade groundwater either. Second, the concern about backfilled material which has contacted process water is not legitimate because this material could be backfilled above the projected water table. If surface water seepage into the unsaturated backfill is a problem, then leaving the material on the surface in a tailings impoundment or waste rock dump surely must also cause leaching which could affect groundwater. Third, the backfilled pit could have the same cover as proposed for the above ground waste rock and tailings disposal facilities; the DEIS argues that this cover will prevent significant infiltration. If a cover could work on these facilities, it could also work on the top of the backfilled pit. Therefore, keeping the worst material unsaturated should satisfy concerns about leaching contaminants. If this cannot be accomplished in a backfilled pit where the surface area requiring a cover is much less, then it would certainly not be accomplishable on the separate disposal facilities remaining above ground.
Chapter 2/Partially or Completely Backfilling the pi/ Page 57/lines 1-4	Water Resources	Although the 10 percent seems questionable since the pit lake would be over 1200 feet deep, the argument that moving this amount of rock and maintaining a sink “would not appreciably reduce the impacts” is flawed. Backfilling the pit so that a lake does not form would save the pit from housing a terminal lake with no possible use for more than 90,000 acre-feet of groundwater. This would be one of the larger human-made lakes in Arizona. Clearly, allowing the continued use of this water for downstream springs and streams, and aquifer replenishment, justifies the additional cost for backfilling and other impacts.
Chapter 2/Post Closure Monitoring/ page 61/line 27-34	Hydrology	The DEIS should specify where the groundwater monitoring wells will be located and from what level the water samples will be taken.
Chapter 3/Ground Water Quality/ Page 1/line 29	Hydrology	There is no “may” about it – if the open pit extends below the groundwater table, there will be a pit lake.
Chapter 3/Ground Water Quality/ Page 1/line 30	Hydrology	Also, any pit lake subject to evaporation will concentrate constituents in the lake by virtue of evapoconcentration.
Chapter 3/Ground Water Quality/ Page 4/Table 3.1	Hydrology	The table presents the “fact” that “modeled water quality in mine pit lake meets standards”. Pit lake models are notoriously uncertain. Models at the McCoy Cove Mine, Lone Tree Mine, and Sleeper Mine in Nevada failed to predict they would either turn acidic or strongly concentrate sulfates.
Chapter 3/Ground Water	Hydrology	If there were 48 instances of laboratory error in detecting organic constituents, the FS should

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

Quality/Page 7/line 38-40		require the samples be redone at a different lab.
Chapter 3/ Ground Water Quality/Page 9/line 9-11	Hydrology	It does not seem reasonable that infiltration from waste rock be close to zero because natural recharge in this area is not zero. Blasted waste rock is almost certainly more conductive than the in-situ rock. It is also unlikely that the one-foot thick cover will result in less infiltration than the natural soil and vegetation regime.
Chapter 3/ Ground Water Quality/Page 9/line 22-27	Hydrology	Similarly, it is not reasonable for the seepage through a leach pad to cease. Leach pads are designed to conduct flow. All water that gets through the cover will become seepage. Based on experience, the long-term seepage through heaps in more arid climates within Nevada do not approach rates as low as 1 gpm.
Chapter 3/ Ground Water Quality/Page 10/line 8-9	Hydrology	Experience has shown that waste rock dumps in much drier climates will have seepage.
Chapter 3/ Ground Water Quality/Page 11/ line11-22	Hydrology	The DEIS does not specify a treatment system for heap drain down, but states that two systems are being considered. How will the agency decide?
Chapter 3/ Ground Water Quality/Page 14-15/Table 3.7	Hydrology	This table presents the results of four hypothetical scenarios for modeling the long-term pit lake chemistry. The table shows that most of the modeled constituents will be much below the drinking water standard after 200 years. The revised pit lake modeling did not take into account the recommendations for considering all loads to the lake that Pima County had made in a previous review of the pit lake model. The exception was that the revised model considered the blasting effect creating a six-foot thick skin. See the Society of Mining, Metallurgy and Exploration book: <i>Mine Pit Lakes: Characteristics, Predictive Modeling and Sustainability</i> , ed. By Devin N. Castentyk and L. Edmond Eary.
Chapter 3/Ground Water Quantity/Page 5/line 37-38	Hydrology	It is common to use 10 feet as the drawdown of concern for a private water well. A drawdown of 10 feet could cause serious harm if it draws the water level below the most productive aquifer zones. In other words, most well logs reveal stratification much finer than the layers that are simulated in a model. Although screened over tens of feet, a majority of the water may emanate from a relative thin section. If that is within the top 10 feet of the screen, a 10-foot drawdown can be very detrimental.
Chapter 3/ Ground Water Quantity/Page 6/line 15-17	Hydrology	A five-foot drawdown is too high of a limit in consideration of whether springs could be affected. The drawdown caused by this project adds to, or increases the impact of, the natural variability in water levels. If a spring is naturally dry part of the year, as little as a one-foot drawdown could cause a big difference. Springs discharging from bedrock could be significantly affected by even a one-foot drawdown, if it represents a change in the gradient controlling the discharge.
Chapter 3/ Ground Water Quantity/Page 6/ Overview of	Hydrology	This section describes the development of the numerical model, but ignores the important role of the conceptual model. Without an accurate conceptual model, a numerical model is inherently

