



Board of Supervisors Memorandum

February 11, 2014

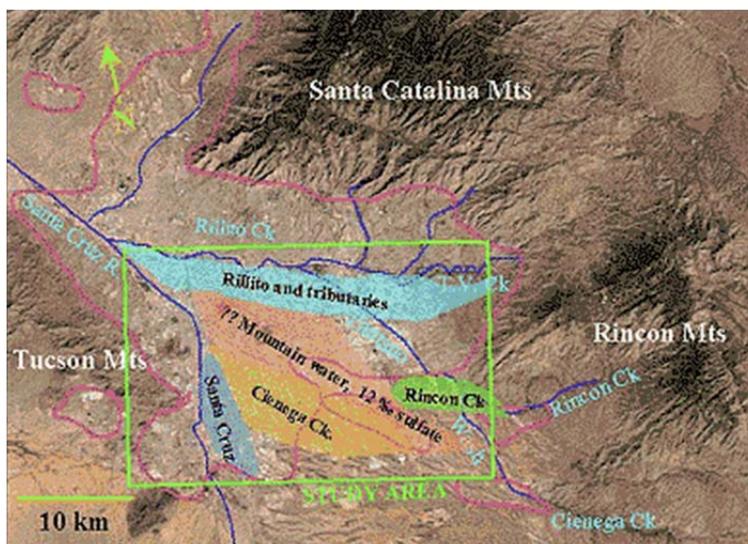
Regional Flood Control District Objection to Rosemont Copper Proposed Mine Plan of Operations and the Final Environmental Impact Statement

Introduction

The Regional Flood Control District (RFCD) has been an active participant in the review and analysis of the Rosemont Mine proposal. The RFCD's involvement is historic within the basin and has been primarily for the purpose of protecting watershed elements of the Cienega Basin, especially those portions of the Cienega Creek stream under the ownership of the RFCD as part of the Cienega Creek Preserve.

The County, in general, and the RFCD specifically, has made efforts to preserve and protect the watershed through land acquisitions that now total \$64 million. These land acquisitions have been for the primary purpose of protecting the flood control benefits of the basin by minimizing urbanization or watershed disturbances.

In addition, the basin provides important and significant subflows of groundwater to the Tucson Aquifer. Isotope studies have determined that the Cienega basin has been an important source of groundwater recharge to the Tucson Active Management Area as shown in the figure below and in the attached exhibit. Water in the south-central Tucson Basin matches the floodplain groundwater from Cienega Creek. Protecting these surface and groundwater subflows to the Tucson Basin is an important public purpose of the RFCD. The RFCD's review and analysis of the Rosemont proposal has included the effects on groundwater flows, subsurface flows, surface water flows, and rainfall and storm events. All of these impacts have been carefully quantified and submitted as comments in the County and RFCD reviews of the proposed Mine Plan of Operations and the resulting federal Environmental Impact Statement for the Rosemont Mine proposal.



Groundwater recharge domains inferred isotopic analysis of groundwaters.

Dr. C. Eastoe, et. al, The University of Arizona

The Honorable Chairman and Members, Pima County Board of Supervisors
Re: **RFCD Objection to Rosemont Copper Proposed Mine Plan of Operations and the Final
Environmental Impact Statement**

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The RFCD is also, by virtue of its organization, closely aligned with the mission of the US Army Corps of Engineers. The Corps participates with the RFCD in a number of important regional flood control projects and is the primary administrating agency of Section 404 of the Clean Water Act. We have recently made extensive comments to the Corps regarding the impacts of the Rosemont Mine proposal on Waters of the United States. These comments are attached and documented in a letter dated December 30, 2013 to Colonel Kim Colloton, the District Engineers for the Corps' Los Angeles District.

Many of these comments deal with the adverse impacts of the Rosemont proposal, both directly to Waters of the United States and indirectly to water resources – both surface water flows and groundwater flows in the Cienega Basin. The December 30, 2013 letter clearly articulates the extent and impact of the proposal and that the mitigation proposed by Rosemont that is yet to be confirmed is significantly inadequate to offset the adverse impacts of their proposed action.

Because the RFCD is, by virtue of Arizona law, a separate taxing district governed by a Flood Control District Board of Directors, who happen to be the same board as the Board of Supervisors, it is necessary to have the Flood Control District Board also authorize the filing of objections to the Final Environmental Impact Statement and draft Record of Decision for the Rosemont Mine project.

Recommendation

It is recommended that the Flood Control District Board of Directors authorize the General Manager of the Flood Control District, who is the County Administrator, and the County Attorney to file, on behalf of the Regional Flood Control District, objections to the US Forest Service's Final Environmental Impact Statement and Record of Decision for the Rosemont Copper Mine; the objections to be consistent with the direction given by the Board of Supervisors to the County Attorney's Office and the County Administrator during the February 4, 2014 Executive Session of the Board regarding the Rosemont Mine.

Respectfully submitted,



C.H. Huckelberry
County Administrator

CHH/mjk – February 6, 2014

Attachment

Stable Isotope Tracers Reveal Flow Paths of Tucson Basin Groundwater

By Christopher Eastoe, Research Scientist, Ailiang Gu, Graduate Student, and Austin Long, Emeritus Professor

For many years, Tucson depended entirely on groundwater pumped from the regional aquifer in the Tucson basin and neighboring Avra Valley for a water supply. The Tucson basin is typical of the Basin and Range province in containing thousands of meters of sediment derived from the surrounding hard-rock ranges. Predominantly sand and gravel in the upper few hundred meters of the basin have been the principal source of water. The basin groundwater is replenished from streams that drain areas of high rainfall (relative to rainfall in the basin itself) in the mountains to the north and east, and in the uplands towards the Mexican border.

Colorado River water now supplements the city's water supply, and the pumping of groundwater is now greatly reduced under central Tucson. The city is growing unabated, nonetheless, and groundwater will continue to be a crucial water resource. Future exploitation of the aquifer will necessitate a better understanding of the ages, origins, and flow paths of the groundwater as basic information for the construction of groundwater flow models. It is difficult to locate zones of recharge at the surface, and even more difficult to track the movement of concealed groundwater. An essential first step towards understanding water movement is the construction of a map of static water levels. Using data from the hundreds of wells in the Tucson basin, such a map was assembled in the late 1990s (see www.ag.arizona.edu/AZWATER/publications/sustainability/index.html, Fig. 3.2).

