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# MEMORANDUM

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Date: April 14, 2014

To: The Honorable Chair and Members  
Pima County Board of Supervisors

From: C.H. Huckelberry  
County Administrator

A handwritten signature in black ink, appearing to read "C.H. Huckelberry", is written over the typed name and title.

Re: **Environmental Standards for Mining**

The Real Estate Advisory Committee (REAC) has requested additional information about the Rosemont mine from Pima County. The question, as framed by Chairman Bill Carroll, asks "*what environmental standards are being offered by Rosemont relative to what ASARCO/FMI [Freeport McMoRan] follow? Are they better or worse than how the others operate and how do they differ?*" This is an excellent question. There is a long history of mining in Pima County, and thus, a rich context for considering the Rosemont Mine and the relevant environmental standards.

An immediate response to REAC's questions was not possible, as there was no single previous document that summarized or compared the environmental standards at the Rosemont Mine to those of Freeport's Sierrita Mine or ASARCO's Mission Mine (collectively referred to as the Green Valley mines). Staff researched the topic with an eye to providing an overview and context, without exhaustive detail. Staff also consulted with other agencies and entities involved in environmental matters at the Mission and Sierrita Mines.

Figure 1 attached shows the location of the three mines discussed in this response. Historically, other mines also operated in the Green Valley area (e.g., Twin Buttes Mine noted in orange on Figure 1). For the purpose of addressing REAC's question, these earlier mines are not considered further here.

Environmental standards may be defined in relation to law, policy, and contracts or agreements. In this memorandum, staff considered key state, federal and local standards, as well as voluntary standards that have been at issue with respect to the community dialogue regarding mining activities in Pima County.

The attached staff report highlights a range of environmental and cultural regulations and standards that the Green Valley mines have met and which Rosemont must meet, should it open. Comparisons with the Rosemont and other mines reveal similarities for a few standards, such as air quality and cultural resources. A cursory review of most other standards, however, shows the Rosemont Mine to be both unique in terms of its

The Honorable Chair and Members, Pima County Board of Supervisors  
Re: **Environmental Standards for Mining**  
April 14, 2014  
Page 2

environmental and regulatory setting, as well as lacking in the amount and location of mitigation. As the staff report makes clear, for an operation that claims to be a "21<sup>st</sup> Century mine" and "bridge to a sustainable future", Rosemont has not demonstrated a willingness to put forward a package of mitigation measures that demonstrate their commitment to these claims.

CHH/dr

**Attachments**

- c: Nicole Fyffe, Executive Assistant to the County Administrator  
Linda Mayro, Director, Conservation and Sustainability  
Julia Fonseca, Environmental Planning Manager, Conservation and Sustainability

