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**PREDECISION REFERRAL STATEMENT (40 CFR 1504.3(c)(2)) SUPPORTING THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S REFERRAL TO THE COUNCIL ON ENVIRONMENTAL QUALITY OF THE ROSEMONT COPPER MINE PROJECT**

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**PREDECISION REFERRAL STATEMENT (40 CFR 1504.3(c)(2)) SUPPORTING THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S REFERRAL TO THE COUNCIL ON ENVIRONMENTAL QUALITY OF:**
**THE U.S. FOREST SERVICE'S APPROVAL OF THE PROPOSED ROSEMONT COPPER MINE PLAN OF OPERATIONS**
**AND U.S. ARMY CORPS OF ENGINEERS' APPROVAL OF THE ROSEMONT COPPER MINE CLEAN WATER ACT SECTION 404 PERMIT APPLICATION**

## I. AGREED-UPON FACTS

### Proposed Actions

*Forest Service*
The United States Forest Service (USFS) proposes to approve a Mine Plan of Operations for the Rosemont Copper Company, a subsidiary of Hudbay Minerals Inc., to develop the proposed Rosemont Copper Mine project in the Coronado National Forest approximately 30 miles south of Tucson, Arizona. The preferred action identified in the USFS Final Environmental Impact Statement and draft Record of Decision would authorize the construction, operation and closure of the Rosemont Copper Mine "Barrel Alternative" on approximately 3,655 acres of National Forest System land, 1,200 acres of private land owned by Rosemont Copper, and 575 acres of Arizona State Land Department land. The project includes an open pit mine, waste rock disposal areas, ore processing facilities, tailings storage facilities, a water and electrical transmission corridor, and additional infrastructure and ancillary facilities [ATTACHMENT FIGURE]. The mine is projected to produce over 5.88 billion pounds of copper, 194 million pounds of molybdenum and 80 million ounces of silver over the proposed 24.5 to 30-year mine life.

In a February 21, 2012 comment letter to Coronado National Forest, EPA rated the USFS' Draft Environmental Impact Statement for the Rosemont Mine Project "EU-3 – Environmentally Unsatisfactory-Inadequate Information." This rating was based upon the proposed action's anticipated impacts on water quantity and the aquatic environment, water quality, air quality, and endangered species; lack of ability to comply with statutory requirements; as well as tribal resource concerns. [ATTACHMENT] On December 13, 2013, the USFS published the Final Environmental Impact Statement for the Rosemont Mine Project, which provided additional information related to these issue areas. While this information clarified a number of key matters, EPA determined that it did not materially affect the proposal's environmentally unsatisfactory potential impacts to water quality, aquatic resources, and Clean Water Act compliance.



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*U.S. Army Corps of Engineers*
The construction of the mine would permanently fill approximately 40.4 acres of jurisdictional waters of the United States (waters), consisting of 18 linear stream miles across the nearly 5,000-acre project footprint. Stormwater diversions on the project site would result in the indirect loss of an additional 28.4 acres (across 17.5 stream miles) of waters of the United States, primarily downstream of the project site. These direct and indirect impacts to waters of the United States require a Clean Water Act Section 404 permit from the Army Corps of Engineers (USACE). USACE intends to adopt the USFS' EIS in order to fulfill its NEPA responsibilities.

In response to the USACE Public Notice 2008-00816-MB for the proposed Rosemont Copper Mine Project, EPA issued letters on January 5, 2012 [ATTACHMENT] and February 13, 2012 [ATTACHMENT], identifying waters within the study area as Aquatic Resources of National Importance (ARNI)[1]. In so doing, EPA identified this permit action as a candidate for elevation to EPA and Corps headquarters for review on the basis that permit approval would have substantial and unacceptable impacts on ARNI.

**Affected Environmental Resources**

***Cienega Creek Watershed***
The Rosemont Mine is proposed for construction in the headwaters of the Cienega Creek watershed, which includes State of Arizona "Outstanding Waters" as well as waters identified by EPA as Aquatic Resources of National Importance (ARNI) pursuant to §404(q) of the Clean Water Act. Cienega Creek flows in a primarily northwestern direction toward its confluence with the Rillito River, which flows to the Santa Cruz River. Several major drainages occur within the project area: Wasp, McCleary, Scholefield, Barrel and Box Canyons, Davidson Canyon, Empire Gulch, Gardner Canyon; and Cienega Creek.