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

Modeling Process/general section comment		wrong, even if it replicates the observations correctly. An accurate conceptual model helps to make the numerical model unique.
Chapter 3/ Ground Water Quantity/Page 7/line 4	Hydrology	It is incorrect to equate verification with validation. Validation is the process of completing a post audit on the model to determine whether it was accurate years after being used for decision making. See Anderson and Wisner, 1992, <i>Applied Groundwater Modeling</i> , page 9.
Chapter 3/ Ground Water Quantity/Page 7/line 15-17 Page 15/line 1-3	Hydrology	It is true that “unverified” models can be used for predictions. However, it should be noted that even if the model were verified by showing it accurately simulates conditions over a period of years even with observed local pumping, the mine construction and dewatering will stress the aquifer far beyond the range of calibration or verification. This mass stressing of the aquifer is more important than the uncertainties caused by running the simulations far into the future. The DEIS should make this clear because it represents how uncertain the model predictions actually are.
Chapter 3/ Ground Water Quantity/Page 10/line 2-12 & Page 13/line 20-33	Hydrology	Pima County also completed peer review of the groundwater models. The DEIS should list the major problems with the models that the county identified.
Chapter 3/ Ground Water Quantity/Page 18/line17-21	Hydrology	It is inappropriate to use a model for which a new sensitivity analysis has been requested because that sensitivity analysis could show the model to be conceptually wrong. The Pima County review of the Tetra Tech model, in addition to a request for a new sensitivity analysis, also raised the issue of the hydrologic significance of the porphyry dike. Geology maps suggest the porphyry dike is not a continuous feature but TT modeled it as though it is. There must be hydrologic data to justify the use of a feature that has been portrayed and modeled as a major impedance to flow – impedance that limits the long-term effects of mine development on downstream springs and streams.
Chapter 3/ Ground Water Quantity/Pages12-19/ general comment	Hydrology	The ADEIS review of the groundwater models is too cursory. The write-up provides no adequate description that the public could understand, yet in its attempt to explain the models it uses terms that only a modeler would understand. For example, the term “boundary” immediately conjures an image to a member of the public but that image would be very incomplete regarding these models because in a numerical model boundary means to set certain conditions regarding flow.
Chapter 3/ Ground Water Quantity/Pages12-19/general comment	Hydrology	One of the ways the ADEIS compares models is to discuss boundaries. It would be useful if the ADEIS presented some guidelines as to how the boundaries are selected, to aid in comparison. From Anderson and Woessner (1992), p. 100, “It is advisable to select physical boundaries whenever possible...A two order of magnitude contrast in hydraulic conductivity may be sufficient to justify placement of an impermeable boundary...”
Chapter 3/ Ground Water Quantity/Page 25/fig 3.2a	Hydrology	It would be more accurate to refer to “Withdrawal Sinks”. A “Source of Withdrawal” seems a contradiction in terms. Hydrologists refer to sources and sinks.
Chapter 3/ Ground Water	Hydrology	The description of different water levels for shallow and deep wells would be enhanced with a map