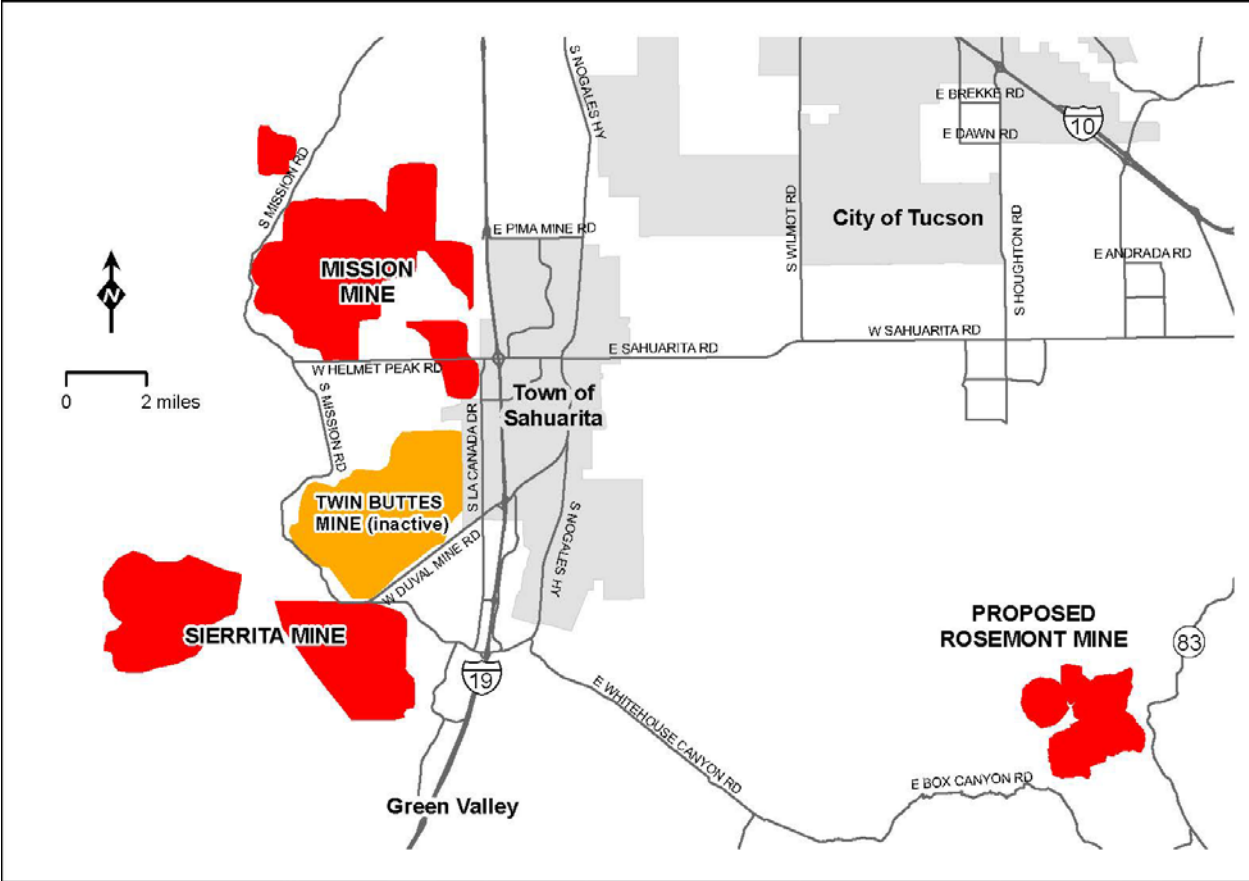


Figure 1. Location of the Mission and Sierrita mines (collectively referred to as the Green Valley mines) in relation to the Rosemont Mine.

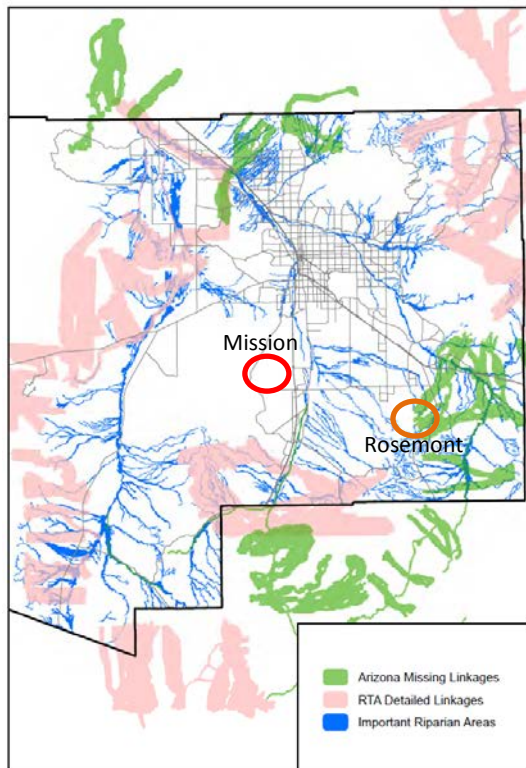
# Environmental Standards for Mining: Comparison of the Rosemont Mine to the Green Valley Mines

Prepared by Pima County and Pima County Regional Flood Control District Staff  
for the  
Real Estate Advisory Committee

March 24, 2014

## Federal Endangered Species Act

The standards set by the Endangered Species Act (ESA) are determined by the federal listing status of the species (threatened or endangered), whether the federally listed species is plant or animal, and whether the activity has a connection to a Federal permit. Mitigation is determined by the mine's impacts on those species.



**Figure 1. Three different measures of wildlife linkages, which is a rough approximation of biological diversity, show the importance of the Rosemont site as compared to the Mission mine site.**

Rosemont's impacts vary from those of the Green Valley area primarily in relation to the higher number and kind of the species affected, and the greater extent of Federal lands and permissions they are seeking. There is no available data for the ESA standards as applied to the Sierrita mine at this time, so this review is confined to a comparison of the Mission mine and the Rosemont mine.

The Mission mine is located on the dry bajada of the Sierrita Mountains, an area which lacks significant riparian areas, grasslands, and forests that typify the Sky Islands of the region. The primary Federally listed species here is the Pima Pineapple Cactus.

