

# Proposed Rosemont Copper Project

*DRAFT- NOT FINAL UNTIL INITIALED BY BEV EVERSON*

ID Team Meeting

March 31, 2009

Approved by:

\_\_\_ Bev Everson

\_\_\_ Tom Furgason

File in:

\_\_\_ Administrative Record

## Attendees:

<u>Forest Service</u>	<u>SWCA</u>	<u>Other</u>
See sign-in sheet		

## Topics Discussed:

- Alternatives brainstorming session

## Decisions Made:

- N/A

## Action Items/Assignments:

- None made

# Proposed Rosemont Copper Project ID Team Meeting Sign-In

Date 3/31/09

First Name	Last Name	Role	Initials
Alan	Belauskas	Noise	
Andrea	Campbell	NEPA Compliance/FOIA Officer	
Bev	Everson	ID Team Leader	✓
Bob	Lefevre	Air Resources, Clean Water Act	
Camille	Enslie	Presentation	
Cara	Bellavia	Social & Economic Environments	
Chris	LeBlanc	Heritage	
Dave	Morrow	Air Resources	
Deanne	Rietz	Hazardous Waste	
Debby	Kriegel	Light (Night Skies)	✓
Deborah	Sebesta	Vegetation, Reclamation, Wildlife	
Eli	Curiel	Hazardous Waste, Mining	✓
Geoff	Soroka	Vegetation, Reclamation, Wildlife	
George	McKay	Access/Lands/Realty	
Glenn	Dunno	Data Management	
Harmony	Hall	External Communications	
Heidi	Orcutt-Gachiri	Tech Editing	
Heidi	Schewel	Media	
Janet	Jones	Admin Support	
Jeanine	Derby	Forest Supervisor	
Jeff	Connell	Social & Economic Environments	
Jennifer	Ruyle	Forest Planner	
Jerome	Hesse	Geology	
Joe	Ezzo	Heritage	
John	Able	Communications Team	
John	MacIvor	SWCA Project Leader	
Keith	Graves	Recreation, Social & Economic Env.	
Ken	Kertell	Wildlife Resources	
Kendall	Brown	Range	
Kendra	Bourgart	Team Admin Asst	
Kristen	Cox	Light (Night Skies)	
Lara	Mitchell	Data Management	
Larry	Jones	Wildlife Resources	
Marcie	Bidwell	Recreation	
Mary	Farrell	Heritage	MM
Melissa	Reichard	Team Admin Asst	
Ralph	Ellis	Transportation/Engineering	
Reta	Laford	Deputy Forest Supervisor	
Rion	Bowers	Clean Water Act Compliance	



Proposed Rosemont Copper Project ID Team Meeting  
 Guest Sign- In

Date 3/31/09

First Name	Last Name	Company & Role
Mark	Myers	Montgomery + Assoc - water resources
David	Krizek	Tetra Tech - civil
CHARLES	COYLE	SWCA - PM
Bex	Everson	Coronado NF
Robert	Levevre	Coronado NF Soil Water, Air, Riparian
JEFF	Connors	Rosemont - Geology
Fernando A.	SAMORANO	ROSEMONT COPPER - MINE MANAGER
Reta	Laford	FS Deputy Forest Supervisor
Craig	Hunt	M3 - Civil Engr
Hale	Barber	Montgomery & Assoc.
Justin	Wyer	AMEC
Kent	Ellett	Ranger - Nogales
Brian	Lindholm	Westward - PM
Kathy	Arnold	Rosemont Copper - Dir ENV Reg Aff.
Daniel	Roth	M3 - Reclamation
ARTELEK		USFS - Fire Prevention
Teresa Ann	CRAPUSCI	USFS - CORONADO
Bill	Gilespe	USFS - CORONADO - Heritage Resources
ROD	PAGE	RCC - Rosemont
Mary	Jewell	USFS - Coronado - tribal
Jamie	Stuyess	ACC - Rosemont



Alternatives Development

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*“ . . .all agencies of the Federal Government shall . . .study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources”  
NEPA Section 102(2)(e)*

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An alternative is a substitute for a lead agency's Proposed Action that accomplishes the action in another manner

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The purpose of an alternative is to provide another option to the decision-maker that will accomplish the Purpose and Need of the project while minimizing potential adverse environmental impacts

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CEQ guidelines require alternatives as part of an EIS (i.e., major Federal Action)

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**Types of Alternatives**

- Primary Alternative
  - A substitute for the proposed action that meets purpose and need with a completely different strategy
- Secondary Alternative
  - Uses a similar strategy as a proposed action for meeting purpose and need but with differences in site location, size, operation, or other factors

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**Primary Alternative**

- Coal-fired plant vs. a nuclear power plant
- Water conservation vs. construction of new dam and reservoir
- Staggering arrivals and departures vs. enlarging an airport

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**Secondary Alternative**

- Changing the site location of a nuclear power plant
- Finding alternative sites for a new dam and reservoir
- Enlarging different key runways at an airport

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*...agencies shall:*

*(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated*

*40 CFR 1502.14*

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### Range of Alternatives

- Subject to the rule of reason
- An agency is not required to consider every extreme possibility which might be conjectured
- A No Action Alternative must be included

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“Reasonable” alternatives can include alternatives that are considered “undesirable” by the lead agency or are outside of the lead agency’s jurisdiction

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### Alternatives That Should Be Considered

- A “reasonable” alternative that is suggested by the public or an agency
- An alternative that addresses specific resource concerns or issues
- An alternative that provides a more comprehensive benefit in terms of meeting project Purpose and Need than the original Proposed Action

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### Alternatives That Should Not Be Considered

- Implementation is speculative and impacts cannot be reasonably analyzed
- **Alternative results in similar or greater harm than another alternative**
- Alternative is as defective as one already rejected by agency
- Alternative is dependent on technological advances when the agency action must achieve short-term results
- **Alternative is not consistent with the purpose of the agency action**

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### Seven Steps to Developing Alternatives

- Examine project purpose and need
- Review public, agency, and stakeholder scoping
- Eliminate alternatives suggested during scoping that do not meet purpose and need
- Eliminate alternatives suggested during scoping that do not decrease environmental impacts
- Review remaining alternatives to determine entire range of feasible alternatives
- Pick a representative sample of the full range of "reasonable alternatives"

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### What Can Proponent Contribute to the Alternatives Formulation Process?

- Provide information regarding technical, financial or other limitations relevant to potential alternatives
- Ensure that project purpose and need is adequately understood by the lead agency and contractor
- Provide technical data as necessary to develop alternatives
- Fully develop Proposed Action before alternatives development process begins (do not change Proposed Action after alternatives are formulated)
- Review strategies for meeting Purpose and Need the minimize resource impacts (both primary and secondary)
- Don't be afraid of alternatives!

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**Keys to Effective Alternatives  
Development Workshops**

- Understand that a positive impact on one resource, usually means a negative impact on another (no perfect answers, just intelligent choices!)
- Work cooperatively towards finding alternative solutions to resource conflicts
- Do not waste time on alternatives for decisions outside the scope of the project
- Do not discuss issues or details unrelated to project alternatives (stay on task)
- Put questions or issues that require additional research or coordination to be answered or resolved in a "parking lot"

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Alternative Development

Rosemont Copper Project  
2009

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Considerations in the  
Development of Alternatives...



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The environmental impact statement should demonstrate how the alternatives considered in it meet, or do not meet, the requirements of the National Environmental Policy Act (NEPA) and other environmental laws, policy and direction.



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The format of the environmental impact statement should facilitate good analysis and clear presentation of the alternatives.



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Alternatives Should:

- Be logically tied to a significant issue
- Fulfill all or part of the purpose and need
- Address unresolved conflicts related to the proposed action
- Be generated by agency management and resource specialists, as well as from scoping and public involvement
- Consider opportunities outside agency jurisdiction
- Be rigorously explored and objectively evaluated
- Cover the full spectrum of options
- Have a range that depends on the nature of the proposal
- Be technically and economically practical or feasible...