Isotope studies provide additional information revealing the complexity of the recharge process. Stable oxygen and hydrogen isotopes label the water molecule itself, and their ratios vary as a function of condensation temperature during precipitation, evaporation, and water-rock interaction. These ratios can be used to distinguish waters of different origin — in the Tucson basin, for example, rain or snow from the surrounding high mountains can be distinguished from rain at the basin floor — and to detect mixing between waters of different origin. Isotopes in sulfate and bicarbonate ions provide information on sources of solutes. In Tucson, sulfur isotopes are useful because of the isotopic contrast between Permian (~250 million years ago) marine gypsum that is present to the southeast, and other sulfate sources in soil or sediment that represent a combination of sulfur from igneous rocks and dust. Natural radioactive isotopes such as tritium and radiocarbon provide information about the age of groundwater.

Over the last 20 years, the Laboratory of Isotope Geochemistry has assembled an isotope data set for hundreds of sample sites in Tucson, and for almost every measurable rain event. Past graduate students — notably Bob Kalin, Sofie Pasilis, Joy Gillick, John Lindquist, David Esposito, and Erin Cunningham — have constructed portions of the maps of O, H, S, and C isotopes. Recently, we have completed coverage of the central part of the basin. Much of the work was supported by our publicly-funded Laboratory as a service to the community; more

recently, the University and the SAHRA Science and Technology Center have supported us.

In this brief article, we present an interpretation of our S and O isotope results in the central part of the basin (Fig. 1).

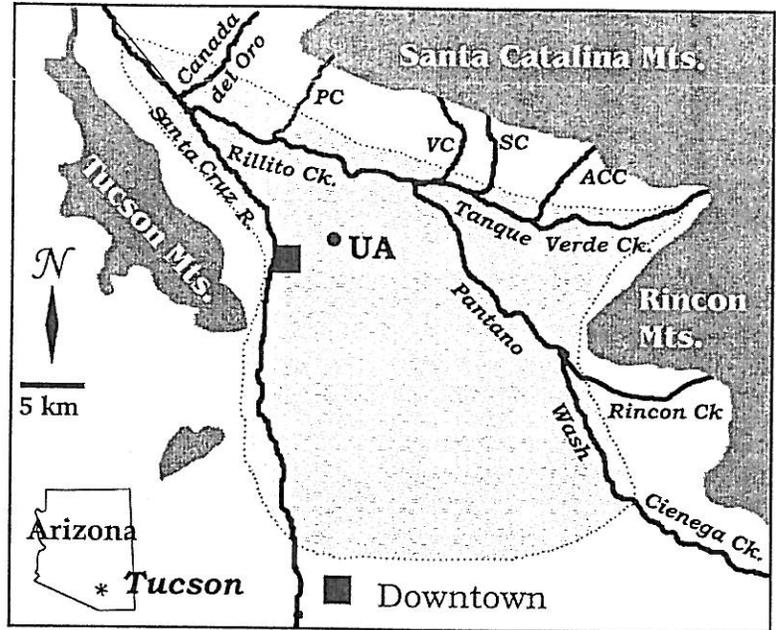


Figure 1. Location map of study area (patterned), showing major streams of the Tucson basin: PC = Pima Creek, VC = Ventana Creek, SC = Sabino Creek, ACC = Agua Caliente Creek.

Delta Notation and Isotope Fractionation

Using mass spectrometers, we measure isotope ratios R , e.g.

$$R = {}^{18}\text{O}/{}^{16}\text{O}, \text{ or } {}^{34}\text{S}/{}^{32}\text{S}$$

Using R values for samples, and for standard materials (VSMOW, a seawater standard, for O; and CDT, a meteoritic sulfide standard, for S), we define delta values as follows:

$$\delta^{18}\text{O} = [(R_{\text{sample}}/R_{\text{standard}}) - 1] \times 1000 \text{ ‰ (per mil)}; \text{ likewise } \delta^{34}\text{S}.$$

Evaporation of water enriches ${}^{16}\text{O}$ in the vapor relative to the composition of the liquid water. Such a separation of isotopes is termed fractionation. Condensation does not generally reverse this process completely, so that average rain in most places is enriched in ${}^{16}\text{O}$ relative to 0‰ seawater. Average rainwater and groundwater therefore have negative $\delta^{18}\text{O}$ values.

Isotopes in Tucson Basin Groundwater

We possess $\delta^{18}\text{O}$ data for groundwater from more than 300 sites, and $\delta^{34}\text{S}$ data for dissolved sulfate from 137 sample sites. A complete list of the data and isotope ...cont'd page 8

Tucson Basin Groundwater *cont'd...*

distribution maps can be found on the Internet at www.geo.arizona.edu/researchers/mbaker/AustinLong/.

As a working hypothesis, we proposed that most water in the upper part of the regional aquifer derives ultimately from the major streams that enter the basin. If the water in each stream has a characteristic isotope signature, and if a similar distinctive signature is found in part of the aquifer, then we may be able to infer that the stream is the main water source for that area.

Stream water could be sampled at the surface during flow events, but this approach yields a broad range of $\delta^{18}\text{O}$ values reflecting the isotopic variability of rainwater. A better estimate of the average isotopic content of water available to replenish the regional aquifer from each stream is obtained from shallow wells in the flood plain ground-water. Fig. 2 shows $\delta^{34}\text{S}$ and $\delta^{18}\text{O}$ data of flood plain ground-water. Several distinctions can be made — between Cienega Creek and the other streams on the basis of $\delta^{34}\text{S}$, and between Rincon Creek and the Santa Cruz River on the basis of $\delta^{18}\text{O}$. The empty ellipse corresponds to a water composition not known from the major flood plains.

The $\delta^{18}\text{O}$ and $\delta^{34}\text{S}$ distribution maps (see website) show basin-scale features with boundaries that do not coincide. The existence of large map features argues for the importance of recharge from basin-scale sources such as the major streams. The major feature of the $\delta^{18}\text{O}$ map is a boundary, near Interstate 10, between mountain-derived water with $\delta^{18}\text{O} < -9\text{‰}$ to the northeast, and basin-derived water with $\delta^{18}\text{O} > -8\text{‰}$ to the southwest. On the $\delta^{34}\text{S}$ map, the major feature is a plume of sulfate-rich water with $\delta^{34}\text{S} > 10\text{‰}$, derived ultimately from Permian gypsum, that extends across the basin from southeast to northwest. Surrounding water contains sulfate with $\delta^{34}\text{S} < 10\text{‰}$.