The Mission mine is also not located in key areas of wildlife linkages, which are areas that connect blocks of habitat (Figure 1). Finally, the areas downstream of the mine do not contain significant

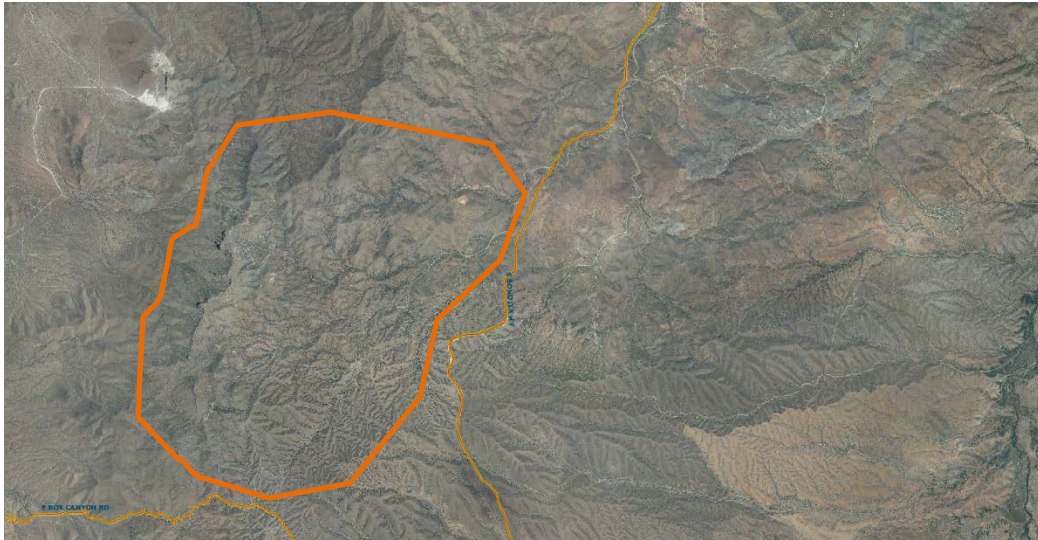


**Figure 2. Location of the Mission Mine (in red) west and upslope of Green Valley. Note development of Sahuarita (right side of the image) and lack of significant riparian areas between the mine and development. Green field on right side of the image are pecan orchards.**

biological resources. In fact, downstream of the site are areas of development before the washes that drain the mine site meets with the Santa Cruz River (Figure 2). The River only flows at this site following heavy rains (i.e., it is ephemeral).

By contrast, the Rosemont mine is located in a very biologically diverse site. The mine is proposed for an area of semi-desert grasslands and forest (Figure 3) that contain some of the highest species richness in the southwestern U.S. The site is located at the north end of the Santa Rita Mountains, which is one of the region's most important Sky Island mountain ranges (it is the highest-elevation, westernmost of these ranges). The location of the Rosemont site at the north end of the range means that it is an important wildlife corridor (Figure 1). Key federally listed species that occur on the mine site and are likely to be impacted include the jaguar (endangered), yellow-billed cuckoo (pending threatened), Chiricahua leopard frog (threatened), and lesser long-nosed bat (endangered).

Another key difference between the Rosemont and Mission mine is that impacts from the Rosemont Mine will go far beyond the boundary of the mine. Mining at Rosemont would affect federally protected species associated with streams and springs at Davidson Canyon, Cienega Creek Preserve (both Outstanding Arizona Waters), and Empire Gulch, including the yellow-billed cuckoo, Mexican garter snake (listing as threatened pending), Chiricahua leopard frog, lesser long-nosed bat, southwestern willow flycatcher (endangered), jaguar, Gila chub (endangered), Gila topminnow (endangered), and Huachuca water umbel (endangered).



**Figure 3. Approximate location of the Rosemont mine. Note relative lack of development near the mine, and presence of trees within the mine site. Most of Davidson Canyon and Cienega Creek are downstream of the mine (and therefore not pictured) and will be impacted by mining on this site.**

To the west of the Rosemont mine, impact resulting from installation and maintenance of utilities leading to the mine would be similar to the impacts of expansions of the Green Valley mines, harming the desert tortoise (future listing is quite possible in 2015) and Pima pineapple cactus (endangered).

In conclusion, the environmental setting of the Rosemont mine is very different, which is reflected in the greater mitigation obligations of Rosemont Copper. Rosemont's mitigation obligation for federally listed species also reflects the greater number of species protected under the ESA since the Mission Mine Section 7 consultation in 2002 [e.g., Mexican garter snake, yellow-billed cuckoo, and Gila chub]. However, none of these new species listings would impact the Mission Mine if it were to undertake any activities that would trigger a Section 7 consultation today.

In 2002, the Mission Mine planned 105 acres of ground disturbance on private lands. The U. S. Fish and Wildlife Service determined that only the Pima pineapple cactus would be impacted by the proposed project because of the location of the disturbance in relation to the habitat of ESA listed species at that time. Based on their analysis, the USFWS determined that the mine would impact 58.5 acres of Pima pineapple cactus habitat. The mine owners agreed to expand an existing conservation easement by an equal number of acres (58.5) to offset their proposed impacts to this plant species.