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...be documented in a formal statement that includes:

- Elements of the alternative that are comparable to other alternatives and to the proposed action
- Associated mitigation
- Relevant measures or metrics [note that this analysis will use English System measurement units where possible, and that measures will be standardized within resource areas (for example, between Forest and Regional Office specialists)]
- Identification of conflicts with governing direction, including that of the Forest Plan...

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...be compared with one another, with the comparisons including all information that the decision maker needs to make a reasoned choice, and all information that the public needs to know to understand the choice, including:

- Environmental effects
- Response to significant issues and purpose and need
- Forest plan consistency findings
- Production of goods and services
- Compliance with legal obligations
- Social and economic effects
- Any other items the responsible official wants compared

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Reasons to eliminate an alternative from detailed study include, but are not limited to:

- Not meeting the purpose and need
- Technological infeasibility
- Illegality of alternative
- The alternative would result in unreasonable environmental harm
- Clearly unreasonable
- Duplication within the existing range of alternatives
- Previously decided
- Cannot be implemented
- Remote or speculative

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The No Action Alternative

- Is required by regulation (40 CFR 15012.14(c))
- Provides a baseline for estimating effects



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### Definition: Preferred Alternative

The alternative(s) which the agency believes would best fulfill the purpose and need for the proposal, consistent with the agency's statutory mission and responsibilities, giving consideration to environmental, social, and other factors disclosed in the environmental impact statement.



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### Mitigation

- Is defined as measures designed to reduce or prevent undesirable effects
- Some ways to mitigate effects include:
  - Avoiding the impact by not taking action
  - Minimizing the impact by limiting action or spreading the action across time
  - Rectifying the impact by rehabilitation
  - Reducing the impact by maintenance
  - Compensating for the impact by replacement

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- Appropriate mitigation measures not already included in the proposed action or alternatives should be included in the analysis.



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### Roles

- SWCA
  - Identifies alternatives in scoping comments
  - Develops additional alternatives, mitigation, and measures
- Interdisciplinary Team (IDT)
  - Reviews SWCA's alternative package and supplements it as needed to ensure range of alternatives is sufficient
  - Generates additional mitigation as needed
  - Documents recommendations and rationale for the alternatives considered in detail, and those dismissed from detailed study
- Responsible Official
  - Accepts or overrides IDT alternative recommendations
  - Identifies any preferred alternative(s)
  - Documents final range of alternatives and disposition of alternatives in the Administrative Record

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**Alternatives**

**01 General**

Record ID	Comment Number	Commenter Type	Comment Text
160	106		<p>Scoping Alternatives</p> <p>This section of the scoping document identifies twelve (12) alternatives in addition to the proposed project. These alternatives reflect a range of strategies to significantly reduce adverse environmental impacts: no action, alternative uses of public lands reduction of project scale, alternative types of mining, alternative locations for selected elements to the proposed project; transportation types and routes, timetable; and alternative processing technologies. This list is not intended to be exhaustive, and during the preparation of the Draft EIR other alternatives will surely be generated and evaluated accordingly. The following alternatives are generally listed in order of preference as regards reducing or eliminating adverse environmental impacts. Those alternatives with the least impact are listed first, with the successive alternatives listed in terms of likely increases in the type, magnitude, extent, and significance of adverse impacts. Note also that some alternatives could be used in combination, particularly with respect to placement of spoils, transportation types and routes, and processing technologies, particularly with respect to water use and recycling. This discussion does not address these possible combinations, however during the preparation of the Draft EIS such combinations should be fully explored in order to identify alternatives (and sub-alternative combinations) which result in significant reductions in adverse environmental impacts.</p> <p>Alternative 1: No Action. NEPA requires the consideration of the "No Action" alternative. Assessment of this "no action" alternative should not simply state that there will be no impacts, but should list the impacts avoided as a result of the alternative as well as the public benefits of "no action." In the case of a large, open-pit copper mine and processing facility, the "No Action" alternative will obviously eliminate the many adverse and potentially significant environmental impacts associated with the project as proposed, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services. In all likelihood, the "No Action" alternative will be determined to be the "environmentally superior" alternative as well.</p>
160	107		<p>Alternative 1A: Alternative Uses of Public Lands. This alternative is a variation of the NEPA requirement to assess the "No Action" alternative (see above), and, in fact, could be incorporated into that alternative. Under this alternative, alternative uses of public lands would be considered in contrast to those set forth in the description of the "Proposed Action" in the Notice of Intent (NOI). According to the NOI, "Project-related activities to be addressed in the EIS include, but are not limited to, the following: .....</p> <p>Construction, operation and reclamation of an ore-processing plant, tailings, waste rock and leach facilities on NFS land adjacent to the mine. ...." Inasmuch as these uses are not appropriate uses of public lands, this alternative explores the public benefits of alternative uses of NFS lands to those listed above rather than simply the passive alternative of "no action". Such uses could include, but not be limited to the following (individually, and, as applicable, in combination):</p> <p>Public acquisition of privately held property within the northern range of the Santa Rita Mountains to provide in-perpetuity conservation of important open space lands within the greater Tucson region. Such public acquisition could also involve a land exchange with Augusta.</p> <p>Incorporation of the northern range of the Santa Rita Mountains, particularly that portion of the range within the Cienega creek watershed, into Las Cienegas National Conservation Area (LCNCA). The LCNCA provides an ideal model for utilizing land exchange and intergovernmental cooperation as a means of achieving long-term conservation of open space lands. Coronado National Forest lands are contiguous to LCNCA and BLM and the State of Arizona are already partners in LCNCA.</p> <p>Enhanced grazing lands in conjunction with the Ranch Conservation element of the Pima County Sonoran Desert Conservation Plan.</p> <p>These and similar alternatives would eliminate or significantly reduce the many adverse and environmental impacts associated with the uses proposed for NFS lands in the MPO. Conceivably, one of these alternatives could be determined to be the "environmentally superior" alternative as well.</p>

**Alternatives**

**01 General**

Record ID	Comment Number	Commenter Type	Comment Text
160	108		<p>Alternative 2: Limited Project. Under this alternative, mining excavation and placement of all spoils would be limited wholly to fee simple lands and patented mining claims, and thus provide maximum protection of all public trust lands - National Forest, Bureau of Land Management, and State of Arizona. This alternative would prohibit placement of all spoils and overburden on public lands thus protecting the five square miles of public land designated for permanent mine tailings, facilities, waste rock storage, and open pit excavation proposed in the current Mine Plan of Operation.</p> <p>Due to the reduced area of disturbance as well as the reduced scale and level of mining and processing activity, as well as eliminating the deposition of overburden and spoils on public land, this alternative would likely result in substantial reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>
160	109		<p>Alternative 3: In-Situ Mine. In-situ means "in the natural or original position." This alternative involves obtaining the desired material with only minimum physical disturbance of the mine site, as the ore is leached in its existing underground location. The alternative consists of a series of injection wells and recovery wells. These wells, constructed with acid-resistant casings, penetrate the copper-bearing ore, and are sealed from the surface through the ore zones. A weak, acid leach solution is pumped through the cracks in the ore, dissolving the copper into a concentrated solution, which in turn is pumped up through the injection well for processing. A continuous ring of recovery wells surround the injection wells to prevent leach solution from escaping. This alternative thus avoids the excavation of ore rock and the disposal of overburden and tailings. Processing can take place off-site thus minimizing adverse impacts at the mine site. When the copper ore body is depleted any hazardous materials remaining in the ore zone are flushed out through pumping and rinsing with fresh water. Once the wells are cleaned, they are filled with cement and the land returned to its former use.</p> <p>Due to the reduced area of disturbance as well as the absence of overburden and spoils on public land, this alternative would likely result in substantial reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services. (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>
160	110		<p>Alternative 4: Underground Mine. This alternative would involve sinking mine shafts to subterranean levels containing ore and then constructing horizontal tunnels, called adits, to reach the underground ore deposits. Through the use of this alternative, the large, highly visible open-pit excavation would be avoided, along with the surface deposition of a large volume of overburden waste rock. Modern underground mining technologies utilize blasting with explosives and typically utilize heavy-duty mechanical cutting equipment. Use of robotic technologies may be feasible. Ore is extracted via mechanical rail conveyances, thus the ore can be removed from the immediate mine site to off-site locations for processing. Reclamation of this underground mining alternative would involve closure of the shafts and tunnels, as well as reclamation of mine tailings.</p> <p>Due to the reduced area of disturbance as well as the reduced magnitude and extent of overburden and spoils on public land, this alternative would likely result in reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>