We can divide the basin map into domains using the $\delta^{18}\text{O}$ and $\delta^{34}\text{S}$ boundaries together (Fig. 3). Each domain contains water

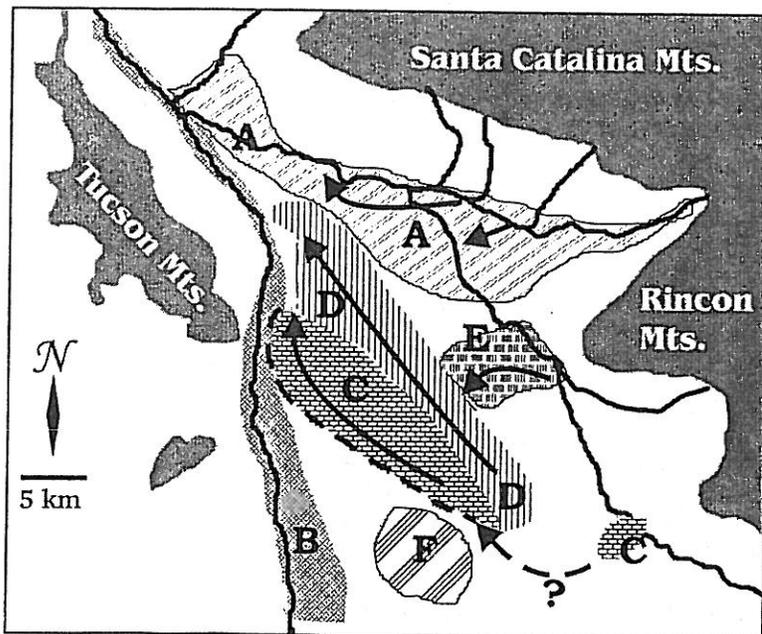


Figure 3. Map of Tucson basin showing groundwater isotope domains and flow directions. Domain designations are explained in the text.

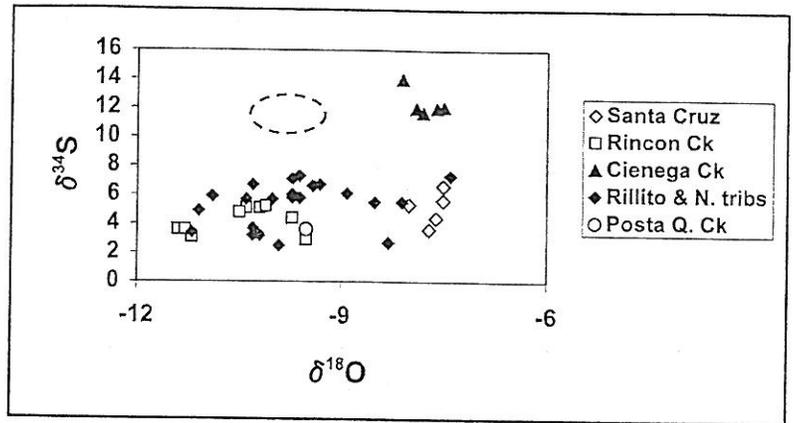


Figure 2. Plot of $\delta^{34}\text{S}$ vs. $\delta^{18}\text{O}$ in flood plain groundwater. The empty ellipse corresponds to groundwater compositions not represented in flood-plain groundwater.

with a characteristic combination of $\delta^{18}\text{O}$ and $\delta^{34}\text{S}$. Between domains C and D, the boundary is defined by a change in $\delta^{18}\text{O}$; between domains B and C, the boundary is defined by changes in $\delta^{34}\text{S}$. The domains match the major streams as follows:

Domain A, with $\delta^{18}\text{O} < -9\text{‰}$ and $\delta^{34}\text{S} < 10\text{‰}$, corresponds to water from Rillito and Tanque Verde Creeks and their northern tributaries.

Domain B, with $\delta^{18}\text{O} > -8\text{‰}$ and $\delta^{34}\text{S} < 10\text{‰}$, corresponds to water from the Santa Cruz River.

Domain C, with $\delta^{18}\text{O} > -8\text{‰}$ and $\delta^{34}\text{S} > 10\text{‰}$, contains water that matches flood plain groundwater from Cienega Creek.

Domain D, with $\delta^{18}\text{O} < -9\text{‰}$ and $\delta^{34}\text{S} > 10\text{‰}$, matches the empty ellipse in Fig. 2.

Domain E, with $\delta^{18}\text{O} < -10\text{‰}$ and $\delta^{34}\text{S} < 10\text{‰}$, corresponds to Rincon Creek.

Domain F has $\delta^{18}\text{O} > -8\text{‰}$ and $\delta^{34}\text{S} < 10\text{‰}$ like domain B, but is remote from the Santa Cruz River.

The domain map tells us a great deal about the origin of groundwater in different areas of the Tucson basin. For a domain having clear geographic and isotopic relationships with a specific stream, we deduce that the stream is the source of the groundwater. Domain C does not appear to be continuous at the southeastern end; all attempts to find samples to bridge the gap have failed so far. The water in this domain is following one or more Pleistocene courses of Cienega Creek, which has not always followed the present course into Pantano Wash. The water in Domain D must have originated at high elevation, probably in the Rincon Mountains, but has a Permian sulfate S-isotope signature. It appears to be upwelling in the southeastern corner of the basin, possibly dissolving gypsum at depth in the basin-fill sediments. Oligocene lacustrine gypsum, reworked from Permian strata, crops out in sediment closer to the southeastern edge of the basin.

Isotope maps showing the distribution of tritium and radiocarbon in groundwater (see website) help to confirm the domain boundaries established by S and O isotopes, and provide much additional information about the age of the groundwater. But that is a story for another time!



COUNTY ADMINISTRATOR'S OFFICE

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C.H. HUCKELBERRY
County Administrator

December 30, 2013

Colonel Kim Colloton
District, Engineer, Los Angeles District
US Army Corps of Engineers
P. O. Box 532711
Los Angeles, California 90053-2325

Re: US Environmental Protection Agency Region IX November, 2013 Letter Regarding Its Analysis of the Updated Draft Clean Water Act Section 404 Compensatory Mitigation Proposal for Rosemont Mine, Pima County, Arizona and the December 13, 2013 Rosemont Copper Letter Regarding the Same Subject

Dear Colonel Colloton:

Pima County and the Pima County Regional Flood Control District (RFCD) would like to take this opportunity to provide you with our position regarding the Rosemont Copper proposal for mitigating adverse impacts on Waters of the United States (WUS), ephemeral streams and riparian areas by their mining proposal. The proposed impacts are significant and substantial within the Cienega Basin Watershed, a watershed the County has attempted to conserve over the last three decades. Impacts to the watershed will come from the actual mining activities that will result in the direct impact to 5,431 acres of land that have inherent environment functions and ecosystem services. Indirect, offsite impacts from the mining activities include diversion of both surface water flows (impacting downstream resources) and groundwater subflows intercepted by the mining activities supporting wetlands and functions of even ephemeral WUS).¹

¹Groundwater Model of the Santa Rita Rosemont Project Site Report, Pima County Regional Flood Control District, April 28, 2008; Clean Water Act Section 404 Comments, Pima County 2012; Draft Environmental Impact Statement (DEIS) Comments, Pima County, 2011; Preliminary Administrative Final Environmental Impact Statement (PAFEIS) Comments, Pima County, August 14, 2013; Final Environmental Impact Statement (FEIS), US Forest Service, December 2013).