The Cienega Creek watershed sustains a regionally rare landscape, rich in biodiversity. The upstream tributaries of Cienega Creek, including Davidson Canyon, Empire Gulch and its headwaters, provide a wide range of functions critical to aquatic ecosystem health and stability. Empire Gulch, Gardner Canyon and Cienega Creek contain perennial stream reaches and support hundreds of acres of high quality riparian and palustrine emergent wetlands. These tributaries provide hydrologic connectivity within the watershed, facilitating the movement of water, sediment, nutrients, wildlife, and plant propagules. In an arid region with limited water resources, the Cienega Creek watershed represents one of the best remaining examples of its ecosystem type. Accordingly, much of the land through which Cienega Creek flows has been set aside for the conservation of these rare resources, either by the federal or county government.

***Cienega Creek Natural Preserve and Las Cienegas National Conservation Area***
Upper Cienega Creek and many of its tributaries lie within the Las Cienegas National Conservation Area (LCNCA). The LCNCA, managed by the Bureau of Land Management, was designated by an act

1 FOOTNOTE FOR EPA-Corps 404 MOA



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of Congress, signed into law on December 6, 2000, in order to "conserve, protect, and enhance the unique and nationally important aquatic, wildlife, vegetative, archaeological, paleontological, scientific, cave, cultural, historical, recreational, educational, scenic, rangeland and riparian resources and values of the public lands within the NCA, while allowing livestock grazing and recreation to continue in appropriate areas." Lower Cienega Creek flows through the Cienega Creek Natural Preserve, managed and maintained by Pima County as a natural resources area primarily for hiking, birding and wildlife viewing. As described in the Forest Service's Supplemental Information Report (SIR), Cienega Creek and its tributaries in the LCNCA support approximately 20 linear miles of riparian forest and marshland.

***Threatened and endangered species***

The Cienega Creek watershed supports riparian habitat at numerous seeps and springs, which is critical to the survival of many wildlife species. The basin is widely recognized for its rich biodiversity and is home to twelve federally listed threatened or endangered species, including: the threatened Chiricahua leopard frog (Lithobates chiricahuensis) (with critical habitat), the threatened northern Mexican gartersnake (Thamnophis eques megalops) (with proposed critical habitat), the endangered desert pupfish (Cyprinodon macularius), the endangered Gila chub (Gila intermedia) (with critical habitat), the endangered Gila topminnow (Poeciliopsis occidentalis occidentalis), the endangered jaguar (Panthera onca) (with critical habitat), the endangered ocelot (Felis pardalis), the endangered lesser long-nosed bat (Leptonycteris curasoae yerbabuenae), the endangered southwestern willow flycatcher (Empidonax traillii extimus) (with critical habitat), the threatened western yellow-billed cuckoo (Coccyzus americanus) (with proposed critical habitat), the endangered Huachuca water umbel (Lilaeopsis schaffneriana var. recurva) (with critical habitat), and the endangered Pima pineapple cactus (Coryphantha scheeri var. robustispina).

**Adverse Environmental Impacts**

EPA and the USFS agree that the project would result in significant environmental and social impacts and that the no action alternative is the environmentally preferable alternative[2]. Of greatest concern to EPA are the predicted impacts to the quantity and quality of water and aquatic resources on the project site, downstream of the proposed mine, and within the groundwater drawdown zone associated with the action alternatives.

***Consequences of Direct Fill of Waters of the United States***

The direct filling of stream substrate on the project site would result in direct and secondary adverse effects to the ecological functions at the discharge site and in adjoining downstream tributaries through changes in flow patterns, water circulation, sediment storage and transport, and various water quality parameters. The discharge of fill material into jurisdictional streams, seeps and springs and the associated denuding, grading and re-contouring of adjacent contributing watershed landscapes would permanently and adversely alter the existing natural physical and chemical characteristics, and functions of the aquatic ecosystem at the project site. In addition, the project would result in permanent significant adverse effects to flows and normal surface and groundwater fluctuations of high functioning receiving

2 Draft Record of Decision, Page 11



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waters through the direct discharge of fill material and through secondary impacts resulting from stormflow diversion, changes in channel morphology through erosion, water quality impairment and elevated levels of suspended sediment in the water column.