**Alternatives**

**01 General**

Record ID	Comment Number	Commenter Type	Comment Text
160	111		<p>Alternative 5: Continuous Pit Backfill. Under this alternative the project would utilize a continuous backfill technology, whereby the open pit would be progressively filled with the waste rock, spoils, and overburden generated as the excavation proceeds. This alternative would thus eliminate the waste material placed on public lands, although at the project outset might warrant temporary and very limited storage of such materials on adjoining public lands. This alternative would also eliminate the open pit at the completion of extraction.</p> <p>Due to the reduced area of disturbance as well as eliminating the long-term effects of overburden and spoils on public land, this alternative would likely result in reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services. (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>
160	112		<p>Alternatives 6 through 10 are concerned with alternative modes and routes for transporting materials - including ore, waste rock and tailings - equipment, and personnel to and from the mine site. These alternatives include the use of rail transportation, mechanical conveyances, and hydraulic conveyances as well as alternative vehicular routing in order to reduce the potential adverse impacts of the proposed project.</p> <p>Alternative 6: Rail Transport of Ore, Spoils and Tailings from the Mine Site. Under this alternative, all material - ore, spoils, tailings, and waste rock would be transported from the site via a new rail line constructed to the mine site. Overburden would be stockpiled on site for use during the reclamation phase. The ore would be transported to a processing site, and the so-called waste material could then be utilized off-site in other industrial processes, including but not limited to crushed rock for construction use, construction land fill, road base construction, and similar industrial uses.</p> <p>Due to the long-term effects of eliminating overburden and spoils on public land, this alternative would likely result in reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic and public safety; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services. (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>
160	113		<p>Alternative 7: Rail Transport of All Ore from the Mine Site. Under this alternative, all ore would be transported to an off-site processing location, preferably adjacent or near an existing smelter. Transport from the mine site would be via a new rail line constructed between the mine site and a main rail line. Two routing options exist - one connecting to the north, the other to the west.</p> <p>Due to the relocation of the processing facility to a more appropriate off-site location, this alternative would likely result in reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic and public safety; night lighting/visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services. (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>
160	114		<p>Alternative 8: Mechanical Conveyance of Ore to Rail Head. This alternative is similar to Alternative 7 but would utilize some form of mechanical conveyance, such as a mine cart conveyor system, down the west side of the Santa Rita Mountains to a rail head for shipment on the existing rail line connecting Nogales and Tucson. This alternative could be undertaken in conjunction with all other alternatives (see above), and could be used for shipment of both the ore product and the so-called waste materials.</p> <p>Due to the conveyance of ore to a rail head for shipping to an off-site processing facility, and the removal of processing from the on-site operations, this alternative would likely result in reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic and public safety; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyles; energy uses; historic and cultural resources; and effects on local emergency services. (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>

**Alternatives**

01 General			
Record ID	Comment Number	Commenter Type	Comment Text
160	115		<p>Alternative 9: Hydrological Conveyance of Wet Ore Concentrate to Processing Site West of the Santa Rita Mountains. This alternative is similar to Alternative 8, but would utilize some form of hydrologic/pipeline conveyance down the west side of the Santa Rita Mountains to a processing/drying site near Santa Rita Road. According to the Applicant, 89% of the water could be returned to the mine area for reuse. The ore product could then be trucked to the Port of Tucson railhead at Kolb &amp; I-10 or to a railhead on the existing rail line connecting Nogales and Tucson. This alternative could be undertaken in conjunction with other mine-type and processing alternatives (see above).</p> <p>Due to the hydrologic conveyance of ore to a rail head for shipping to an off-site processing facility, and the removal of processing from the on-site operations, this alternative would likely result in reductions in a variety of impact categories, including, but not limited to surface and groundwater resources; toxic materials, emissions and airborne toxic dust; noise; vehicular traffic and public safety; night lighting; visual quality; recreation; wildlife and wildlife habitat; regional rural economy, property values, and lifestyle; energy use; historic and cultural resources; and effects on local emergency services. (Relevant Comment numbers: 1A, 1B, 1C, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 4A, 4B, 5, 6, 7, and 10).</p>
160	116		<p>Alternative 10: Loop Road Circulation System. This alternative would utilize either a tunnel through or a summit road over the Santa Rita Mountains so that full ore trucks would road through a tunnel or over the top so that full trucks would go west to I-19, north to I-10, and then to the Port of Tucson railhead at Kolb and I-10; empty trucks would return on the East side of the Santa Rita Mountains via SR83.</p> <p>This alternative would likely result in reductions in a variety of impact categories, including, but not limited to emissions; noise; vehicular traffic and public safety; recreation; and effects on local emergency services. (Relevant Comment numbers: 2B, 2D, 3B, and 10).</p>
160	117		<p>Alternative 11: Modified Time-Table. The following alternatives address extensions or other changes in the timetable for mine operations which could result in reduced impacts:</p> <ul style="list-style-type: none"> <li>a. Extend Mine lifetime to 40 or 50 years</li> <li>b. Suspend mining operations during high winds</li> <li>c. Suspend mining operations during extreme drought conditions</li> <li>d. Suspend mining operations during periods of excellent "seeing conditions" at the surrounding dark-sky observatories.</li> </ul>
160	118		<p>Alternative 12: Alternative Processing Technologies. In addition to the alternatives listed above, the Draft EIS should expand the range of technical alternatives within the various processes and techniques proposed in the MPO and alternatives to the MPO as augmented in this scoping document and in subsequent alternatives generated through scoping and the formal environmental assessment phase. Such technical alternatives must be generated by an independent set of consultants with demonstrable expertise in mining technology and a proven record for successfully utilizing alternative mining methods and technologies which significantly reduce adverse environmental impacts.</p>
1544	1	Individual	<p>Why does the mine need to use clean/fresh/virgin water? Why can't they use gray water? Wouldn't everyone win if they piped gray water from the cities, used it, recharged it, and added to the fresh water supply.</p>
1545	1	Individual	<p>The tailings from the mine are going to be mixed with polyers to keep them from blowing around. Polymers are plastics that are made from oil and they do not degrade. So 30-50- years from now we will have this huge pile of dust and plastic? How about mixing the tailings with something else? Something that will bio-degrade and still perform the dust retention function.</p>
1610	2	Individual	<p>This TEP proposal provides another option to provide power to Rosemont Copper. This project provides for double-circuit 138 kV transmission lines to go southwest from the Vail substation to a new Cienega substaion in Phase 1 and a new Mountain View substation in Phase 2 to the south of Interstae 10, next to State Route 83 that goes directly to the Rosemont Copper mine (see enclosure 4).</p> <p>Q-51. Will the proposed Mountain View substation be considered as a power source for Rosemont Copper?          Q-52. How much power will be available at the Mountian View substation, if Phase 2 is ever build, after servicing its distribution demands?          Q-53. When is the Mountain View substation to be operational?</p>