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

Quantity/Page 25/lines 10-16		showing groundwater contours for both shallow and deep wells. That way the reader would get a sense of the vertical gradient and its variation across the area being discussed, and how big that area is.
Chapter 3/ Ground Water Quantity/Page 25/line17-18	Hydrology	The description in the previous paragraph IS an “indication of a perched shallow ground water aquifer”. The ADEIS should provide longer-term hydrographs to demonstrate whether the shallow wells follow the trends in the deeper wells or whether there truly is a disconnect between groundwater monitored by the two sets of wells.
Chapter 3/ Ground Water Quantity/Page 25/line 23-24	Hydrology	Figure 3.3 presents groundwater contours, not “[g]round water level measurements”. Also, it should state whether the contours are from field measurements or the steady state solution to a groundwater model. The domain shown in Figure 3.3 looks like a model but neither the caption nor the texts specifies the source of the contours.
Chapter 3/ Ground Water Quantity/Page 27/line 36	Hydrology	It is not correct to say “almost no hydrogeologic information” existed prior to 2008. There were several studies available from the time the mine was almost developed in the 1970s.
Chapter 3/ Ground Water Quantity/Page 29/line 17-19	Hydrology	The ADEIS should provide estimates of the amount of groundwater in bedrock v. the amount in fill and alluvium. This would provide some context to the amount of water to be removed by dewatering.
Chapter 3/ Ground Water Quantity/Page 29/line 31-33	Hydrology	The differing domain sizes are a reason to provide maps of the model domains.
Chapter 3/ Ground Water Quantity/Page 30/Fig 3.4	Hydrology	Are these groundwater contours in bedrock or fill? If not specified, there is an implication of direct connectivity between bedrock and fill that may not really exist.
Chapter 3/ Ground Water Quantity/Page 32-33/Fig 3.5 and Table 3.4	Hydrology	It would be useful for springs to be labeled on the figure.
Chapter 3/ Ground Water Quantity/Page 43/line 16	Hydrology	It is good to have shown how far the drawdown expands even after pumping ceases. This needs to be considered in any mitigation required for this area.
Chapter 3/ Ground Water Quantity/Page 52/line 6-7	Hydrology	The ADEIS notes that they couldn’t use all of the models at all locations and times. This primarily refers to the fact that the Myers model, provided by Pima County, did not have output for desired time periods. Had the Forest Service informed Pima County that the model was going to be used, it would have been a simple process to provide the desired maps or drawdowns at specific time periods. (Should we provide the appropriate maps for the purposes of the FS piecing together the final EIS?)
Chapter 3/ Ground Water Quantity/Page 48/Figure 3.13	Hydrology	The figure shows 5-ft drawdown 20 years after mining ceases for the Tetra Tech and M&A models. These drawdown contours demonstrate vividly why the boundaries used by both the Tetra Tech

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

		and M&A models were inappropriate. As the ADEIS correctly notes, the core of the mountain west of the pit is an intrusive rock, mostly impermeable. By setting their GHB boundaries far west of the ridgeline, the models inappropriately draw water from the west side of the ridge, as shown by the drawdown cone extending in that direction.
Chapter 3/ Ground Water Quantity/Page 49-50/ Figures 3.14 and 3.15	Hydrology	These figures also show drawdown for areas west of the divide and the previous comment continues to apply. However, at these later dates when the flux from the pit lake controls the amount of water drawn toward the pit lake, allowing water to draw from west of the divide biases the result toward underpredicting the effects of the hydraulic sink downgradient in Davidson Canyon. The bias is caused by overall pit lake evaporation utilizing pit water derived from an area that in reality will not contribute flow to the pit – the area west of the divide. The bias is toward less water drawn from the down canyon direction, which decreases the predicted drawdown in that direction.
Chapter 3/ Ground Water Quantity/Page 51/Figure 3.16	Hydrology	This figure is redundant because the monitoring points are shown on the drawdown map, where they are more instructive.
Chapter 3/ Ground Water Quantity/Page 53/Table 3.9	Hydrology	The table indicates that Myers (2010a) does not include 50-year drawdowns. That is not correct. Figure A.7 in Myers (2010a) does include 50-year drawdown for layer 4.
Chapter 3/ Ground Water Quantity/Page 48-50/Figures 3.13-3.15 and Tables 3.7 to 3.11/page 52-54	Hydrology	These figures and tables are misleading because they do not present which model layer was used for the data. This is important when considering drawdown at a discrete location. Consider Rosemont Spring. This spring may discharge from bedrock fractures; therefore drawdown in the bedrock controls the discharge from the spring. The Myers model presented drawdown in the fill (layer 1) and bedrock (layer 4), but the others did not. The tables, where they present Myers' drawdown values, do not specify the model layer used in his analysis.
Chapter 3/ Ground Water Quantity/Page 55/line 28-29	Hydrology	Drought will also cause low flows, but this statement is irrelevant in this context unless the ADEIS emphasizes that mine pit-generated drawdown will make the drought conditions, for a given natural return interval drought, much worse.
Chapter 3/ Ground Water Quantity/Page 67/line17-21	Hydrology	The ADEIS mentions artificial recharge as a means to mitigate the drawdown cause by pumping process water. The artificial recharge should be simulated with the groundwater model to demonstrate its effectiveness and demonstrate whether the groundwater reservoir can accept the water. If the recharge site is outside the model domain, another model could be necessary because the recharge will be of water volumes commensurate with the amount being pumped.
Chapter 3/ Ground Water Quantity/Page 68/lines 30-33	Hydrology	The statement here counters the lines referenced in the previous comment. This states that recharge will occur "far from the influence area of the mine water supply wells", which is counter the mitigation measure of placing the recharge in the drawdown cone of the wells. (not clear)
Chapter 3/Surface Water	Sediment yield	Tetra tech (Zeller 2010b) used PSIAC method to estimate sediment yield from the study site.