The federal process for the endangered species mitigation at the Rosemont mine has not been completed, but more mitigation will be required of Rosemont than has been required for the Green Valley mines because of the much larger impacts of the Rosemont mine on federally protected species. A mix of on-site efforts and off-site land purchases will be required. Mitigation efforts include replanting some agaves (food for the endangered lesser long-nosed bat), pre-construction surveys to minimize direct loss of certain species, constructing and managing frog ponds to replace water bodies that would be desiccated or obliterated by the mine, and protecting relatively small and disconnected parcels scattered in three different watersheds. For the most part, Rosemont has not demonstrated the value of these lands for the species that will be impacted.

### **State Wildlife Standards**

The Arizona Game and Fish Department has policies to encourage maintenance of current riparian habitats, and to seek full habitat compensation for losses of wildlife habitat. However, the Department does not have authority to require mitigation for wildlife habitat impacts, unless there is animal mortality due to hazardous wastes or toxic mine ponds. The Fish and Wildlife Service Coordination Act does provide a role (but no funding) for state wildlife agencies to participate in the development of Clean Water Act (Section 404) permit conditions. And like any citizen, the agency can participate in environmental reviews under the National Environmental Policy Act. But because of limited staffing and funding, Arizona Game and Fish Department does not review each individual project.

The relatively pristine character of the Rosemont lands, and its significance to Arizona's wildlife and wildlife-based recreation has led to the Department taking a very active role in the review of the federal permits related to the Rosemont mine. No similar efforts have been undertaken by the Department with respect to the Sierrita or Mission mines in the past, and at this time, those mines have not sought federal permits that triggered any state wildlife conservation measures.

The Arizona Game and Fish Department has entered into an "Agreement in Principle" with Rosemont Copper Company under which Rosemont would fund Arizona Game and Fish staff to implement wildlife conservation actions required by the U. S. Fish and Wildlife Service and U. S. Army Corps of Engineers, should the Rosemont Mine become a permitted activity through the Federal process. Additional conservation actions also described in the agreement are intended to offset the mine's impacts to some of the "Arizona trust species" (those species that aren't federally listed as threatened or endangered). The agreement might also provide for wildlife-related public recreational access to at least partially compensate for loss of hunting and other recreational activities at Rosemont.

### **Federal Clean Water Act**

The environmental standards of the Clean Water Act are the same for each mine, and avoidance and minimization is required to the maximum extent practicable. Mitigation is required for the remaining adverse impacts to aquatic resources that were avoidable. As previously discussed, Rosemont's impacts vary from those of the Green Valley area in relation to the position on the landscape and the resources affected. Because of the Rosemont mine's potential impacts on federally listed species, and nationally significant water resources at Las Cienegas National Conservation Area, springs located on Forest land, and other area wetlands, the U. S. Environmental Protection Agency and U. S. Army Corps of Engineers have a vigorous dialogue going in relation to the Clean Water Act permit for the Rosemont mine.

In the 1990s, the Sierrita mine discharged contaminated process water and storm water runoff to Demetrie Wash and its tributaries. This resulted in a 1996 consent decree to pay \$88,000. More recently, the Sierrita mine has initiated discussions with the Corps regarding a Clean Water Act permit for placement of tailings into ephemeral streams. Sierrita's new tailing facility will be lined, unlike Rosemont's tailings. Sierrita's mine expansion does not threaten nationally significant aquatic resources like Rosemont's. Mitigation requirements will be determined by the Corps.

The Corps issued a public notice for a Clean Water permit (SPL-2010-01216-MJB) for certain stormwater controls needed for the Mission Mine in January 2014. The remedial stormwater measures are needed pursuant to a water quality consent decree (see below) and would directly impact approximately 5.12 acres of ephemeral tributaries of the Santa Cruz River. Mitigation needs have not yet been determined for this project.