**Alternatives**

**01 General**

Record ID	Comment Number	Commenter Type	Comment Text
1649	4	Individual	<p>Also, if Rosemont is not processing any ore at the site (per the Rosemont Copper web-site) and other mining companies discuss removing the tailings (Freeport-McMoRan Copper &amp; Gold Inc from the area to use for other purposes ...</p> <p><a href="http://www.fcx.com/envir/environmental.htm">http://www.fcx.com/envir/environmental.htm</a></p> <p>"Freeport's environmental experts have demonstrated for years that the tailings material can be readily revegetated or reclaimed with native forestry and agricultural plants. When mining is complete, the deposition area will be valuable high ground suitable for many applications. One emerging project, however, can put the material to positive economic use in the short term. During the past several years, Freeport Indonesia has been collaborating with scientists from Indonesia's leading technological research university, Institute Teknologi Bandung (ITB) - the Bandung Institute of Technology's Research and Industrial Affiliation Institute - on tailings' use as raw material for the construction and manufacturing of concrete, bricks, pipes and other infrastructure products. The results so far have been promising. According to the researchers, the properties of the material are conducive to construction applications and the crushed rock offers cost advantages over other basic material."</p> <p>Has Rosemont Mine - looked for alternatives / other options to completely remove the tailings that would be dumped on Public lands - not leaving any "dangerous" refuse on the property at all ---- removing the need to use any Forest Service Lands - and limiting the mine to private property.</p>
1649	5	Individual	<p>Is Rosemont Mining Corp going to use the ISO 14001 Standards for Environment Management? International Standards to make sure that employees, customers, and nearby communities feel that the company is following the fulfilling their commitment.</p> <p><a href="http://www.iso.org/iso/iso_catalogue/management_standards/iso_9000_iso_14000/iso_14000_essentials.htm">http://www.iso.org/iso/iso_catalogue/management_standards/iso_9000_iso_14000/iso_14000_essentials.htm</a></p> <p>"ISO 14001:2004 gives the generic requirements for an environmental management system. The underlying philosophy is that whatever the organization's activity, the requirements of an effective EMS are the same.</p> <p>This has the effect of establishing a common reference for communicating about environmental management issues between organizations and their customers, regulators, the public and other stakeholders.</p> <p>...</p> <p>ISO 14001:2004 can also be used to meet external objectives:</p> <p>provide assurance on environmental issues to external stakeholders - such as customers, the community and regulatory agencies comply with environmental regulations support the organization's claims and communication about its own environmental policies, plans and actions provides a framework for demonstrating conformity via suppliers' declarations of conformity, assessment of conformity by an external stakeholder - such as a business client - and for certification of conformity by an independent certification body."</p>
1700	5	Individual	Can the tailings be shipped to Rosemont or the Augusta Resources country?
1713	1	Individual	Why is CAP water not good enough for the "mine"
1715	2	Individual	Why doesn't Rosemont use CAP water?
1773	2	Individual	Given the mine is as lonf term as projected, can't there be a requirement of them to create/pave their own road?
1837	1	Individual	<p>Rosemont will not put a lining under the tailings.</p> <p>Comment from Georgette Valle</p> <p>A non porous lining should be placed under the Rosemont Mine tailings.</p>

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Record ID	Comment Number	Commenter Type	Comment Text
1840	2	Individual	I have heard that the mining company will not be putting a lining under the tailings pile. What impact will that have on the environment?
1842	2	Individual	I would hope that the Forest Service will require that any mines on their land, including the Rosemont Copper Project, will be required to return the material that is left after processing to the pit.
1957	21	Individual	it seems much more reasonable, safe, and certainly less intrusive on valuable Forest land, for the Forest Service to require Rosemont to simply switch the primary and secondary access routes in its Plan. The new access road coming from Route 83 would not need to be nearly as wide if it were only a secondary access route, thus saving Forest land, and the very heavy and hazardous mine traffic flows could be routed south and northbound along I-19, instead of Route 83. The existing road from the west would need improvement, but, again, I emphasize, Rosemont already recovers all its investment in less than three years, and a little additional road-grading expense is nothing compared to the terrible suffering engendered by a school bus-acid truck collision along Route 83 ( and please don't make the mistake of thinking that's not going to happen.).
1960	8	Individual	IF YOU APPROVE FOR THE ROSEMONT MINE TO GO INTO PRODUCTION, THEY SHOULD ONLY BE ALLOWED TO USE CAP WATER (NO GROUNDWATER). REMEMBER, THIS IS A FOREIGN COMPANY THAT WILL BE REMOVING OUR PRECIOUS METAL TO BE SHIPPED OVERSEAS. WHY IN THE WORLD WOULD WE ALLOW THEM (FOREIGN ENTITY) TO DESTROY OUR GROUNDWATER BASIN.
2106	7	Individual	Mines of this proposed magnitude have historically required rail service to transport the resulting ore to the smelter. I cannot conceive of the amounts of ore all being transported via truck. Where would such a rail line originate from and what additional environmental damage would result from its construction and use?
2126	8	Individual	IF YOU APPROVE FOR THE ROSEMONT MINE TO GO INTO PRODUCTION, THEY SHOULD ONLY BE ALLOWED TO USE CAP WATER (NO GROUNDWATER). REMEMBER, THIS IS A FOREIGN COMPANY THAT WILL BE REMOVING OUR PRECIOUS METAL TO BE SHIPPED OVERSEAS. WHY IN THE WORLD WOULD WE ALLOW THEM (FOREIGN ENTITY) TO DESTROY OUR GROUNDWATER BASIN.
2216	7	Individual	I would also like to know why the Rosemont Mine is not going to build a railroad to move the ore? I believe there were several in the area that could be redeveloped.
2244	4	Individual	Does the mine use solar? What is their energy conservation plan?
2255	7	Individual	All mines have a rail spur to deliver and transport its goods and products, in order to sustain the mining operation. The only reason why they haven't included it, is because its their first mining venture. This spur would add to the motoring public SAFETY. by removing the ore trucks from the highway! The state govt. would then main obstacle and the state(gov.) is notoriously easier to deal than the federal govt. Paving the road and adding a Spur running parallel to the Helvatia road after leaving the turcks in Sahuarita. This spur would remove ore shipments from SR83, not to mention ACID and REAGENTS which are Extremely HAZARDOUS.
2263	1	Individual	Water is precious in the Tucson area. Currently many golf courses are required to use effluent for their water source. I would like to propose that Rosemont mine use effluent (refined sewer water) as an alternative to groundwater, or in combination with groundwater. Pima County is already studying the use of effluent by the public to meet future water needs, it would make more sense to use it for mining operations than our limited groundwater supplies.
2265	11	Individual	As the proposal includes the construction of a CAP water line from Avra Valley to Sahuarita as well pipe lines from the new wells to the Rosemont property why would Augusta not propose to connect these two projects and use the CAP water for their operation?
2284	17	Individual	Wouldn't it be better and less intrusive on the current SR83 travelers to improve it before opening the mine so it can handle the additional volume of heavy trucks, perhaps make it a concrete highway in the section supporting heavy trucks?

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Record ID	Comment Number	Commenter Type	Comment Text
2289	2	Individual	The mine should put in a railroad spur from the line along I-19 traveling over to as close to the mine as possible and then truck the supplies over the mountain via the secondary road. This way all the traffic will be off the roads and only a few trains a day will handle all the traffic at a much lower fuel cost. Every 4 trucks will fill one hopper and so a train of 60 cars will take 240 trucks to fill. This is 12 hours of operation for the mine. So there would be two trains a day or so. This would not add the traffic load to Highway 83 nor to I10 or I19. The mine could get either the UP to run the line or have the Port of Tucson run it. Trains are 10 times more efficient for moving this high volume of material, saving a large amount of diesel fuel, and they would not clog up the Highway with the trucks. This would also eliminate the noise impact of the mine traffic on the highway.
2305	18	Individual	In their report Rosemont notes that open pit mining is being investigated to determine if passive contamination will be achieved. If the land must be raped of its resources why not use situ mining instead of open pit? The Copper Development Association wrote about In Situ Leaching: "In situ" literally means "in place." With in situ mining, a diluted sulfuric acid and ferric sulfate solution is injected down holes drilled into the ore body. The solution flows through cracks in the rock under pressure, leaching the copper from the rock into the solution. The solution is then pumped to the surface to recover the copper, using solvent extraction techniques. Tests show that recovery rates normally achieved with heap and dump leaching could also be approached with in situ mining. There are significant cost advantages of this operation which include: the surface need not be disturbed with anything other than pump and piping installations, no waste piles are created, start-up is relatively fast, equipment needs are reduced significantly, fluid control is more easily automated than solid batch processes, and we can mine deep, relatively low grade and complex ore bodies.
2366	4	Individual	Unless they bring in water from the ocean, and desalinate it if necessary for mining operations. The oceans are supposed to rise with global warming, not fall. So that supply wouldn't be exhausted, and after the mine closes after 20 years, the desalination plant and or transport pipe or canal could be used for homeowners, who surely will not be able to afford such a thing on their own. Not Pima county, not Tucson, not Green Valley, not Sahuarita, not even Arizona could afford such an expense now. Whether the mine could, they would have to decide.
2371	8	Individual	IF YOU APPROVE FOR THE ROSEMONT MINE TO GO INTO PRODUCTION, THEY SHOULD ONLY BE ALLOWED TO USE CAP WATER (NO GROUNDWATER). REMEMBER, THIS IS A FOREIGN COMPANY THAT WILL BE REMOVING OUR PRECIOUS METAL TO BE SHIPPED OVERSEAS. WHY IN THE WORLD WOULD WE ALLOW THEM (FOREIGN ENTITY) TO DESTROY OUR GROUNDWATER BASIN.
2381	17	Individual	I would suggest that Augusta's planners have not thoroughly researched the project. I propose that they examine Sycamore Canyon to the North of their project. This large canyon could accept all or nearly all of the waste, including tailings that would come out of the proposed pit. It would also not be visible from either Highway 83 to the East or from the Santa Cruz Valley to the West. The canyon for the most part is rather barren of plant growth, has no water, and is poor terrain for both wild life and cattle. A perfect dump space.
2381	19	Individual	The Rosemont ore body is ideally suited to an underground method of mining called sublevel caving. The technique is called VCR or Vertical Crater Retreat. This method is being used by Vale/Inco at the Stobic Mine in Canada. An underground approach to the Rosemont project eliminates the need for thousands of acres of public land for dump space, as the method produces very little waste rock. The caved area at the surface would be relatively small compared to an open pit and would be confined to Augusta's private land, not the public's. The caved area would not be as offensive to the line of sight from Highway 83, as a large open pit would be. Tailings could be deposited in Sycamore Canyon as discussed above.
2396	5	Individual	To alleviate traffic on public roads, a system of private roads on forestry land, maintained by Augusta may be a better alternative than allowing the mine's equipment to damage the public roads.
2400	11	Individual	Use existing Helvetia Mine road from the west side of the Santa Ritas for egress for mine employees and mine haul trucks.