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

Quality/Page 10/ Line 11-16		PSIAC is developed for planning purposes by Pacific Southwest Inter Agency Committee for watershed basins of larger than 10 square mile (PSIAC, 1968). The watershed area is 8.2 sq mile for the Baseline condition and 1.9 sq mile for the post-mining condition. It is not appropriate to use the PSIAC method, especially for the post-mining condition. Additionally it is not clear how the sediment concentration was calculated (i.e. flow volume).
Chapter 3/Surface Water Quality/Page 14/ Line 8-16	Sediment yield	Rosemont mentioned that “dredging, filling clearing vegetation would directly affect sediment yield”, and “suspended sediment would be increased in surface water flows”. Tetra Tech (Zeller, 2011a) used PSIAC method to estimate sediment yield from the study site. As described above, it is questionable if the PSIAC method is appropriate for the study watershed. The impacts of the projects on sediment yield were estimated simply based on changes in the contributing watershed areas (Zeller 2010a). It is questionable if sediment yield would proportionally decrease with decreasing the contributing watershed area.
Chapter 3/Surface Water Quality/Page 16/ Line 30-39	Sediment yield	Rosemont described that the reach of Davidson Canyon could be potentially affected and significant reduction in the sediment yield from Barrel Canyon could cause changes in the geomorphology of the channel between the mine and the confluence with Davidson Canyon. Those descriptions suggest that the proposed mining activities could largely affect the channel morphology and sediment load in Davidson Canyon, although Rosemont concluded that the impacts are not significant.
Chapter 3/Surface Water Quantity/Page 25/ Line 41 – Determination all Impacts are the Same	Water Resources	The overall conclusion that all alternatives impact surface water equally is not supported by the analysis. The impacts to water resources are summarized in Table 3.1. Only the no-action alternative is clearly different than the other alternatives, however there are significant differences in the mining alternatives as well. The table recognizes four categories, but the mining alternatives are similar in only one – number of stock ponds impacted. The difference in runoff volume reduction by the mining alternatives differs by a factor of two (45.8% to 22.8%), which is a tremendous difference. As such, the finding that all alternatives impact surface water equally is simply not supported by the analysis presented in the preceding chapter and detracts from the credibility of the DEIS as a whole.
Chapter 3/Surface Water Quantity/Page 19/Line 12 –14	Water Resources	The assertion in the DEIS that reduction in surface flow volumes will have ‘insignificant’ impact except to stock ponds is unsupported. The DEIS notes that stormwater flows to channels would be reduced 45.8% by the proposed alternative, but then concludes ‘...surface water quantity impacts other than those in stock tanks would be minor and are considered insignificant.’ Given that the volume reduction is nearly half (45.8%), Rosemont should be asked to demonstrate that such impacts are ‘insignificant’ rather than simply asserting so.
Chapter 3/Surface Water Quantity/Page 19/Line 8	Water Resources	Reduction of Flow Along Davidson Canyon: The area-weighted reduction in contribution results in and underestimate of the water reduction in Davidson Canyon. Orographic effects described in the NOAA 14 rainfall atlas show that more rain occurs at higher elevations. For this reason, the relative