Decreases in surface (stormwater) discharges from the mine site would directly and permanently alter existing surface and baseflow hydrologic contributions to downstream receiving waters resulting in changes to the quantity and quality of existing high functioning waters. As a result, there would be adverse changes in the location, dimensions, structure, and dynamics of aquatic communities living in the receiving waters. Suitable living areas would be reduced and normal movement restricted for aquatic organisms. Normal water-level fluctuation patterns would be altered, contributing to higher water temperatures and lower dissolved oxygen.

The discharge of fill material would result in direct and secondary effects on endangered species and other aquatic organisms and wildlife through the physical and chemical modification of the aquatic ecosystem. Exposure of aquatic food web organisms to elevated dissolved and suspended contaminants and suspended particulates and reductions in surface (stormwater) flows from the mine site would likely result in adverse impacts to fish and wildlife populations.

Three of the six Special Aquatic Site types described in Subpart E of the Clean Water Act Section 404 Guidelines occur on or adjacent to the proposed project and would be adversely affected by the copper mine. Because of their special ecological characteristics of high food-web productivity, physical habitat critical for all life stages of aquatic life, water quality functions, and other important and easily disrupted ecological functions, these aquatic resources are given special recognition under CWA regulations.[3] Collectively, the Special Aquatic Sites likely affected by the project play a regionally significant role in maintaining the existing high quality functions and services in this watershed: sanctuaries and refuges; wetlands and riffle and pool complexes. The discharge of dredged and fill material at the mine site would disrupt breeding and migratory movement of resident and transient wildlife between designated sanctuaries and refuges. In addition, filling natural landscapes would create incompatible human uses and access, including the possibility of introduction of undesirable exotic plants adjacent to sanctuaries and refuges. Finally, the discharge of fill would change the balance of water supporting fish and wildlife habitat in downstream refuges.

The state designation of Davidson Canyon and Cienega Creek as "Outstanding Waters" affords them special protection, prohibiting any lowering of water quality. Federal regulations for state-designated outstanding waters similarly state, *Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected (40 CFR 131.12(a)(3)).*

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3 See Guidelines, Subpart E: Sanctuaries and refuges (40 CFR 230.40); wetlands (40 CFR 230.41) and riffle and pool complexes (40 CFR 230.45).



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The significant direct and secondary impacts associated with the fill of waters of the United States summarized above are discussed in greater detail in EPA's analysis of the project's potential to produce significant degradation to waters of the United States.[4]

***Water Quality***

Predicted runoff from active and reclaimed waste rock facilities at Rosemont Mine would likely degrade water quality, resulting in significant degradation to downstream waters, including State designated OAWs. According to the FEIS, runoff from waste rock material would likely be elevated in total and dissolved molybdenum, and total and dissolved sulfate at sufficient concentrations that they could result in water quality impacts to downstream waters. The FEIS also concludes that runoff from the soil cover that would be used to reclaim and revegetate the waste rock facilities would contain elevated concentrations of dissolved arsenic, dissolved iron, and dissolved sodium, which could result in degradation of downstream water quality. The predicted concentrations of dissolved and total mercury are also substantially higher than the baseline concentrations in downstream waters.[5] Based upon these data, it is likely that runoff from waste rock and soil cover materials would exceed the water quality standards of downstream waters. The FEIS indicates that predicted reductions in stormwater and groundwater contributions to downstream waters could result in increases in temperature and decreases in dissolved oxygen in these waters [CITATION]. Furthermore, diversion and modification of stormwater flow regimes would likely affect sediment transport in the system, resulting in a deficit in some reaches and a surplus in others. Such changes are likely to further degrade water quality. [CITATION]

As is acknowledged in the Final EIS, the project may adversely affect the water quality of Davidson Canyon Wash and Cienega Creek. These water bodies are designated as "Outstanding Arizona Waters" by the State of Arizona under Arizona Administrative Code R18-11-112 and must be afforded the highest level of protection, per Section 303 of the Clean Water Act and regulations at 40 CFR 131.12. The State of Arizona's Antidegradation Water Quality Standards at R18-11-107 require that the water quality of "Tier 3" waters, including all OAWs, cannot be diminished or impaired for a period greater than 6 months. While impacts associated with runoff from exposed waste rock material might be limited temporally, the elevated concentrations of contaminants in soil cover material suggests that even reclaimed mine facilities would continue to contribute contaminants to downstream waters, resulting in persistent and long lasting water quality impairments.