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Record ID	Comment Number	Commenter Type	Comment Text
2400	12	Individual	Establish railspur for transportation of ore. This would eliminate mine traffic from our public roads, going thru housing, school sites and Adding to the congestion of an already severely congested area.
2400	13	Individual	A conveyor belt or slurry pipe could be use to transport to the trucks over the mountain or Directly to railspur.
2405	5	Individual	I propose that Highway 83 should not be used for the Rosemont Mines primary access. The better and safer alternative is to use Santa Rita Road as the primary access to the mine.
2423	5	Individual	I recommend that no current road/highway systems in existence be usable for that enterprise.
2453	19	Individual	I note the great interest in alternative energy - solar, wind, geothermal, etc. Perhaps some of these could be used at the mine? At any rate the copper and other minerals will be a boost to the construction of alternative energy generators.
2470	29	Individual	Where is the railroad spur?
2480	4	Individual	Solar panels on tailings/crater: As a gesture of good will, why don't the planners install solar collectors on the mine crater and tailings to contribute to non-polluting energy production?
2591	20	Individual	Has any consideration been given to the possibility of using processed waste water as a major source of water for mine use? If it is good enough for the people of Orange County in California to drink, perhaps it could be a reasonable alternative for the mine.
2617	51	Individual	We understand that there are numerous copper mines that were closed down when the value of copper dropped. Further we are dismayed that a new mine is even being considered before the possibility of re-opening up an existing mine. 1. Why don't you choose to be a proud reflection your motto to "respect the land" and persuade the mining companies to re-open the closed mines, operate where their environmental impact would be less and where the residents would welcome them? 2. Also, don't we have mine sites that could be re-opened that have a smelter on site? That way the ore would not have to be shipped to China. What's wrong with this picture? What am I missing here? It seems too obvious. Please clarify this. 3. Why do we choose to tear open the earth so quickly? Why don't we take advantage and "recycle" our mines as we are being taught to recycle our bottles and cans? Wouldn't the people in those communities be more grateful?
2634	23	Business	The proposed Rosemont ore body is in an environmentally sensitive area and would be better left in the ground.
2644	20	Individual	If the mining operation does come to fruition it would seem to us that the company should build and pay for their own paved road from the mine site to the Box Canyon Road, and pay to improve the Box Canyon road with a paved surface, and straightened curves, to Continental and the railroad to Mexico at that point. This would seem to have the least amount of impact and be the most direct route to ship the concentrated ore out of the country completely avoiding using Route 83, and avoiding possible hazardous materials loads on Route 82. The same Box Canyon route would be available to receive those hazardous materials required by the mining operation. Water from the extended C.A.P. canal could parallel the new Box Canyon/Continental road and be piped along the bottom of the Box Canyon Wash, then up and along the new road leading to the mine site. This entire route is in remote, mostly undeveloped country, until reaching Continental.
2666	12	Organization	The simplest solution suggested so far is to limit the mine to daytime operation only.
2673	1	Individual	The bulk of the concerns are summarized as water, environmental, misrepresentations of the Rosemont Project information and the failure of Rosemont to utilize an alternative mining approach that would have a smaller footprint and be less invasive on all concerned.

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Record ID	Comment Number	Commenter Type	Comment Text
2673	21	Individual	<p>An underground mine could be used as an alternative to extract the copper bearing ore. To reduce the impact of the tailings the underground mine could start with the primary shaft at the maximum surveyed depth of the ore deposit. The initial extraction (mining) would begin at the maximum depth and then work upwards to the top of the copper bearing ore. The project would be continuously refilling after the extraction of the ore from the bottom up with excess material and waste. Rosemont Project representatives have indicated that a new mechanical process was going to be used to reduce the tailings debris to a moisture content of 15%. The reuse of the damp tailings should stop or reduce any in-hole dust and conceivably provide a good material for compaction to be used for the rising floor for the ever elevating mining process. The need for pumping invasive ground water out of the underground mine would lessen as the mine developed and work progress onto higher portions of the ore which would be the reverse of an open pit mine.</p> <p>An underground mine that utilized the tailings as part of the ongoing process would alleviate some of the concerns for major unsightliness, excessive overburden striping, a pit catching storm and ground water with the associated pumping and subsequent discharge. The on going concern with all large projects is the set aside for final cleanup and remediation as required. The underground mining alternative suggested above would greatly remove some of the concerns since most of the remediation is concurrent with the conintuing extraction.</p>
2673	33	Individual	We request a no action decision on the proposed Rosemont Copper Mining Projects.
2721	12	Individual	Mine closure – An effective use of the plus 3,000 acres of mine tailings and waste rock would be to level tem and use them for solar arrays. The Forest Service could lease these areas for a fee to private companies for power generation.
2736	26	Government	Could Rosemont use CAP water directly instead groundwater? What would be the effect?
2736	32	Government	If Rosemont directly used CAP water, where would the pipeline be located? What if Rosemont used CAP water directly and pumped groundwater when CAP water is not available.
2745	1	Individual	Alternative One is to require commercially-available Central Arizona Project (CAP) water and no groundwater to be used by Rosemont Copper for this action.
2745	2	Individual	Alternative Two is an alternative electricity plan to supersede those in the Mining Plan of Operations (MPO) in section 2.7 that does fails to meet the operational needs for Rosemont Copper
2745	15	Individual	Alternative One is a solution that avoids almost all these impacts will still permitting the Rosemont Copper Mine. The only way to avoid impacting the groundwater is for Rosemont Copper NOT to used ground water as required by Alternative One.
2745	16	Individual	Alternative Two provides a new way to provide adequate and continuous electrical power to the Rosemont Copper mine without impacting the local electricity "sink" in Tucson due to inadequate electricity available for this mine and other large consumers in southern Arizona. Alternative two is to build an electrical generation plant on site, using natural gas from large El Paso natural Gasline that runs parallel to Insterstate Highway 10 (I-10) with less air pollution, less water demands, and removable ease project reclamation upon completion of the mining operations.
2745	17	Individual	Overview of Alternative One: Rosemont Copper can commercially purchase adequate amounts of CAP water to meet all its needs. CAP water can be used by this mine in the same manner as ground water. Rosemont will need to purchase CAP water to meet its expected requirements and provide the necessary infrastructure to deliver CAP water to the mine. This will result in an underground pipe that will, after burial, have little resultant cumulative environmental impact. This pipeline will need environmental surveys; will probably impact a large number of Native American cultural resources, some animal and plant habitats, and usual construction mitigations including dust and noise control actions. In general, pipeline mitigations are significantly less onerous than water depletion impacts on the future of these communitis. If Rosemont Copper demand is less than the quantity of CAP water purchased, then it can "sell" that CAP water to local water utility companies for recharge or to satisfy other needs, thus recooping some capital pipleine expenses.