Colonel Kim Colloton

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Pima County and the RFCD Have Heavily Invested in Protecting the Cienega Basin Watershed

The County's concerns about the impacts from the Rosemont project arise from the uniqueness of the Cienega Basin Watershed and our efforts to protect it as a treasured natural resource. The uniqueness of the watershed comes from the fact that it supports large, low-elevation groundwater-dependent ecosystems in a county where depletion of groundwater has already caused the loss of the largest and most significant stream in southern Arizona, the Santa Cruz River. The Cienega Basin Watershed is remarkable for being nearly undeveloped and free of the exotic aquatic species that characterize the San Pedro River and other streams in southern Arizona. This watershed provides valuable habitat for 11 species that are either federally listed or proposed for listing. The scale of the impacts from the Rosemont mine and its position in the headwaters of the watershed threaten the most ecologically intact remnants of the Cienega Basin Watershed.

Community efforts to protect the watershed began 40 years ago, when the Pima County Board of Supervisors was first confronted with a proposal for a new satellite city (Attachment 1). The community debate about the proposal centered largely on water issues.

Recognizing the longstanding interest of citizens in Pima and Santa Cruz Counties for protecting natural and scenic values as well as water resources, Congress designated a significant portion of the watershed as the Las Cienegas National Conservation Area.

The County's acquisitions along the Cienega Creek began in 1980 with the purchase of what is now called the Cienega Creek Natural Preserve from Horizon Land Company. These initial acquisitions have been followed with the acquisition and development of the Cienega Valley Empire Ranch Reserve, including open space acquisitions of the Bar-V Ranch, Sands Ranch, Clyne Ranch, and Empirita Ranch and the expansion of Colossal Cave Mountain Park and the Cienega Creek Natural Preserve and other related acquisitions (Attachment 2). All of these acquisitions have been to protect the watershed basin and these unique groundwater-based stream ecosystems that provide a myriad of benefits to the natural and cultural fabric of our County.²

² Protecting Our Land, Water and Heritage, Pima County's Voter Supported Conservation Efforts, February 2011; Pima County DEIS comments, 2012.

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These open space acquisitions complement the protection of this watershed and are reported to federal authorities through our stormwater management [Clean Water Act (CWA) Section 402] program. Our efforts to monitor the water quality of Cienega Creek and Davidson Canyon began in 1987 with water quality sampling, leading to an interagency petition in 1990 to protect Cienega Creek within the Natural Preserve under the State of Arizona's Outstanding Waters Program. This program imposes anti-degradation standards under State water quality rules. That petition was granted, along with the Pima Association of Government's 2005 request to designate Davidson Canyon as an Outstanding Arizona Water pursuant to R18-11-112 of the Arizona Administrative Code. The designation of Davidson Canyon was sought to protect the high-quality water that Davidson provides to Cienega Creek, and ultimately Tucson, via springs and groundwater underflows. Today, the Pima Association of Governments' monitors a host of water-related indicators, including shallow groundwater and quarterly observations of surface flows along Davidson Canyon. As a result of these efforts and the habitat conservation planning we have done with US Fish and Wildlife Service, we know a great deal about the ecological values of this watershed; which, in turn, has informed our investments of over \$64 million to protect these critical and unique resources.

Rosemont Mining Proposal Will Adversely and Irreversibly Impact the Cienega Basin Watershed the County has Protected

Rosemont's mining proposal will have significant long-term and adverse impacts on the watershed and riparian systems within the Cienega Basin Watershed, both from the direct activity of mining where WUS, ephemeral streams and riparian areas will be completely destroyed. By our estimate, approximately 100 miles³ of stream channels will be directly destroyed by the mining activity (see Attachment 3). The 404(b)(1) Alternatives Analysis relies on a much smaller subset of potentially jurisdictional waters for its analysis. Impacts to WUS include dredging to obtain "soils" for future reclamation, and excavation and filling to create the mine. Furthermore, due to the upper watershed location of the mining activity, there will be long-term and continuing adverse and indirect impacts due to the loss of surface water flows because of topographical alteration of the upper watershed, various diversion channels, and interception of groundwater subflows by the mine pit excavation itself and by dewatering.

These impacts must be fully mitigated by Rosemont in a meaningful, measurable and verifiable manner.

³Clean Water Act Section 404 Comments on #SPL-2008-00816-MB, Pima County, 2012.

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US Environmental Protection Agency Region IX November 7, 2013 Letter Expresses Real and Definable Concerns that Have Not Been Factually Disputed

Pima County and the RFCD share many of the same concerns over the mitigation proposal as those expressed by the US Environmental Protection Agency (EPA) in their November 7, 2013 letter. Among the many concerns raised by the EPA was the fact that Rosemont must demonstrate clear compliance with the Clean Water Act, and neither the EIS nor the scant mitigation proposal contained in the Final Environmental Impact Statement (FEIS) demonstrate such compliance. They failed to quantify certain upstream and downstream impacts and underestimated impacts to groundwater-supported ephemeral and intermittent streams and springs.

During scoping in 2008, Pima County identified the potential for the mine to cause significant degradation of aquatic ecosystems, including Empire Gulch, various springs, Davidson Canyon and upper and lower Cienega Creek. We provided detailed outlines of hydrologic, hydraulic and geomorphic studies needed to assess impacts to the Outstanding Waters of Davidson Canyon, studies that were never conducted and which would have reduced the uncertainties federal and state agencies faced later in their effects analyses.⁴ We also provided detailed reviews of the mine's groundwater and surface water models and provided our own groundwater model, which was reviewed by US Geological Survey staff.⁵

We completely agree with the EPA that the Sonoita Creek and Fullerton Ranch are inappropriate compensatory mitigation for impacts to WUS, principally because neither Fullerton Ranch nor Sonoita Creek are in the same watershed. In 2008, the Corps adopted a watershed approach to mitigation. In 2009, Pima County asked that mitigation be located close to the area of effects, adjacent to other protected land, and protected in perpetuity with legal instruments that secure mineral, as well as water, resources.⁶ This same letter provided an extensive list of sites located within the watershed that might offer permittee-based mitigation.

⁴April 29, 2008 Scoping Letter to Ms. Bev Everson, Forest Geologist, from C.H. Huckelberry, Pima County Administrator, Attachment 10.