***Regional groundwater drawdown***

In order to mine below the regional groundwater table, the project would require the dewatering of the bedrock aquifer intersecting the mine pit. In order to ensure that the mine pit remains dry, between 13,000 and 18,500 acre feet of water would be removed from the aquifer underlying the mine pit over

4 "Environmental Consequences of the Proposed Rosemont Copper Mine: Significant Degradation to Waters of the United States" May, 2016.

5 FEIS, p. 549. Most waste rock samples contained mercury concentrations below detection limits, but these detection limits are higher than surface water standards and therefore are not able to be incorporated into this part of the analysis. The usable samples include one legitimate sample with a very high concentration of mercury (0.03 mg/L).



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the course of the mine life. The removal of this water would alter the flow direction in the regional aquifer, drawing groundwater toward the low point created beneath the mine pit, forming a groundwater "cone of depression". This cone would propagate outward from the mine pit for centuries after groundwater pumping ceases and as the mine pit lake forms, eventually extending miles beyond the project boundaries before equilibrium is finally reached. Where surface water features are fed by the regional groundwater aquifer within this zone, the contribution of groundwater would be reduced or eliminated and ecological functions significantly degraded. The three groundwater models utilized by the USFS to assess the effects of groundwater pumping at the proposed Rosemont mine pit show a long-term trend of significant declines in regional groundwater levels. While these models contain a high degree of uncertainty, they are sufficient to demonstrate that groundwater contributions to base flow in many perennial waters in the vicinity of the project area would be jeopardized.[6]

All of the models show significant groundwater drawdown within the Cienega Creek watershed related to the mine pit dewatering, and while a wide range of uncertainty exists, the magnitude of the potential drawdown predicted at Empire Gulch falls within the range that the models are capable of predicting reliably (i.e., within the 5-foot drawdown contour). Hence, it can be concluded, with a reasonable level of confidence that the extent and duration of perennial surface flows in Empire Gulch would reduce over time, with groundwater contributions likely eventually ceasing altogether, and the system shifting to a completely ephemeral flow regime. While the timing of this transition is uncertain, all of the models employed conclude that it would result from Project construction. As previously noted, Empire Gulch Spring houses the longest standing and most prolific population if Chiricahua leopard frog in the watershed. Due to the consistency of its inflow temperatures, Empire Gulch Spring may also provide some resistance from the chytridiomycosis disease that has decimated leopard frog populations elsewhere in the region.[7]

Even where the groundwater modeling results are uncertain, the risk to springs, seeps, stream flows, wetlands and riparian areas in the study area from groundwater drawdown is potentially great because these habitats are rare, are currently threatened and shrinking due to ongoing drought, groundwater overdraft and projected climate change, and because relatively small changes in the levels of groundwater and surface water can and often do have disproportionate negative consequences. The wetted surface area of many aquatic habitats in the arid Southwest, including the Cienega Creek watershed, are characterized by shallow surface water depths (as little as a few inches). Typically, there is a nonlinear relationship between groundwater-stream interactions such that small changes in groundwater levels can have profound adverse effects on surface flows. Consequently, especially during the drier portions of the year, the region's rare aquatic habitats are extremely susceptible to drying from small changes in groundwater levels. The high probability of a loss of groundwater and surface water flow, combined with the high vulnerability of these aquatic resources and wetlands, means that the environmental risk to these resources and the organisms they support is great.