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2745	18	Individual	Please see attachment 1 for a detailed discussion of this alternative and elements that are required to be included in the draft EIS. Alternative One is recommended.
2745	20	Individual	Overview of Alternative Two. Rosemont Copper did not have a viable electricity plan in the MPO, section 2.7 This alternative provides a new electricity plan that results in less air pollution, less water resources consumed for electricity generation and results in almost no footprint after reclamation. This alternative is a local, air-cooled, natural gas turbine generation plant on site of the mining operation. An underground natural gas line to connect with the El Paso Natural Gas line to the north, parallel to Interstate 10, has a smaller footprint than any of the options proposed in the MPO.
2745	21	Individual	Please see Attachment (2) for discussion of this alternative and elements that are required to be included in the Draft EIS. Alternative Two is recommended.
2760	7	Government	Reasonable alternatives could include, but are not necessarily limited to, alternative sites or alternative designs for major mining facilities (e.g. waste rock piles or tailings impoundments), smaller project, other viable ore bodies, different pit geometries, and pit backfilling; as well as any alternatives evaluated for purposes of obtaining a Clean Water Act Section 404 permit, pursuant to 40 CFR Part 230.
5286	22	Individual	In view of the already poor condition of Route 83, and the very high potential for disastrous conflict between school buses, sulfuric acid trucks, and wide loads on a narrow, twisting, mountain road, it seems far more reasonable and safe for the Forest Service to require Rosemont to simply switch its proposed primary and secondary access routes. An access road coming west from Route 83 would need neither to be as wide, nor as improved, if it were only to be a secondary access route, thus saving some of our CNF land, and much of the very heavy and hazardous mine traffic flows could be routed north- and southbound along I-19, instead of along Route 83. The existing road from the west would need improvement, but, again, I emphasize, Rosemont already recovers its investment in less than three years, and a little additional road-improvement expense is nothing compared to the terrible suffering which would be engendered by a school bus-acid truck collision along Route 83. This alternative would also save Rosemont the expense of constructing a very complex intersection at Route 83, which will be hazardous no matter how carefully planned, because it would be on a Route 83 downgrade. If this were only a secondary access road, a much less complex intersection would be required.
5286	23	Individual	An even better alternative would be to oblige Rosemont to use the existing Rosemont Junction road for this access road, instead of constructing an entirely new road through our pristine Forest land, as their MPO proposes. If there's already an existing road which goes almost directly to the mine, why ruin even more of our Forest to build a new one?
6720	2	Individual	Alternative one, limit mining excavation and placement of all spoils to fee simple lands under the ownership of Rosemont. Under this alternative the applicant could demonstrate their commitment to land stewardship through providing maximum protection of all public land surrounding their path in a few simple area. In effect, this alternative would prohibit placement of all spoils and overburden on public lands, thus protecting five square miles of public land designated for permanent mine tailings, facilities, waste rock storage, and open-pit excavation proposed in the current Mining Plan of Operation.
6720	3	Individual	Alternative 2, utilize a continuous backfill technology, whereby the open-pit is progressively filled with waste rock and spoils, and overburden generated as the excavation proceeds. This alternative might warrant some interim and very limited storage of waste material on adjoining public land, but would essentially protect all public lands. This alternative would not result in an open-pit completion of extration, surely a preferable outcome with the current proposal.
6720	4	Individual	Alternative 3, this is my favorite. Remove all spoils, tailing, and waste rock, from the site via a new rail line constructed to the mine sites. This so called waste material could then be reutilized as a resource, a positive resource offsite in other industrial processes, including but not limited to crushed rock for construction use, construction landfill, road met construction, similar industrial uses, some may be even requiring radioactivity material.  This alternative can clearly promote conservation through minimizing waste materials, while the rail transportation would avoid the significant public safety impacts resulting from the proposed truck traffic on highway 82.

Alternatives			
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Record ID	Comment Number	Commenter Type	Comment Text
6842	1	Individual	<p>Water is the most important issue in this entire process. Our water is our life. Without water -- it's more important than copper. And we need to protect the groundwater that is now being depleted at one inch a week. 48 -- four feet a year, approximately one inch a week the water table is lowering in the Tucson Active Management Area. That is required for sustaining life. Copper is not required for sustaining life.</p> <p>Therefore, a business should be able to set up a plan to buy -- plan to put in the pipes to import CAP water because mines, it doesn't matter whether it's CAP water or groundwater to operate the mine. So the water could be procured by the company to operate the mine, and, therefore, that alternative should be one considered by the Forest Service that I'm now recommending to be looked at seriously because it does seem to be extremely reasonable.</p>
6842	2	Individual	<p>The second alternative involved Section 2.7 of their plan which discusses the electrical supply for the mine. It states that adequate electricity is not available. The preferred TEP approach calls for turbines to be running in Nogales so that Rosemont Copper can operate its mine. I don't want to go through the electrical problems to get power in Santa Cruz County, because I've been working on that for the last nine years, but that is another alternative.</p> <p>And my alternative would be to put in a natural gas line to the mine from I-10 and then put in trailers which could hold the power plant. They have their own power plan operating the mine, and when it's over in 19 years, the trucks drive away and the power plant disappears.</p> <p>95 percent of the power they buy from TEP comes from coal-fired power and, therefore, the CO2 and other options need to be considered, and it's clearer if you use natural gas.</p>
6863	2	Individual	<p>A pricing model that would be considered probably beneficial to them would be something that did underground mining with reusing the tailings back in the mine to keep it from collapsing like the West Virginia mine did. Something different would go along with the fact that, in their study, they only used \$1.50 copper, which I gather now copper's worth three, four dollars.</p> <p>That would benefit us all by they would get their minerals when they wanted them and they would protect our visual impact on the Sonoita Highway. They would probably reduce everything else that's going on it. Without that kind of consideration, I would have to say no-action would be my favorite.</p>
6885	1	Individual	<p>Instead of storing cap water and using groundwater, I think a better alternative would be to pump the CAP water directly to the east side of the Santa Rita's into a man made lake. Rosemont can then pump directly from the lake for their processes. The lake can also be used for public recreation and wildlife water source. As an added benefit it may help prevent the groundwater levels from lowering north of the mine. It would also eliminate concerns from over pumping in Sahuarita and the planned use of community water storage areas. I propose a study be completed with this option as the primary source for the Rosemont Mine water source. It seems like a good alternative to pumping groundwater directly from a few close wells in Sahuarita, and would benefit the mine and the public.</p>
6975	11	Individual	<p>PROPOSAL : SATELLITE OPERATION The shut down Twin Buttes Mine could make an EXCELLENT choice of a satellite milling / processing facilities with the ore and over burden transported to the Twin Buttes site . Via covered conveyor belt. THIS PLAN WAS UNDER SERIOUS CONSIDERATION BY ANACONDA FOR THIS VERY PROPERTY, USING THE TWIN BUTTES FACILITIES AND THEN PRICE OF COPPER FELL! SOUND FAMILIAR?? This would mitigate damage done to US FOREST SERVICE PROPERTY THAT AUGUSTA WANTS TO TURN INTO TAILINGS AND WASTE DISPOSAL SITE. I WOULD REQUEST THAT YOU CONSIDER EACH PROPOSAL AND ANSWER THE SPECIFIC PROPOSALS. Please contact me if I could be of any assistance and I would make my well available to assist in monitoring.</p>

**Alternatives**

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7134	15	Business	3. The "alternatives" analysis, specifically the "no action" alternative, which is one of the keystones of the NEPA process, must be thoroughly explored
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Alternatives are "the heart of the environmental impact statement." 40 C.F.R. ss1502.14. We want to reiterate that nothing in and no interpretation of the Mining Law of 1872 excuses the Forest Service from robustly evaluating a range of reasonable alternatives. Indeed, as the Court of Appeals for the Ninth Circuit has stated:

NEPA requires that the federal agencies include a detailed statement of "alternatives to the proposed action" in any recommendation or report on actions significantly affecting the quality of human environment. 42 U.S.C. ss 4332(2)(C)(iii). Additionally, the statute mandates that the agencies "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." Id. Ss 4332(2)(E). The "alternatives" section is "the heart of the environmental impact statement." 40 C.F.R. ss 1502.14. "The consideration of alternatives requirement... guarantee[s] that agency decisionmakers have before them and take into proper account all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost benefit balance." Bob Marshall Alliance, 852 F.2d at 1228 (internal quotation marks, punctuation, and citation omitted) (emphasis in original). Pit River Tribe v. United States Forest Service, 469 F.3d 768 (9th Cir. 2006).