⁵2008 Groundwater Model; Pima County DEIS Comments; Pima County PAFEIS comments; Pima County Section 404 Comments; Pima County February 17, 2010 Letter to Forest Supervisor Jeanine Derby.

⁶December 23, 2009, Letter to Jeanine Derby from C.H. Huckelberry.

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In addition, the Interagency Review Team, of which Pima County is a member, has yet to see or approve 1) an appropriate functional assessment that describes the aquatic resource values associated with impacts and mitigation or 2) an assessment of the relationship between the impacts and the mitigation that is appropriate to the scope and degree of the impacts and which are reasonably enforceable.

Furthermore, neither the Corps nor the Forest Service, as the lead agency, has adequately considered interrelated tribal issues. We agree with the Tohono O'odham Nation that there have been ineffective consultations with Native American communities regarding the impact of the proposal on traditional cultural places, including streams and springs. Given the close locational association of historic properties, archeological sites and traditional cultural places to WUS, any disruption or destruction of these Waters will disproportionately destroy these cultural resources, which are located where the water either is or was. Federal agencies, in their conduct of this process, have failed to provide opportunities for meaningful involvement of tribal communities. The mitigation plan, as currently described, is unlikely to relieve the disproportionality of the impacts to the Tohono O'odham Nation or other consulting tribes.

Rosemont Proposed Mitigation is Seriously Inadequate

The Rosemont proposal to mitigate the adverse effects of their direct and indirect impacts on WUS, ephemeral streams and riparian areas, as well as seeps and springs, is substantially inadequate. Rosemont proposes three areas for mitigation credit: 1) the Pantano Dam, including the transfer of 1,122 acre feet of appurtenance surface water rights and the diversion facilities in a nearby groundwater well; 2) Sonoita Creek Ranch; and 3) Davidson Canyon preservation lands. Our comments on each of these proposals appear below.

Pantano Dam

While this proposal will have a positive effect on the ecosystem, it will not produce the desired mitigation, primarily because the appurtenant surface water right is not as advertised at 1,122 acre feet; it is more realistically no more than 360 acre feet per year and declining. As part of our review of the Rosemont EIS and concurrent with development of the possible Cienega ILF, Pima County and RFCF have questioned the availability of wet water to the site.⁷ Given the

⁷August 14, 2013 PAFEIS Comments; RFCF Letter to Marjorie Blaine, July 31, 2013.

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RFCD have questioned the availability of wet water to the site.⁷ Given the specific reductions in flows that have been observed at the site and the trend toward reduced flows due to climate change and other factors such as exempt well drilling,⁸ I do not see sufficient wet water to guarantee the long-term success of a project intended to restore lost aquatic functions.

Clearly, an undependable surface water flow of approximately 360 acre feet per year is not the same as a legally possible annual flow of 1,122 acre feet. This element of the Rosemont mitigation proposal fails because it cannot be relied upon to produce the necessary mitigation credits due to an unpredictable and insufficient long-term water supply.

Sonoita Creek Ranch

Rosemont also proposes to mitigate impacts through the purchase of the Sonoita Creek Ranch. This property lies outside the Cienega Basin and violates the County's desired principle of having mitigation occur in the watershed where the damage occurs. Therefore, the Sonoita Creek Ranch should be completely discounted in providing mitigation for the Rosemont impacts. Sonoita Creek is also located in close proximity to other mines the Forest Service is considering in the Patagonia Mountains.⁹ It would be more appropriate for this site to serve to mitigate effects of those mines that are located in the Sonoita Creek Watershed, assuming that Sonoita Creek Ranch would remain unaffected.

Davidson Canyon Preservation and Enhancement

The preservation of small, isolated parcels, even within the Cienega Basin Watershed, will provide little overall mitigation. Well-accepted scientific theory in ecosystem preservation discounts the value of small, isolated conservation parcels for either conserving unique ecosystems or in mitigating for their losses.¹⁰ Rosemont proposes to destroy or deny access to an entire, intact, contiguous

⁷August 14, 2013 PAFEIS Comments; RFCD Letter to Marjorie Blaine, July 31, 2013.

⁸Water Resource Trends in the Cienega Creek Natural Preserve, Pima County, August 2013.

⁹FEIS, US Forest Service, December 2013.

¹⁰Diamond, J.M. 1975. The island dilemma: Lessons of modern biogeographic studies for the design of natural reserves. *Biological Conservation* 7:129-146; Wilcox, B.A., and D.D. Murphy. 1985. Conservation strategy: effects of fragmentation on extinction. *American Naturalist* 125:879-887.

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Santa Rita Unit of the Coronado National Forest, greatly diminishing the connected ecosystem value of this portion of the Forest. The loss of these resources, including those subject to wetland regulations, cannot be compensated for by a few small and isolated parcels within the Cienega Basin Watershed. The Davidson Canyon preservation lands do not provide meaningful mitigation by themselves. Those parcels most proximal to Rosemont will be most degraded by the changes in the watershed, and other indirect impacts.

It would appear the lands acquired and/or offered by Rosemont as mitigation are simply lands of acquisition by convenience rather than lands of true mitigation. Rosemont, in their letter of December 13, 2013, laments the lack of available mitigation opportunities in the Barrel Canyon/Davidson Canyon Watershed; and in doing so, demonstrates they both fail to understand the watershed or acknowledge the efforts of both the County and RFCO, as well as the US Bureau of Land Management, in conserving the resources within the Cienega Basin Watershed over the last 30 years. If land are "not available" for Rosemont's mitigation, it is because previous actions have conserved them; and it is these same conserved lands that are now threatened by Rosemont's actions.

In summary, all three mitigation strategies are less than adequate compensation. The County respectfully requests that the principle of mitigation in the watershed of impact be adhered to by federal approval agencies because of the County's significant monetary and time investment in conserving the unique water-based resources of the Cienega Basin Watershed.

Significant lands are still available in the watershed for acquisition and restoration. For instance, staff confirms that Andrada Ranch is still for sale (see Attachment 2). It abuts the Rosemont and Bar V Ranches, including over 16,000 acres of State grazing lease and 271 acres of fee-owned land centered on over 4,000 linear feet of Davidson Canyon upstream of the Outstanding Waters reach. It also includes water rights to a perennial or near-perennial stock pond and a perennial spring located on fee-owned land that has wetland vegetation and restoration potential.

A horse ranch along Gardner Canyon was also for sale during the last year and may still be available. Gardner Canyon is an important tributary to Cienega Creek located just south of the Pima County line.