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

		impact of removing upstream contributions from a high elevation location, like Rosemont, will be under-estimated by assuming that runoff volume is fully a function of watershed area.
Chapter 3/Surface Water Quantity/Page 3/Line 4 – Analysis Methodology, Assumptions, Uncertainty and Unknown Information	Hydrology	<p>The DEIS uses hydrologic methods that have not been verified in Pima County and result in erroneous peak discharge estimates. Methods that have been verified are described in Tech Policies 010, 015 and 018. Among the specific concerns are:</p> <ol style="list-style-type: none"> 1.) The rainfall depths used in the Rosemont model are too low. The point for NOAA 14 atlas rainfall data is at 4,429' is from a location east of the mine, while the mine elevation is reported at 5,350' which means that because of the orographic effect noted in NOAA 14, rainfall depth the rainfall depth used in the hydrologic models is too low. 2.) Model input derivation is not described. The methods used to derive the sub-basin hydrograph generation and routing are not described in this DEIS or in any of the supporting documentation. 3.) Use of a 24-hr storm for Peak Discharge determination in all cases: Peak discharge per unit area is higher at smaller areas, so that smaller watersheds produce 100-yr discharges on the order of 5 cfs/ac (which is the basis for estimating PC jurisdiction beginning with watersheds of 20 ac [i.e. 20 ac x 5 cfs/ac = 100cfs]). By using the 24-hr, Rosemont has the potential to greatly underestimate the peak flow for most of the drainages. <p>The CN tables used by Rosemont are from USDA, which result in less runoff. Tables used in Pima County (PC-Hydro User Guide, Arroyo Engineering 2007) have been validated in Pima County and shown to be more accurate than the national tables developed by USDA (Stewart, Canfield and Hawkins 2009). In general, the values in Pima County are higher and will result in a higher discharge. For example, CN for soil D 100% (Mc Cleary Canyon) should be higher (currently used 85.76).</p>
Chapter 3/Surface Water Quantity/Page 19-23/tables 3.13, 3.14, 3.15, 3.16, 3.17, and 3.18 – Column '100-yr 24 hr, Average Annual Volumes.'	Water Resources	The terms '100-yr' and 'Average Annual' are mutually exclusive. Is this the runoff volume from a 100-yr 24-hr storm, or the average annual runoff volume? As such, the significance of the value is unclear while its importance would seem to be great.
Chapter 3/Surface Water Quantity/Page 6/ Line 23 – Hydrometeorology	Hydrology and Water Resources	The DEIS draws comparisons with off-site periods of record much longer than the record at Rosemont. The data at Rosemont is not of adequate period of record to be useful. At a minimum, the DEIS should provide the data contemporaneous with the Rosemont data as well as the long-term data.
Chapter 3/Surface Water	Water Resources	Impacts of the proposed project to downstream (indirect impacts; e.g. stock tanks, Davidson

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

Quantity/Page 24/ Line 20-27		Canyon) should be assessed by using more frequent and smaller storms, in addition to critical storms such as 100-yr or 500-yr storm. This is because 100-yr or 500-yr storms are statistically rare. It is important to evaluate the impacts of the project on downstream under "normal condition" with more frequent storms. DEIS uses 100-yr storm volume to estimate the impacts of projects on downstream. It is not reasonable to use 100-yr flood to estimate an average annual runoff of storm flow.
Chapter 3/Surface Water Quantity/Page 25/ Line 37-43 – Stock Tank Evaluation	Water Resources	The evaluation of the impact of the projects on stock tanks is not based on reasonable analysis (see above comment).
Chapter 3/Surface Water Quality/Page 4/ Lines 3-4 – Power Line Construction Impact	Hydrology	It is not clear why power lines construction will not be expected to have no impacts.
<p>Regional Wastewater Reclamation Department</p> <p>Chapter 2, page 26, lines 3-5</p>	<p>Kathleen M. Chavez, P.E. Water Policy Manager BSCE</p> <p>Public Water Supply ARS 49-107.A</p> <p>http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/49/00107.htm&Title=49&DocType=ARS</p> <p><i>The director may delegate to a local environmental agency, county health department, public health services district or municipality any functions, powers or duties which the director believes can be</i></p>	<p>Daily job responsibilities include the review of regional water policy and water resource issues; evaluation of water resource impacts to county facilities. Involved in the CAP water issues in Green Valley.</p> <p>The recharge sites are not identified, so groundwater impacts are not known and it cannot be determined if the proposed mitigation is adequate</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