Such alternatives should include both site alternatives and technological alternatives. For example, Rosemont Copper Company had proposed using a dry tailings method that has never been used in the United States. Particularly given that this would be a first time use in the United States and in this climate, the DEIS should analyze other alternatives to that technology, along with their probable environmental effects, including the additional water alternative technologies would require.

We ask the Forest Service to ensure a comprehensive analysis of the "no action" alternative; the one automatically required alternative in all environmental impact statements. 40 C.F.R. ss1502.14(d). Agencies, at times, tend to give short shrift to the actual analysis on the "no action" alternative, to the detriment of both their own decisionmaking and the public's understanding of the potential impacts of the proposed action. See, for example, inadequate treatment of the "no action" alternative in NEPA documents prepared by the Forest Service in Pit River Tribe v. United States Forest Service, Id., and City of Tenakee Springs v. Clough, 915 F.2d 1223 (9th Cir. 1990) The analysis in the DEIS should comprehensively evaluate the future of the affected geographic area in light of such plans as the detailed and comprehensive Sonoran Desert Conservation Plan adopted by Pima County, Pima and Santa Cruz County economic projections and other local, state, tribal and federal planning processes that affect the area. This evaluation must be compared to equally detailed analyses of the same areas should the proposed mine be approved and commence operations.

We also remind the Forest Service that it has an obligation to analyze reasonable alternatives that might, in whole or in part, lay outside of the agency's own authority. "An agency's refusal to consider an alternative that would require some action beyond that of its Congressional authorization is counter to NEPA's intent to provide options for both agencies and Congress." National Wildlife Federation v. National Marine Fisheries Service, 325 F. Supp. 2d, 1143 (W.D. Wa. 2002).

Finally, the Forest Service must explain in the DEIS how each of the alternatives considered in it and decisions based on it will or will not achieve the requirements of Sections 101 and 102(1) NEPA and other environmental laws and policies. 40 C.F.R. ss. 1502.2(d).

7151	27	Organization	Lining all mine facilities, including waste rock piles and berms, should be included as an alternative in the EIS.
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Alternatives			
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Record ID	Comment Number	Commenter Type	Comment Text
7151	31	Organization	<p>The alternatives in the EIS must include complete or partial back-filling of the open pit. The EIS should determine how much additional expense it would be to backfill the pit:</p> <p>How much additional time would be required in the overall life of the mine to include complete or partial backfilling? How would backfilling of the pit help protect or harm water quality in the watershed? How deep would this reduce the likelihood of aquifer contamination post-mining?</p>
7184	11	Individual	<p>Alternative: Insulate the bottom of the tailings heap and dam in Barrel Canyon with an impermeable liner. Run perforated piping above the liner and below the tailings at each layer of limestone so that any and all run-off from the heap can be captured and disposed of properly. This would be a responsible and innovative approach to mitigating the majority of pollution problems associated with hard-rock mining. It would also be an exact method for measuring of and recording time tables for the speed of leaching and types of pollutants generated over the next 100 years or more. Rosemont would have to be responsible for monitoring the site and disposing of contaminants for that period of time.</p>
7200	2	Organization	<p>The EIS must identify and evaluate all reasonable alternatives to the Rosemont Project. Development of alternatives for the proposed action is the heart of the EIS. 40 C.F.R. SS 1502.14. Council on Environmental Quality (CEQ) regulations call on the Forest Service to "[r]igorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated," "[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits," "[i]nclude the alternative of no action," and "[i]nclude appropriate mitigation measures not already included in the proposed action or alternatives." Id. SS 1502.14 (emphasis added).</p> <p>For the Rosemont Copper Project EIS, the Forest Service must include the no-action alternative in their discussion and evaluation of reasonable alternatives. Considering the vast environmental impacts that are likely to occur should it move forward, the Sierra Club firmly believes this is the only appropriate alternative for this project. However, should the Forest Service reject this alternative, they must include a justification for the rejection as well as a discussion of mitigation measures that will adequately offset the impacts of the proposed action.</p>
7277	2	Government	<p>The Department believes that presentation of alternatives analyzed in the Environmental Impact Statement should include a description of water use by all elements of each alternative, including ancillary facilities, and should include best water conservation strategies for the technology used, by alternative. Analysis of alternatives should include direct, indirect, and cumulative effects to water supplies and rights to water.</p>
7429	6	Individual	<p>Extrapolating from the information in the Mine Plan of Operations, a truck would be entering or leaving the highway at the access road about every three minutes around the clock. Many of these would be very heavy trucks. Furthermore, this does not include employees entering or leaving the plant during shift change. (Note that "trip" as counted in the Plan is a round trip, in other words a truck entering and a truck leaving.)</p> <p>The plan also states that traffic would be staggered to reduce the numbers in the early morning and when school buses are operating, meaning that it would be even heavier at other times. The highway would become virtually unusable for regular traffic at certain times.</p> <p>Over half of these trucks (65%) will be tractor trailers taking copper concentrates to the railhead at Benson for shipment to a smelter. Because of the quantity of weight of concentrates, the usual means of transportation from Arizona mines is by rail. Most copper mines in Arizona have constructed rail spurs for this purpose. Arizona smelters are designed to accept concentrates delivered by rail. The plan to transport concentrates by truck is both unusual and unnecessary, as well as being expensive.</p>
7429	9	Individual	<p>Augusta must be required to review other possibilities, such construction of a rail spur, as other mines have done, or an alternative roadway to I-10, or both. A rail spur would be an economical and safe way or bringing many other bulk materials (fuel, acid and explosives) to the site as well as transporting both copper and moly concentrates to smelters.</p>

**Alternatives**

**01 General**

Record ID	Comment Number	Commenter Type	Comment Text
7429	12	Individual	<p>Given the problems arising from transportation of concentrates, Augusta must be required to evaluate new methods of processing concentrates from sulfide ores.</p> <p>Specifically, Augusta must be required to consider use of on site high pressure/high temperature leaching of copper concentrates. This process is a new method of extracting copper from sulfide ores. It offers a low cost alternative to conventional smelting and refining. It is currently being used on a commercial scale at several locations around the world and in Arizona at the Morenci Mine and at the Bagdad Mine, both owned by Freeport-McMoRan.</p> <p>The process in use at Freeport’s mines was refined and tested over a four year period at the Bagdad Mine before construction of the commercial scale plant at Morenci. Traditionally, copper concentrates from copper sulfide ores have been processed at smelters and refineries. The concentrate pressure leach process bypasses both of these steps and parallels the oxide process, producing cathode copper on site.</p> <p>In pressure leaching of sulfide ores, the ore is milled and processed on site to produce concentrates in the same way it would if it were to be sent to the smelter. Instead of being sent to a smelter and refinery, the concentrate is mixed into a slurry and processed at high pressure and temperature in a leach vessel. This produces copper bearing solution that can be combined with the solution from the oxide circuit and sent to the SX/EW facility.</p> <p>The pressure leaching step also produces sulfuric acid, which can be used in the oxide heap leach circuit, reducing or eliminating the need to purchase and transport acid to the site. The entire process takes place on site.</p> <p>This new process appears well suited to a greenfield operation, particularly one with no convenient access to a smelter and refinery.</p> <p>An internet search reveals additional information on this new technology.</p> <p>The advantages of this system for the operator are: Cost savings by eliminating the fees paid to a smelter and then to a refinery for processing and for the purchase of sulfuric acid for oxide ore processing, also purchased from a smelter. This seems particularly relevant for a company that does not own a smelter or refinery.</p> <p>Cost savings from transportation of concentrates to smelter and transportation of acid from smelter to mine site.</p> <p>Acid production can be managed to match consumption in the heap leach by control of temperature in the leach vessel.</p> <p>Full use of SX and EW capacity through management of parallel systems. And increased ability to manage production levels.</p> <p>Environmental Impacts: A primary impact would be reduction of traffic. Trucking the concentrates accounts for about 65% of all traffic. Importing acid account for an additional 10%. A reduction of 75% of the traffic, including some of the heaviest vehicles, could be significant. This would be balanced by an increase in trucks leaving the mine carrying cathodes, but this would be considerably less than the concentrates.</p> <p>The overall impact on air quality and water quality would likely be positive, as the concentrates would not be processed in a smelter. Sulfur emissions would presumably all be captured as acid. A review of the environmental permitting for the Bagdad and Morenci pressure leach operations would be instructive.</p> <p>The negative would be the addition of the pressure leach tank and possibly an increase in the size of the SX/EW, increasing the overall land use, all of which would, of necessity, be on public land.</p>