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In addition, there are over 100,000 acres of unconserved State Trust lands within the Cienega Creek Watershed that could be available for mitigation. Pima County has successfully purchased almost 3,000 acres of State Trust land since 2009. In 2012, mining company Freeport McMoRan successfully purchased over 8,000 acres of State Trust land to construct a new tailings pile and mitigate its effects at its Sierrita Mine west of the proposed Rosemont Mine. These purchases demonstrate that the purchase of State Trust land for mitigation is plausible, yet Rosemont has not pursued this option.

Pantano or Cienega In-lieu Fee Project May Not be the Best Compliance Vehicle for Rosemont

The RFCD, as an in-lieu fee (ILF) provider under an approved agreement with the Corps, has been working to develop a project located in the Cienega Creek Natural Preserve (Pantano Dam) that would improve the conditions of the aquatic resources there in conjunction with acquisitions or funds that would be made available by Rosemont Copper.

A number of outstanding, interrelated issues have arisen from consideration of the Pantano ILF project, as well as the nature of the Rosemont project and the roles of the regulatory agencies, which include the County, RFCD, Corps, and the US Fish and Wildlife Service. I would appreciate further discussions with you and your staff on these topics.

1.

Many of the Rosemont proposals for the Pantano Dam are tangible actions that can help assure the water supply, but they cannot manufacture water for a stressed watershed. No one has been able to answer the question of whether the planned mitigation is actually possible given the hydrologic reality facing this watershed.

Another essential element of the decision relates to the liability that RFCD may have, if, for any reason, the ILF mitigation bank does not produce or sustain the riparian restoration required. Obviously, the County and RFCD cannot and will not be held financially liable for Rosemont mitigation miscalculations. Please note that an ILF project here would require approval. This approval has not been granted or even scheduled, as there is no final plan available for consideration.

As you are aware, every compensatory mitigation project has an ecological risk and a cost liability associated with the risk. These risks may be managed by the use of mitigation ratios, financial requirements such as performance bonds, or advanced mitigation. Some

Colonel Kim Colloton

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form of financial assurance is an option to manage the risk for compensatory mitigation by requiring the permittee to provide collateral to the Corps and/or ILF provider. Ultimately, it is the permittee that must be made responsible. For mining, the potential environmental impacts are significant; and the temporal lag is long between when the impacts occur and when compensatory mitigation is deemed successful. Therefore, the ecological risks are very high. As a potential ILF within an Arizona Mining District, we would be interested in knowing how other Corps District Offices have handled ILF programs for mining, such as coal mining in Kentucky, Virginia and West Virginia.

Through the ILF program, I remain committed to ensure that those causing the impacts are required to pay the full cost of same and are not subsidized in any way by RFCD taxpayers. Rosemont, not Pima County, must remain financially responsible for assuring the success of this project.¹¹ If this is not possible within the framework of the ILF and the Corps' regulatory timeframes, then we can either explore some type of contractual arrangement for permittee-responsible mitigation on County or RFCD land or abandon the matter entirely.

At this point, I strongly prefer permittee responsible mitigation under the legal authority of the Corps.

Meaningful Mitigation Relies on a Dependable Water Supply

It has become clear to me that an independent supply of water is needed to avoid placing the burden of long-term risks of failure upon Pima County. Additional water supply from outside the Cienega Basin is needed to assure that sufficient wet water is available in perpetuity.

Merely pumping wells near the stream would be "robbing Peter to pay Paul" and could impair the health of the stream and riparian forest above the dam. Other potential sources of water might include Central Arizona Project water or effluent purchased from the US Bureau of Reclamation wheeled through the Tucson Water interconnection to Vail or delivered through an extension of Tucson's reclaimed line (see Attachment 2).

An additional, independent water supply would also reduce the short-term implementation risks and potential temporal losses of aquatic resource functions associated with issues relating to surface water rights. The proposed ILF project depends on water spreading to

¹¹ Memorandum to the Pima County Board of Supervisors, August 13, 2013.

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generate WUS credits outside the main channel of Cienega Creek. Such water spreading would require a sever-and-transfer, and this process could be delayed or otherwise impaired by others. Also, an earlier priority water right in the ILF project area has recently been identified. The status of this right is not yet resolved.

Another key consideration for Pima County is that all of the area in question along Cienega Creek has been identified as mitigation for our upcoming Section 10(a)(1)(B) permit (Section 10) from the US Fish and Wildlife Service. Unfortunately, the regional habitat conservation planning in Pima County has not been well-integrated into federal evaluations for the Rosemont project. A copy of the Pima County Multi-species Conservation Plan (MSCP) and DEIS was provided to all involved federal agencies for review in late 2012. We are still waiting for the federal agencies to sort out the overlap between the MSCP and ILF programs. If parts of the Cienega Creek Natural Preserve might be rendered ineligible for MSCP species credit by the ILF project, the taxpayers must not bear the cost, and replacement habitat must be acquired.

Also unclear to me is the degree to which the Cienega or Pantano ILF projects might be vulnerable to re-consultation and additional National Environmental Policy Act review due to the premature release of the Rosemont FEIS, which contained very vague descriptions of all of the proposed WUS mitigation projects. Would RFCD's execution of the Pantano ILF project be subject to additional federal requirements, liabilities or delays because the FEIS and Biological Opinion relied on vague descriptions? These are issues that must be resolved prior to any final Rosemont approvals or permitting.

A Sustainable Mitigation Strategy for Rosemont Impacts and Our View of Measureable, Meaningful and Verifiable Mitigation

I recommend that Rosemont's CWA Section 404 permit be denied unless Rosemont commits to the following mitigation:

- Purchase and convey the Pantano Dam site to the RFCD;
- Purchase and convey 1,122 acre feet per year of senior surface water rights to the RFCD;
- Purchase and convey the distribution pipeline between the Pantano Dam and the Lago del Oro Golf Course to the RFCD;
- Purchase and convey Water Production Well Registration Number 602949, owned by Vail Water Company, to the RFCD;

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- Construct and convey to the RFCD a reclaimed water extension line from Drexel Road at the Pantano Wash approximately 11 miles to the Pantano Dam of sufficient size to deliver approximately 750 acre feet per year of reclaimed water to the Pantano Dam site;
- Purchase from the Bureau of Reclamation or any other reclaimed water owner and deliver approximately 750 acre feet annually of reclaimed water to the Pantano Dam site to the RFCD;
- Purchase and convey the Andrada Ranch, consisting of 276 fee-owned acres along Davidson Canyon, to the RFCD, or other suitable and targeted compensatory mitigation lands as identified in our December 23, 2009 letter to Forest Supervisor Jeanine Derby.

Under this mitigation proposal, Rosemont would be performing permittee-responsible mitigation and would remain financially responsible for successful mitigation as determined by the Corps and concurred with by the RFCD. The RFCD would enter into an appropriate operating agreement with the Corps to carry out the mitigation required if such is necessary.