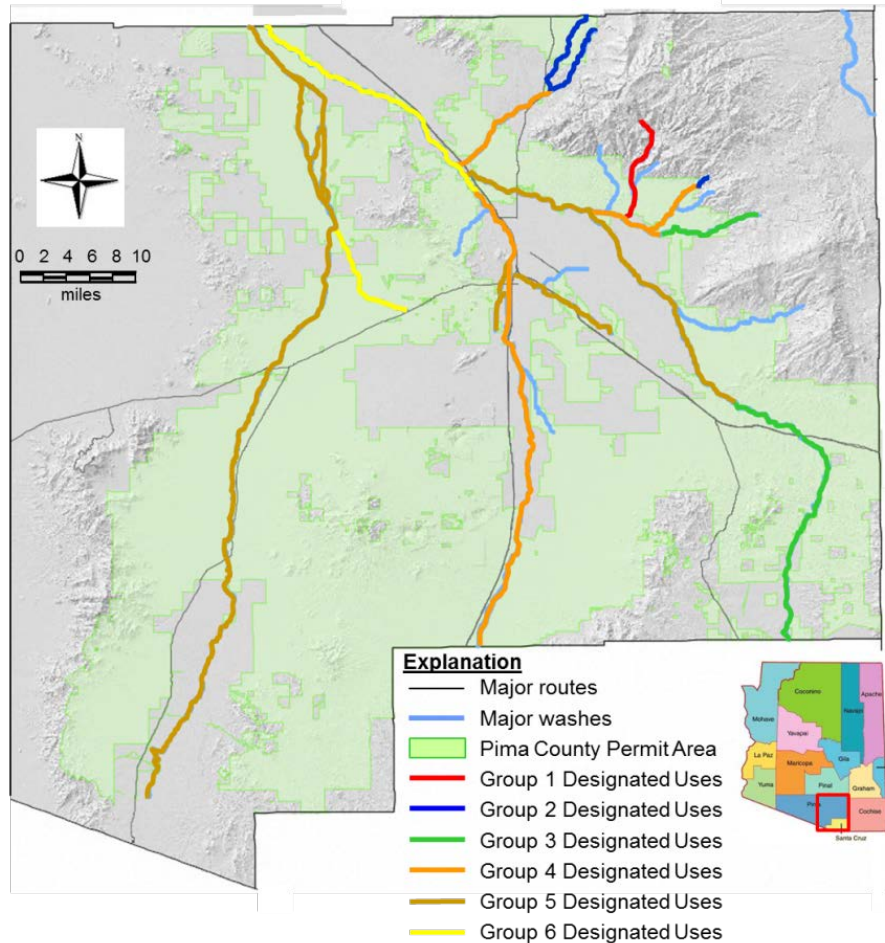
### **State surface water quality standards**

Arizona's approach to protecting surface water quality is similar everywhere in the state. All three mines use similar control measures based upon state permit requirements for the mineral industry. Some control measures direct stormwater away from the mine site by means of berms, channels and dams. Other structural control measures include on-site retention basins to contain contaminated waters. All mines must apply maintenance measures as well as Spill Prevention and Response Procedures to maintain stormwater quality. Water flowing off the site is monitored and must meet established standards. Erosion control measures are needed during the exploration and construction phases of mine facilities.

Specific water quality standards are defined in relation to designated uses of water flowing within specific segments of surface waters. Thus the standards that apply in the Rosemont area are more restrictive than those in the Green Valley areas, because Cienega Creek has been



designated as an Outstanding Arizona Water and the designated use includes fish consumption, full body contact, and warm water Aquatic & Wildlife uses (Figure 4). While both areas have locally elevated levels of metals in sediment and runoff, mining activities in Cienega Creek and Davidson Canyon will have to meet the more restrictive standards due to these pre-existing standards. This anti-degradation standard does not apply in the Green Valley area.



Group	Aquatic & Wildlife	Fish Consumption	Body Contact	Domestic Water Source	Agricultural
1	Warm water	√	Full	√	Livestock watering
2	Warm water	√	Full		Irrigation & Livestock watering
3	Warm water	√	Full		Livestock watering
4	Ephemeral		Partial		Livestock watering
5	Ephemeral		Partial		
6	Effluent dependent water		Partial		Livestock watering

**Figure 4. Cienega Creek (in green) is one of the few perennial, warm water streams in eastern Pima County with water quality appropriate for full body contact and fish consumption.**

The Green Valley mines have not always met surface water quality standards. In 2002, EPA filed a Finding of Violation and Order for Compliance at the Mission Mine for discharges of tailings and other material to surface waters. According to EPA (2008), discharges from the mine include copper and lead and total suspended solids which have been out of compliance since 2003. The Mission Mine is required to segregate stormwater that originates upstream of the Mission Complex from stormwater runoff from the mine. The mine has recently applied for the Clean Water Act permit needed to construct the remedial stormwater controls.

The Sierrita mine has had at least 18 reported pipeline spills and other accidental releases to ephemeral tributaries of the Santa Cruz River, mainly sulfuric acid.

Rosemont has applied for surface water quality permits from the state. They propose to use best management practices to protect water quality. In 2012, after Pima County protests about the stormwater design, Rosemont eliminated the stormwater drains that would run under and through the waste pile, and developed a new design that minimizes storage of stormwater on top of the waste and tailings piles. Pima County and the Regional Flood Control District still have many concerns regarding surface water quality protection, which would be more effective than *post facto* mitigation.