The Final EIS states that groundwater drawdown and diversion of surface flows would result in stress

6 INSERT SIR/EIS REFERENCE
7 Page 144, Amended Final Rosemont BO, April 28, 2016



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and degradation of riparian habitats, including wetlands. Eleven springs are highly likely to experience reductions or cessations in flow due to groundwater drawdown, and an additional fifty-nine springs may be indirectly impacted due to drawdown. Thirteen riparian areas associated with springs would be directly or indirectly disturbed with high certainty and an additional thirty-six riparian areas associated with springs may be indirectly disturbed. The Final EIS estimates that indirect effects from the proposed mine project would change the composition of 1,071 acres of riparian vegetation along Empire Gulch, Barrel and Davidson canyons, including 407 acres that would change from hydroriparian habitat to xeroriparian habitat.[8] In total, tens to hundreds of acres of springs, seeps, streams, emergent marshes, and riparian areas within the project assessment area would be indirectly impacted by the proposed project, primarily from groundwater drawdown.[9]

The perennial waters of Upper Cienega Creek and Empire Gulch are contained within the Las Cienega NCA. Long term secondary impacts to the Las Cienegas NCA from project-related groundwater drawdown would likely include reductions in streamflow (including likely cessation of flow at some springs and streams), increases in water temperatures, decreases in dissolved oxygen, and disruption of fish and wildlife breeding, spawning, rearing and migratory movements. The eventual consequence of these impacts would be a permanent change in the regional ecology of major segments of the Cienega Creek watershed to significantly drier, less biologically diverse stream and riparian conditions.

***Impacts to Wildlife and Wildlife Habitat, including Threatened and Endangered Species***

The Rosemont Mine would result in the permanent loss or alteration of 5,481 acres of vegetation and would permanently fill 40.4 acres of waters, including an undisturbed hydrologic network of hundreds of headwater streams spanning over 18 linear miles. The mine would result in the direct loss of 5 seeps and springs and 15 stock tanks.[10] These streams and associated springs provide habitat for hundreds of species of native wildlife that would be either killed or displaced. The discharge of fill material would result in a permanent and irrevocable significant adverse effect to the aquatic ecosystem by altering the substrate elevations and bottom contours of waters; jurisdictional waters would be permanently filled and all ecological functions associated with the jurisdictional substrate would be lost.

The Santa Rita Mountains provide several critical regional animal movement corridors or wildlife linkages.[11] The natural topography of the mine site would be irreversibly changed by the re-contouring of the site and the filling of the extensive stream network. The mine would result in significant fragmentation of six animal movement corridors and this would significantly disrupt animal dispersal and migration patterns for many species currently using these corridors.[12] Within the six impacted corridors, a total of 1,626 acres of habitat would be directly impacted, including the permanent filling of

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8 FEIS, Chapter 3, *Seeps, Springs and Riparian Areas*

9 In EPA's expert judgment, many of these waters, which have not been formally delineated, would likely be classified as jurisdictional waters subject to regulation by the USACE, including the perennial segment of Empire Gulch below Empire Gulch Spring.

10 Biologists Report 2013, Table 11, p. 146.

11 FEIS, Table 118, Figure 76

12 FEIS, Table 129.



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jurisdictional waters comprising the stream network at the mine site.[13] Thus, the discharge of fill material would result in the loss of corridors critical to animal movement/migration for numerous resident and transient wildlife species.

Collectively, it is reasonable to conclude that the mine would directly impact at least 700 plant and animal species by killing individuals or altering or destroying their habitats.[14] A large majority of the bird, mammal, reptile and amphibian species that would be directly impacted by the mine use stream, seep, spring and riparian habitats at the mine site, for all or a portion of their life cycles. The high number of species within several plant and animal groups that would be directly impacted by the mine is significant.

Furthermore, as previously noted, the project is likely to adversely affect twelve threatened or endangered species. While the Amended Final Biological Opinion for the Project does not conclude that the project would jeopardize the continued existence of any threatened or endangered species, it does conclude that the project would result in the take of entire communities of some listed species. Of particular note are the impacts to the threatened Chricahua leopard frog, regarding which the Final BO states, "Degradation and ultimate disappearance of surface water as modeled in the upper portion of Empire Gulch, would permanently remove the longest standing and most prolific site occupied by the Chiricahua leopard frog in the Las Cienegas NCA metapopulation and likely within [the larger regional recovery unit] for the frog."