The Rosemont compensatory mitigation proposal is inadequate and fails to provide measurable and meaningful reduction of impacts because there are more impacts to WUS than have been analyzed, and the offsite impacts are connected and profound.

I would like to thank you for taking the time to consider the County and RFCD perspective on this issue, and I would be happy to discuss this matter with you in person during your upcoming visit to Pima County in January 2014.

Sincerely,



C.H. Huckelberry
County Administrator

CHH/mjk

Attachments

Colonel Kim Colloton

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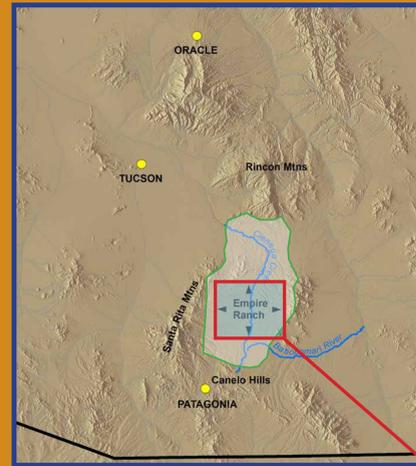
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c: The Honorable Ned Norris, Jr., Chairman, Tohono O'odham Nation
Jared Blumenfeld, Region IX Administrator, US Environmental Protection Agency
Suzanne Shields, Director, Pima County Regional Flood Control District
Julia Fonseca, Environmental Planning Manager, Pima County Office of
Conservation and Sustainability

ATTACHMENT 1

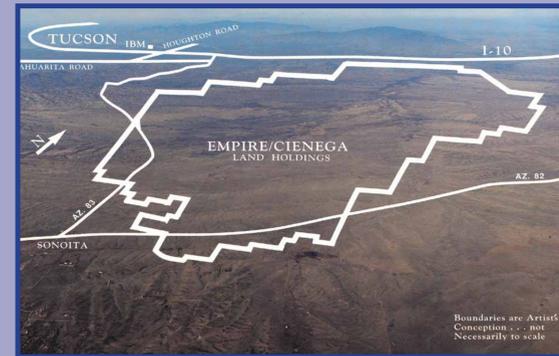
Re-assembling the Empire Ranch



Once one of the largest ranches in southern Arizona, the Empire Ranch stretched from the Rincon Mountains south to the edge of the Canelo Hills near Sonoita (approximate extent outlined at left). This land is home to pronghorn antelope and hundreds of other species of fish and wildlife. Parts of the Empire Ranch were sold off beginning in the early 20th century. During the latter half of the century efforts began to conserve ranch land under public ownership. This poster tells a small part of that history.

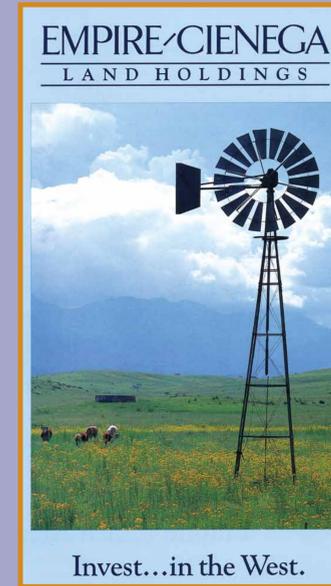
By Julia Fonseca (Julia.Fonseca@pima.gov), Helen Wilson and Everett Acosta, Pima County, with assistance from Gita Bodner, The Nature Conservancy.

ANAMAX BUYS EMPIRE RANCH



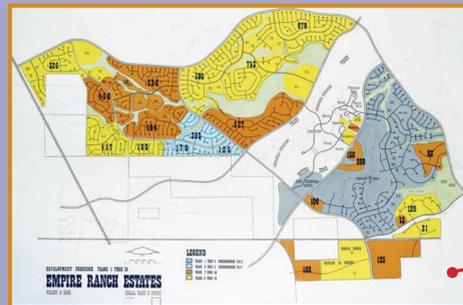
By the early 1970s Gulf America Corporation was facing numerous financial and other problems. In part to cut its losses GAC decided to sell the 35,000 acre Empire Ranch to Anamax Mining Company in 1974 for over \$12 million.

Anamax bought the ranch for its water rights to develop the Rosemont Mine. However, in the mid-1980s it put the ranch up for sale. The land was advertised as an investment for developers. Some of the uses promoted were ranchettes and investment parcels to be resold to secondary investors and developers.



GULF AMERICA BUYS EMPIRE RANCH

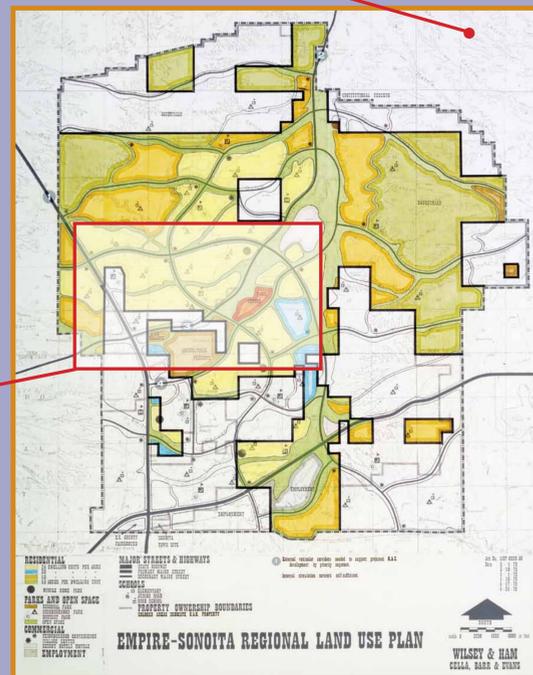
In 1969 Gulf America Corporation (GAC) bought the Empire Ranch. The early 1970s the planning for the creation of a satellite city of 180,000 people in the Sonoita Valley was well underway.



Development Sequence

In June 1970 the Empire Ranch plan was heard by the Pima County Planning and Zoning Commission. Over 150 people appeared to protest the plan.

The Pima County Board of Supervisors approved a portion of the plan, requiring GAC to substantially develop 5,300 acres before any additional rezoning would be considered.