### **State aquifer water quality standards**

The Green Valley mines pre-date any state standards with respect to acceptable groundwater quality impacts. Water quality degradation in the Green Valley includes a plume of contaminated groundwater with high levels of sulfates and total dissolved solids. A state mitigation order—combined with public pressure—caused the Sierrita mine to adopt many mitigation measures that are not currently being required of the Rosemont mine. The measures have included over \$13 million to replace two municipal drinking water wells, closing an unlined tailing impoundment that is upgradient from public supply wells, and constructing a sulfate extraction well field and treatment system. Freeport recently spent \$30 million to acquire land to build new tailings impoundment, which will be lined to reduce the future potential for tailings seepage.

By contrast, Rosemont has commissioned a series of technical studies that paint a rosy picture of the mine's impact. These studies predict very little aquifer pollution will occur, despite the fact that many of the mine facilities are located in areas where the depth to groundwater is 20 feet or less. The state's Aquifer Protection Permit thus requires no water quality mitigation,

only monitoring and certain best management practices. ADEQ did not require a liner for Rosemont's tailings or waste rock, and provides little monitoring for seepage. Rosemont's tailing disposal methods would use less water than the Green Valley mines, and this may reduce the seepage that would be otherwise be produced.

ADEQ says no authorities exist to require pre-emptive (in advance) mitigation. The state would only impose mitigation sometime after there is evidence of contamination, but by then a solution could be expensive or not work at all. The state aquifer standards that will apply to the Rosemont area have not even been established, and will not be established until the mine is under construction. The permit states that if pollutant discharge exceeds limits, ADEQ may require mitigation to correct the action or limit the impact of pollutants. ADEQ does not regulate pit lake toxicity anywhere in the state.

The Forest Service is relying on the depletion of the high water tables and reversal of the groundwater gradients at the Rosemont site as a means of controlling any groundwater contamination that does occur.

### **Federal Clean Air Act**

The existing copper mines in Green Valley were constructed in the 1950's and 1960's. As such, the air quality permits contain a mixture of standards. Federal New Source Performance Standards (NSPS) are applicable to equipment that is constructed after 1985. These standards are applied at various emission points (stacks) at both ASARCO and Freeport McMoRan. However, these facilities also have emission points that are not subject to these standards and are subject to a less stringent standard, known as an existing source standard. In contrast, all emission points at Rosemont will be subject to the federal NSPS.

In controlling emissions from the stacks, both existing mines use cartridge filters as well as wet scrubbers. Cartridge filters have a greater reduction of emissions than wet scrubbers and are easier to maintain. ASARCO and Freeport McMoRan have undergone a replacement program over the last several years to migrate to the cartridge filter technology. Rosemont had originally proposed to use wet scrubbers but has since elected to install the cartridge filters.

Emissions from non-point sources (fugitive sources) are primarily from the tailings and unpaved haul roads. All three mines are subject to the same non-point source standards. However, the existing mines apply wet tailings to their dams while Rosemont will utilize dry stack tailings. Wet tailings require periodic drying out so a new berm can be built to facilitate the placement of additional tailings. It is during the drying out process that fugitive emissions can occur during

windy days. Both of the Green Valley mines have had problems with the control of fugitive emissions on windy days in the past.

Rosemont has proposed to use waste rock to create the berm that will contain the dry tailings. The dry tailings will be deposited by a conveyor as opposed to being pumped like wet tailings. Rosemont has asserted the dry stack tailings will have better performance than wet tailings, but the dry stack tailings technology is new in the U.S. and its performance is unknown, and no assurance can be provided by Rosemont. As with wet tailings, the dry stack tailing will need to be monitored and maintained to minimize fugitive dust emissions. To effectively prevent fugitive emissions, a company must be diligent in monitoring and maintaining their tailings.

### **Environmental standards for groundwater depletion**

State standards for groundwater depletion and well spacing do not apply to wells used for mining and there are no federal standards regulating groundwater depletion. There are also no state or local requirements for minimizing damage to aquifers caused by subsidence-induced groundwater depletion.

The groundwater depletion impacts of the Rosemont mine are unique to the Sahuarita wellfield and the pit lake that would be formed at the mine site. This depletion at Sahuarita would come at a unique point in time when groundwater has already been depleted by previous uses, rates of natural recharge have been diminished by years of drought, and there is reduced availability of Central Arizona Project water.

Rosemont would be subject to payment of damages under Groundwater Management Act for injuries resulting from transferring water from their Sahuarita wellfield, located in Tucson Active Management Area (AMA), to the Cienega basin, which is outside the AMA. Under Arizona Revised Statutes 45-545, the court would consider whether Rosemont's voluntary water conservation and recharge efforts in the AMA would have relieved the injuries that occurred in the AMA. So far, Rosemont's recharge has been occurring in Marana, distant from where any damages would occur, but Rosemont is looking for ways to recharge CAP closer to their wellfield. Rosemont has also offered an insurance policy and program to certain well owners in exchange for an agreement waiving the right to sue.