Alternatives			
01	General		
Record ID	Comment Number	Commenter Type	Comment Text
7430	2	Organization	<p>Some suggested steps to mitigate the potential harm from light pollution from the mine's all night operation include:</p> <ol style="list-style-type: none"> <li>1. Use fully shielded or full cutoff lighting fixtures, aimed directly downward.</li> <li>2. For all road, dirt road, and parking lot lighting, both inside and outside the pit, use 55 watt induction lamps with motion sensor controls to reduce energy consumption and light pollution at the same time.</li> <li>3. Exterior lighting on any buildings or trailers should be fully shielded and limited to egress lighting, using the lowest level of light sufficient for the purpose.</li> </ol>
7562	8	Individual	<p>An underground mine could be used as an alternative to extract the copper bearing ore. To reduce the impact of the tailings the underground mine could start with the primary shaft at the maximum surveyed depth of the ore deposit. The initial extraction (mining) would begin at the maximum depth and then work upwards to the top of the copper bearing ore. The project would be continuously refilling after the extraction of the ore from the bottom up with excess material and waste. Rosemont Project representatives have indicated that a new mechanical process was going to be used to reduce the tailings debris to a moisture content of 15%. The reuse of the damp tailings should stop or reduce any in-hole dust and conceivably provide a good material for compaction to be used for the rising floor for the ever elevating mining process. The need for pumping invasive ground water out of the underground mine would lessen as the mine developed and work progress onto higher portions of the ore which would be the reverse of an open pit mine.</p> <p>An underground mine that utilized the tailings as part of the ongoing process would alleviate some of the concerns for major unsightliness, excessive overburden striping, a pit catching storm and ground water with the associated pumping and subsequent discharge. The on going concern with all large projects is the set aside for final cleanup and remediation as required. The underground mining alternative suggested above would greatly remove some of the concerns since most of the remediation is concurrent with the continuing extraction.</p>
7649	1	Individual	What are the options, Alternative to this site? Why not: Ajo, Kingman, Ruby, San Manual, Bisbee
7650	1	Individual	ALTERNATIVE 1 - Only Use CAP Water Resources.
7650	3	Individual	Alternative 1 uses water resources only from the Central Arizona Project (CAP). Ground water is neither required for mining nor for Rosemont Copper.
7650	6	Individual	The Forest Service analysis must show which Alternative, the only CAP-water or the proposed and deficient water resource plan; best mitigates all direct and cumulative indirect and cumulative indirect water withdrawal impacts on ground water. This "CAP water only" Alternative needs to be fully evaluated so all decision makers have real options to consider before making their Record of Decision in this matter.
7650	7	Individual	.ALTERNATIVE 2 - A New Electrical Plan.
7650	10	Individual	This ALTERNATIVE uses natural gas from an El Paso Gasline parallel to I-10 to fuel air-cooled gas turbines at the mine to also eliminate transmission losses from distant power plants. This is a reasonable ALTERNATIVE to provide power for Rosemont Copper with less air and water pollution by an underground gasline instead of transmission along Scenic Highway SR 83 or across Green Valley.

Alternatives			
01 General			
Record ID	Comment Number	Commenter Type	Comment Text
7650	23	Individual	Under ALTERNATIVE 1, Rosemont would be required to obtain allocations and permits, develop and build pipeline, and pump CAP water directly to the mine so that TAMA ground water will NOT be significantly impacted. Under ALTERNATIVE 1, less direct and cumulative indirect electricity will used as ground water is not be pumped out of the ground and CAP water is pumped into the ground for recharge. Many MW-hrs of 24/7 electrical power will be saved. Under ALTERNATIVE 1, subsidence and ground water impacts due to Rosemont Copper operations are avoided. There will be no impacts on local wells in the vicinity of Sahuarita, other than local wells closer to the mine where the mine pit will lower the water table byits large and half-mile deep cone of depression. Under ALTERNATIVE 2, the resultant electrical load will be decreased based on using ALTERNATIVE 1 for direct delivery of CAP water, thus reducing the overall cumulative negative impacts by using CAP water only. There are presently inadequate electrical resources in Pima and Cochise Counties to meet the continuous electrical demands of Rosemont Copper. To meet Rosemont Copper's electrical demand, ALTERNATIVE 2, uses local generated power dedicated to this mine to relieve other in Pima County demand. Constructing a natural gasline from the I-10 El Paso Natural Gasline corridor directly to Rosemont, under ALTERNATIVE 2, avoids new transmission lines, has a smaller carbon imprint, and pollutes less air to generate the mine's electricity. Less visual impacts result with no impacts on Scenic Highway SR 83. Natural gas turbines are small, fairly inexpensive, and can be mobile, so Rosemont Copper can remove its power plant after it closes. When assessing ALTERNATIVES 1and 2, the synergistic effect needs to be considered as both are better together; however, each can be standalone.
7650	24	Individual	Rosemont Copper proposes a "system" of an infrastructure, buildings, earth transportation, processing buildings, and other component elements. The most important interfaces to this system are water and electricity; otherwise, most operations are within the Rosemont Copper system. Every interface requires careful analysis, as each impacts all other elements withing. These two Alternatives provide a way for isolation fo each (water and electricity) so that a sensitivity analysis for each ALTERNATIVE (and other impacts) can be performed. The Operations Research process provides ways with linear algebra, models and validated operations research tools to make accurate assessments of interacting elements, including transportation elements within and external to the system boundaries. Such analysis requires OR specialists, usually mathematicans experienced in this field of analysis. Allocation of measurable objective resources for each element determined by such analysis is commonly performed in the mining industry using standard Operations Research processes and computer models. This usual Systems Engineering task makes a series of objective trade and sensitivity studies, also called cost/benefit, trade-off, optimization or objective assessments.
8607	2	Individual	There is a passable road from Rosemont through the Santa Ritas to a railroad spur at Sahuarita.
8884	1	Individual	I would like the review committee to consider instead of doing an open pit mine at the proposed Rosemont project, to do a deep underground copper mine, similar, a, to what the Resolution Copper Mining Company is doing in Superior, Arizona, so that we could eliminate tailings and, um, then we could maybe fill -- use some of the other materials to fill other open pits, as they propose to do. Anyway, if you would please consider that as an alternative, um and give us pros and cons of that, I would really appreciate it.
11047	23	Individual	I propose a dome which can be opened and closed and used in conjunction with solar still desalination distilling to produce more fresh water. This should prevent more flying animal deaths as well as as saving on ground water pumping. It will also save on electricity for water production as the water would be produced on site for the employees to drink and shower in and gravity feed could be used from the tanks.
11082	13	Individual	I think a fish habitat would be nice for reclamation. How about a nice lake that is safe in the pit for boating, fishing and so forth? I have no idea what the reclamation would be to make that happen safely though, but it would be nice to have a lake and recreation such as the Catalinas have. If the safe thing doesn't work out, I like the idea of a Solar Farm because no one would see it and the land would have already been raped so why not use it for some good?