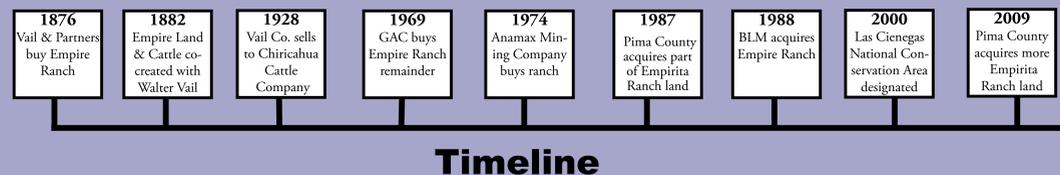


Empire Ranch Area Plan

PIMA COUNTY INTERESTED IN OPEN SPACE

Pima County became interested in buying the ranch for a natural open space corridor between Oracle and the Canelo Hills. It was also concerned with flooding issues as Cienega Creek flows into the Tucson basin. Cienega Creek also contributes natural recharge to Tucson's aquifer.

In 1986, Pima County acquired land along lower Cienega Creek that had been part of the Empire Ranch in the 1880s. In August 1987 Pima County entered an agreement with Anamax to purchase 85,500 acres of additional land with bond money and flood control funds. Protests arose from the use of flood control money. The agreement fell through.



BLM ACQUIRES EMPIRE RANCH IN LAND TRADE



Arizona's Congressional delegation, Pima County and others approached the Bureau of Land Management (BLM) about acquiring the land. On March 24, 1988 the BLM signed a formal agreement acquiring the land in a three-way land exchange. Public lands in Tucson (80 acres) and Phoenix (41,000 acres) were traded to the private investors involved in the trade so that the Empire Ranch could be preserved.

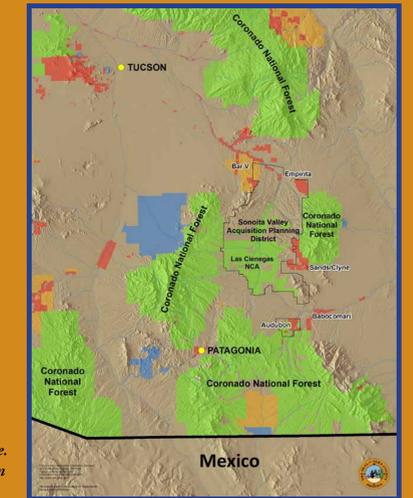
BLM subsequently acquired additional land and Congress designated a National Conservation Area with provisions for inclusion of state lands.

ADDITIONAL LANDS PROTECTED

Pima County's vision for interconnected, interjurisdictional open space protection has come closer to reality with 2004 bond funding. The funding was used to acquire the Bar V Ranch, Clyne Ranch, and portions of the Sands and Empirita ranches. County ranch lands are shown in red and orange within and adjacent to the Congressionally designated "Sonoita Valley Acquisition Planning District" (black outline).

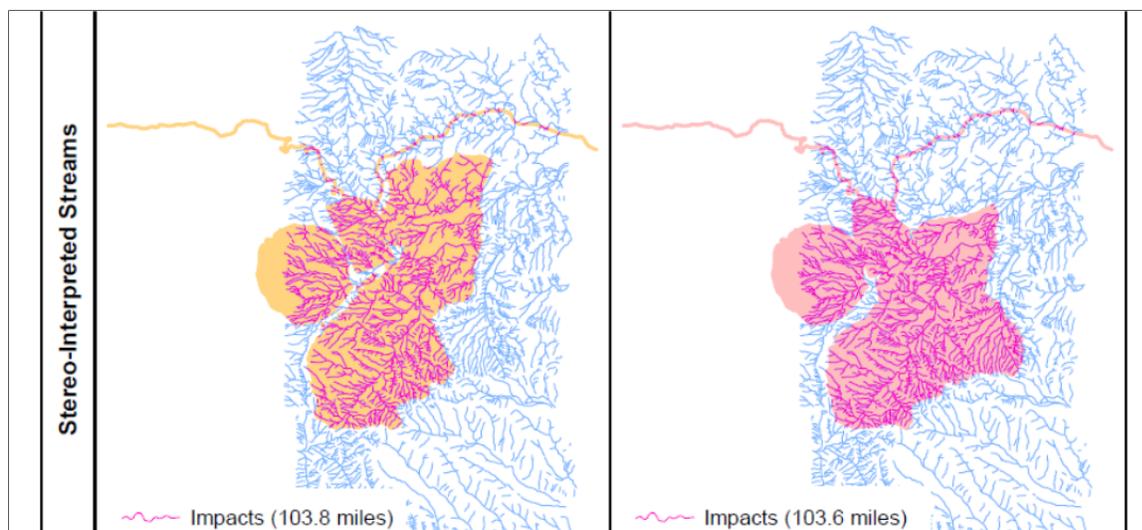
In addition, The Nature Conservancy brokered many of the conservation easements on private land near Las Cienegas. Easements (shown in red) are now held by a combination of Bureau of Land Management, Arizona Land and Water Trust, Audubon and The Nature Conservancy.

Federally conserved lands are shown in green. State conserved lands are shown in blue. State lands managed under Pima County's Ranch conservation program are shown in orange. Red areas are County and private conservation lands.



ATTACHMENT 2

ATTACHMENT 3



Mine Plan of Operation (MPO) in orange at left, Preferred (Barrel) Alternative in pink at right. Mine access road is shown as part of the footprint for both. Figure provided by Pima County IT.

Delineation of stream centerlines based on stereo-photographs suggests that many headwaters streams were not analyzed in the Application, nor delineated by WestLand Resources as potentially jurisdictional. Over 100 miles of streams would be directly affected by the Mine Plan of Operations, (shown at left). An equal number of stream-miles would be affected by the Forest’s Preferred Alternative (Barrel), shown at right. By contrast, Westland’s preliminary JD predicted only 36 channel miles of impact from the MPO and 34 channel miles of impact from the Barrel alternative.

The permit application also appears to greatly underestimate the widths of WOUS. An estimate of the area of Waters of the US (Waters) based on the limits of the 10-yr floodplains yielded 116 acres which is approximately three times larger than the 38.6 acre estimate provided in the permit application. In Pima County, the limits of the 10-yr floodplain are often used as an approximation for the limits of the ordinary high water mark. The analysis described in Appendix D of our comments shows that this criterion results in much higher acreage than those in the permit application and DEIS. Furthermore, the analysis in Appendix D did not estimate 10-yr floodplain areas for the tributary watersheds mentioned above, so the area of the 10-yr floodplains is actually greater than the 116 acres calculated.

In addition to the lack of documentation on the establishment of jurisdictional limits to determine impacts to Waters, these are preliminary JDs. As such, for the purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S.

In general, Regulatory Guidance Letter 08-02, states that an approved JDs should be used to support individual permit application. We requested that the Corps develop and use approved JDs. This is warranted because of the scope of the proposed mining operation and environmental impacts and the likelihood that the Application grossly underestimates potential impacts to Waters.