## II. MATERIAL FACTS IN CONTROVERSY

### Mitigation Proposed by the Proponent Would Not Offset Impacts to Waters of the U.S.

We find that the Rosemont Copper Company's compensatory mitigation plan, *Rosemont Copper Project Revised Habitat Mitigation and Monitoring Plan Permit No. SPL-2008-00816-MB* Revised September 26, 2014, does not prevent or replace the impacts that give rise to EPA's finding that the project will result in significant degradation of jurisdictional waters of the United States.

There is high risk and uncertainty associated with the proposed mitigation. Without a reasonable assurance that the mitigation would function as intended, it cannot be fairly relied upon to reach a finding of compliance with the Guidelines at 40 CFR 230.10(c). The mitigation proposed at Sonoita Creek Ranch involves significant and risky hydrologic modifications and long term maintenance, thereby posing an extremely high risk of failure.[15] The proposed engineered channels are not designed as self-sustaining, unconstrained or naturally functioning floodplain channels, so they would not provide

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13 Ibid.

14 "Environmental Consequences of the Proposed Rosemont Copper Mine: Significant Degradation to Waters of the United States" May, 2016.

15Technical Memorandum on the Conceptual Design for Sonoita Creek, AZ from Dr. Mathias Kondolf, UC Berkeley and James Ashby, PG Environmental to Dr. Robert Leidy, USEPA dated February 18, 2015.



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significant and lasting ecological benefits to the aquatic ecosystem. Highly questionable modeled predictions put the ecological benefits of the proposed constructed channels in question. As designed, it is highly questionable whether these constructed channels would flow at a frequency and duration sufficient to offset many of the stream functions directly and indirectly lost at the proposed mine site.[16] In addition, the proposed mitigation itself would reduce the ecological functions of Sonoita Creek by diverting flow from the main channel.

Land identified for preservation in the mitigation plan does not offset the pervasive damage to aquatic resources in the Cienega Creek watershed. There are many concerns associated with the various parcels: 1) most of the acreage proposed for preservation is far removed from the impact site; 2) sites within the groundwater impact area would degrade from groundwater drawdown from the mine pit; 3) there is no demonstration that these preservation sites provide important physical, chemical or biological functions for the watershed; and/or 4) they are not under threat of destruction or adverse modification.[17] For those lands proposed for enhancement/rehabilitation, the mitigation plan lacks accurate baseline data and a measurable framework for how their proposed mitigation activities would result in improvement of specific aquatic functions on mitigation lands and compensate for the loss of acreage and function to 68.8 acres of waters in the Cienega Creek watershed.[18]

For compensatory mitigation to bring a project into compliance with the significant test of the guidelines, it must satisfy two conditions: it must prevent or replace the impacts that give rise to the significant degradation finding, and it must provide reasonable assurance of success. Considering the rarity and nearly pristine nature of the potentially impacted resources, and the limited availability of lands in jeopardy of development with ecological features similar to those that would be degraded or destroyed at the project site, we do not believe that compensatory mitigation can sufficiently offset project impacts below the threshold of significant degradation. Certainly no mitigation package or compensatory model has been proposed to-date that would adequately offset project impacts to aquatic and riparian resources under the jurisdiction of the federal government.

**Commented [JC1]:** This term is from the sig-deg analysis. Is this the correct terminology?

The Forest Service Manual at 2817.23a states that "All newly approved Plan of Operations for mining operations on National Forest System lands must comply with the Federal Water Pollution Control Act of 1972, 33 U.S.C. §§ 1251-1387 (Clean Water Act or CWA)." The Clean Water Act Section 404 prohibits the permitting of actions determined to result in significant degradation to waters of the U.S. Accordingly, EPA finds that the project cannot be permitted or approved by the US Army Corps of

16 In a Corps Memorandum to the Field dated October 29. 2003, the Corps provides compensatory mitigation guidance as part of the implementation of the National Wetlands Mitigation Action Plan. The purpose of the guidelines is to identify the basic requirements for mitigation success and to assist in mitigation site selection. This guidance identifies: 1) restoration over creation; 2) avoiding over-engineered structures in the wetland's designs; 3) restoring or developing naturally variable hydrologic conditions; 4) considering the hydrogeomorphic and ecological landscape and climate; and 5) attention to subsurface conditions, including soil and sediment geochemistry and physics, all of which the Rosemont mitigation plan fails to do.