	<p><i>competently, efficiently and properly performed by the local agency if the local agency accepts the delegation and agrees to perform the delegated functions, powers and duties according to the standards of performance required by law and prescribed by the director.</i></p>	
<p>Chapter 2, Page 70, Table 6, Item 3B, Change in water table level</p>	<p>Pima County Board of Supervisors Policy 50.1</p> <p>http://www.pima.gov/cob/policy/F50-1.pdf</p> <p><i>All departments and units of Pima County Government shall comply with applicable environmental laws, statutes, regulations, rules and guide lines promulgated by Federal, State and Local law in a consistent, uniform and timely basis.</i></p>	<p>It is not clear if the change in water table level refers to the water levels at the mine site or at the well field. Assuming it refers to the well field, the Executive Summary states the groundwater levels would decrease up to 70 feet, while Table 6 states the approximate total drawdown attributable to pumping is 30 to 70 feet. There is a large variation in the estimated drawdown and conflicts with the Executive Summary. It is requested that Rosemont provide the technical reports that were used to calculate the annual rate of drawdown. Pima County has an interest in this, because it has groundwater wells within the impact area that are used for compliance purposes</p>
<p>Chapter 3-Groundwater Quality, Page 1, lines7-8</p>	<p>Public Water Supply ARS 49-107.A</p> <p>http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/49/00107.htm&Title=49&DocType=ARS</p> <p><i>The director may delegate to a local environmental</i></p>	<p>We disagree there are unlikely to be any water quality impacts in the Upper Santa Cruz Sub-Basin near the mine water supply pumping. Additional analysis would help clarify whether Rosemont pumping will impact Pima County's wells and surrounding public system water wells.</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

	<p><i>agency, county health department, public health services district or municipality any functions, powers or duties which the director believes can be competently, efficiently and properly performed by the local agency if the local agency accepts the delegation and agrees to perform the delegated functions, powers and duties according to the standards of performance required by law and prescribed by the director.</i></p>	
<p>Chapter 3-Groundwater Quantity, Page 11, lines 13-21</p>	<p>Public Water Supply ARS 49-107.A</p> <p>http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/49/00107.htm&Title=49&DocType=ARS</p> <p><i>The director may delegate to a local environmental agency, county health department, public health services district or municipality any functions, powers or duties which the director believes can be competently, efficiently and properly performed by the local agency if the local agency accepts the</i></p>	<p>The DEIS states that the groundwater model cannot be used to assess impacts to local wells and that to do so would be costly and time consuming. This would seem to render the model ineffective.</p>

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

	<i>delegation and agrees to perform the delegated functions, powers and duties according to the standards of performance required by law and prescribed by the director.</i>	
Chapter 3-Groundwater Quantity, Page 24, lines 12-14	ARS 11-264 <i>Authority to operative a sewage system</i>	The DEIS states that the Green Valley Wastewater Treatment Plan was historically recharging the aquifer and that now effluent from the plant is now recharged at Robson Ranch Quail Creek. That is not correct. Some reclaimed water is delivered to Robson Ranch Quail Creek and some is recharged at Green Valley Wastewater Reclamation Facility percolation ponds without storage credit accrual. In 2010, 2,324.49 acre-feet of effluent were produced and 1,712.55 acre-feet were delivered to Robson Quail Creek for groundwater recharge, while 611.94 acre-feet were recharged in the Green Valley WRF percolation ponds.
Chapter 3-Groundwater Quantity, Page 37, line 33, Table 3.5	Maintenance of County Parks ARS 11-935 <i>Establish broad policies and long-term programs for the acquisition, planning, development, maintenance and operation of the county parks</i>	The modeled drawdown for selected wells varies from ten feet to 70 feet. For City of Tucson Well SC-023A located two miles northeast of the southern well field the estimated drawdown is 70 feet. Pima County has a well, 55-534039, that is 1.1 miles from the northern well field that provides irrigation to the Sahuarita District Park. It can be expected that Pima County's well will be impacted by the Rosemont Well fields
Chapter 3-Groundwater Quantity, Page 67, lines 4-10	Public Water Supply ARS 49-107.A http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/49/00107.htm&Title=49&DocType=ARS <i>The director may delegate to a local environmental agency, county health department, public health</i>	To eliminate drawdown impacts to public water systems in the Sahuarita area from Rosemont's pumping, the proposed mine should use CAP water directly for the mine's water supply.

**AGENCY REVIEW OF THE INTERNAL WORKING DRAFT OF THE ROSEMONT COPPER PROJECT DEIS
SPECIAL EXPERTISE REQUIRED COMMENT FORM**

AGENCY: Pima County

	<p><i>services district or municipality any functions, powers or duties which the director believes can be competently, efficiently and properly performed by the local agency if the local agency accepts the delegation and agrees to perform the delegated functions, powers and duties according to the standards of performance required by law and prescribed by the director.</i></p>	
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