The groundwater depletion caused by the Sierrita mine has been the subject of litigation. In the 1970s, the pecan growers known as FICO sued the previous owners of the Sierrita mine and won a court case that eventually resulted in the mine minimizing the effects on the pecan farms. The FICO settlement limited the pumping and required the mines to pay an annual amount of money to FICO to compensate them for damages according to the amount pumped.

Interestingly, the court case also motivated the development of the Groundwater Management Act, which established the Active Management Area concept.

The Mission Mine is located partly on land owned by the Tohono O’odham people. After many years of groundwater pumping, ASARCO now uses a portion of CAP water in their Mission Mine operations. Asarco's use of the Nation's CAP Water is pursuant to an agreement with the Nation, San Xavier District, and certain allottees, which settled the United States v Tucson lawsuit over the Nation’s water rights. In 2013 ASARCO took delivery of 6,547 acre-feet (af) of CAP water from the Tohono O’odham Nation’s subcontract.

None of the three mines has offered mitigation for perpetual groundwater depletion caused by pit lake evaporation, and there are no requirements, state or federal, to do so.

### **Water Use and Reuse**

Mining operations within an Active Management Area (AMA) have water conservation requirements, while those outside of AMAs do not. The Sierrita and Mission mines are in the Tucson Active Management Area. Rosemont is just outside the Tucson AMA. The water required to concentrate copper ores at a mine may outweigh all of the other uses of water at the mine site, so the need to conserve water is critical for any mine’s operation.

A report by Singh (2010; Water consumption at copper mines in Arizona, State of Arizona Department of Mines and Mineral Resources, Special Report 29) estimates that the Sierrita Mine used approximately 27,000 acre-feet (af) of water in 2008 and the Mission Mine used about 8,400 af in that same year. While Rosemont claims to need only 5,000 af per year, this is contradicted by the Rosemont Process Water Pond memo (Tetra Tech 2012, Preliminary site water management plan for the Barrel Alternative, Rosemont Copper Project; Attachment 1), which states that the 24-hour water needs of the mill are 107 acre-feet, which equates to 39,000 af per year.

Supplemental water will be obtained by harvesting stormwater and so Pima County staff calculated how much water Rosemont would capture from stormwater events. Surface water runoff would account for an average of 160 af/year. Rosemont also intends to use seepage and runoff pumped from the mine pit, which is estimated to provide 18,000 af over the life of the mine, or less than 1000 af/year. Reuse of water in the processing of ore is standard practice in the industry, but many questions remain unanswered as to how Rosemont will obtain the initial 39,000 af of water for their activities and if the stated 5,000 af/year of groundwater from their Sahuarita wellfield will provide sufficient “make-up” water for the operation as stated.

## **Cultural Resources**

The following is a review of the state and Federal laws and policies related to mine operations. Rosemont and the Green Valley mines will be held to the same standard. Staff is unaware of any recent actions on the Green Valley mines that would require cultural resource protection actions.

Ground-disturbing actions within mine-owned lands (private lands) are not subject to state cultural resources requirements, with the exceptions of 1) standards that must be met when acquiring State Trust Lands and 2) the archaeological protection laws intended to cover instances of accidental or inadvertent discoveries of archaeological materials or human burial remains on private and state lands. This standard reads: "In the event that human remains, including human skeletal remains, cremations, and/or ceremonial objects and funerary objects are found during discovery, excavation or construction, ground disturbing activities shall cease in the immediate vicinity of the discovery". State law (ARS §41-844 and ARS §44-865) requires that the Arizona State Museum be notified of the discovery of these remains so that, in consultation with Native American communities or other groups, appropriate arrangements can be made for their repatriation and reburial by cultural groups who claim cultural or religious affinity to them.

State cultural resources standards are invoked if a mine applies to the Arizona State Land Department (ASLD) to acquire State Trust Lands, either in fee, by lease, or by acquisition of easements or rights of way, as would be the case for Rosemont. State cultural resources standards are overseen by the ASLD Cultural Resources Manager, who determines the cultural resources actions that must be completed before the acquisition can be completed. State standards are modeled on federal standards and require identification of cultural resources on lands to be acquired, documentation and evaluation of significance to determine the eligibility of the resources to the National and State Registers of Historic Places. If cultural resources are determined eligible, assessments of the effects of the proposed use or undertaking on the resources must be made and appropriate mitigation strategies must be developed in a mitigation treatment plan, subject to review and approval by ASLD and the State Historic Preservation Office. Finally, the treatment plan must usually be implemented and documented in a report written to state standards before the acquisition can be completed.

Federal standards apply in cases of proposed ground-disturbing actions, such as an initial Mine Plan of Operation, ongoing mine expansion, or improvements. Federal agencies with permitting or licensing authority or with jurisdictional or funding authority can invoke federal cultural resources standards. Federal cultural resources standards reside in several laws, but are usually invoked through the National Historic Preservation Act of 1966, as amended; specifically Section 106 of the NHPA. The Section 106 process is usually implemented through the National

Environmental Protection Act, which, depending on the nature of the proposed undertaking, requires environmental review that ranges, depending on scale and/or severity of anticipated disturbances, from a Finding of No Significant Impact, to an Environmental Assessment, to an Environmental Impact Statement. At Rosemont, the Mine Plan of Operations proposed an undertaking with significant environmental consequences, including large-scale cultural resources impacts; therefore, NEPA required an EIS. NEPA does consider cultural resources impacts, but the EIS process invokes Section 106, of the NHPA, to address the effects of the undertaking on cultural resources and meet the requirements of the NHPA.

### **Mine reclamation standards**

All three mines are subject to the same state mine reclamation standards on their state or private land.

The Mission mine is also subject to mine reclamation requirements that came as the result of settlement relating to ASARCO's bankruptcy. The settlement agreement resolved disputes over how much reclamation would be performed at the mine. Reclamation has been completed on the Nation's land, but not on the rest of the mine, which is on private land. There has been no evaluation of the success of the reclamation.

The Sierrita mine is also subject to reclamation standards of the U. S. Bureau of Land Management. The reclamation would include capping and revegetating the waste rock.

Many portions of the Rosemont mine are subject to mine reclamation standards of the U. S. Forest Service. These standards were revised in 2008 after many cases in which inadequate reclamation left federal taxpayers "holding the bag" on financial obligation and environmental damage. Only time will tell whether the new standards can fully address the problems that motivated the revisions. At this time, there is only a conceptual reclamation plan for the Rosemont mine. There is no revegetation plan as yet, and no standards for vegetation or soils on the reclamation surfaces have been put forth. Forest Service will not provide the reclamation and closure plan, the soils or vegetation standards, or the proposed bonding or financial assurance requirements for public review and comment.

None of the Pima County mines are required to backfill the pits with waste rock. Pit backfilling is a requirement in California, and at the Carlota mine in the Tonto National Forest near Phoenix.

### **Pima County standards for lighting**

Pima County's lighting ordinance determines standards that are based on lighting zones. All new mine lighting must comply, but the lighting ordinance is not retroactive. Rosemont has not yet applied for the permit from Pima County.

### **Pima County floodplain standards**

Floodplain standards for the mines are the same, but the minimization and mitigation varies according to how floodplains are affected and how much is in the jurisdiction of the District. Tailings impoundments and large dams are exempt from local floodplain regulation by state statute. Floodplains on federal and tribal lands are not subject to local authority. Rosemont has recently applied for the floodplain use permit from Pima County Regional Flood Control District for a water supply line through would run from Sahuarita to the mine site. Sierrita will need a permit for their future channel work. Through this permit process, Rosemont and other mines can be required to minimize the effects of their activities on floodplains and others who may be affected downstream, to the extent allowed by law.

### **Maeveen Marie Behan Conservation Lands System (CLS) Guidelines**

This local standard, adopted into the Comprehensive Plan for Pima County by the Board of Supervisors in December 2001, does not apply to mines. However, Pima County has encouraged the mining industry to conform with the same guidelines that are applied to discretionary land-use decisions of the Board.

Sierrita has acquired about 8,000 acres of State Trust Lands and private land to mitigate the construction of a 2,500 acre new tailings pile. The mitigation land includes 2,000 acres known as the West Desert Preserve, which is a recreation area serving the local community. In 2010, the Sierrita mine also purchased 3,500 acres at Mission Peaks and additional lands that were originally donated to the Reid Park Zoo. Although there are no official plans to re-activate the neighboring Twin Buttes mine, Freeport would be well poised to meet the CLS guidelines should they expand operations. Freeport's spokesperson was quoted by the Arizona Daily Star (May 18, 2010): "We believe creating adequate buffer zones around active mining sites or other large industrial facilities, which may include areas for recreational use and wildlife habitat, can provide successful interaction between community and industry."

The proposed Oracle Ridge mine has voluntarily purchased 476 acres in the CLS to offset its impacts for expanding a small underground mine located in the Santa Catalina Mountains on primarily private land. The acquisition fully meets the CLS standard based on the mine's location, and has been completed in advance of any renewed mining.

In a 2008 letter, Rosemont indicated its willingness to comply with the CLS standard. It would take approximately 12,900 acres—based on the proposed location and areal extent described in the Environmental Impact Statement—to compensate for the CLS impacts of this mine. Rosemont has identified only 3,300 acres in Pima County for mitigation to date, and an additional 1,200 acres in Santa Cruz County, far below the CLS standard.

Staff knows of no activities at the Mission Mine that would require CLS mitigation.