17 See 2008 Mitigation Rule (33 CFR 320.3(h)).

18 See detailed EPA technical comments to the Corps on the proposed mitigation plan dated January 25, 2013, February 25, 2014, April 9, 2014, April 28, 2014 and April 21, 2015.



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Engineers and US Forest Service (respectively).

**Federal government's ability to require mitigation for impacts associated with groundwater drawdown**

The FEIS contains a discussion of the proposed project's significant impacts on groundwater resources located adjacent to USFS land, but does not discuss the availability of adequate mitigation to offset those impacts. EPA understands that USFS has not analyzed the availability of mitigation for groundwater drawdown impacts that occur off USFS lands because USFS believes requiring such mitigation is beyond its statutory and regulatory authority. In its draft ROD and Final EIS, the USFS states that, as constrained by federal law (36 CFR 228 Subpart A, 30 USC 612, 36 CFR 228.1), it "cannot endanger or materially interfere with mining and processing operations and reasonably incidental uses."[19] EPA usually defers to an agency's interpretation of its own regulations, especially when those interpretations are longstanding. Here, however, EPA believes that the application of the USFS' historical interpretation to the facts of this case results in an unsatisfactory environmental and policy result with no clear remedy. The USFS has been empowered to deny an "unreasonable" plan of operation[20] and is obligated to avoid "unnecessary or unreasonable damage" to natural resources[21]. In this case, the proposed Plan of Operation would yield an unreasonable result, and its approval would conflict with this obligation; therefore, EPA believes that the USFS has the ability to revisit its longstanding statutory and regulatory interpretation, as applied to this particular set of facts.

Another factor that has, to date, prevented the formulation of an appropriate federal regulatory response to the prediction that groundwater drawdown would result in unsatisfactory impacts has been the USACE position that it lacks the jurisdictional authority to require mitigation for the proposed project's groundwater-related impacts.[22] The USACE maintains that groundwater drawdown is an indirect impact that is beyond its scope of review under CWA §404. EPA does not agree with this interpretation. EPA believes that the CWA §404(b)(1) Guidelines at 40 CFR §230.10 and 230.11(h) require consideration of such groundwater-related impacts where they cause or contribute to significant degradation of waters of the United States. The Guidelines at 40 CFR §230.10(c) provide, in relevant part, that "no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations." The Guidelines at 40 CFR §230.11 provide that the "appropriate factual determinations" include a determination of "secondary effects," which are defined at 40 CFR §230.11(h) as "effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material." The Guidelines at 40 CFR §230.11(h) provide that an example of a "secondary effect" would be "fluctuating water levels in an impoundment and downstream associated with the operation of a dam." Here, a

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19 Draft Record of Decision, Rosemont Copper Project, Coronado National Forest, December 13, 2013.

20 "Of course, the Forest Service would have the authority to deny an unreasonable plan of operations or a plan otherwise prohibited by law." Havasupai Tribe v. U.S., 752 F. Supp. 1471, 1492 (D. Ariz. 1990). [PLACEHOLDER LANGUAGE]

21 36 CFR Part 228 Subpart A - 2817

22 Note meetings between Corps and EPA



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secondary effect of the project would be the fluctuation (i.e., lowering) of water levels in associated waters (i.e. Empire Gulch and Upper Cienega Creek) associated with the mine pit excavation. Consequently, EPA believes that the Corps is obligated to consider the effects of the groundwater drawdown in Empire Gulch and Upper Cienega Creek that would be caused by mine pit excavation in determining whether permitting the proposed discharge would "cause or contribute to significant degradation of waters of the U.S.". In accordance with the Guidelines at 40 CFR 230.12(a)(3)(ii), such a determination would require that the disposal sites for the discharge of dredged or fill material be "specified as failing to comply with the requirements of these Guidelines".

The 2008 Mitigation Rule (40 CFR § 230.93), EPA's 404(b(1) Guidelines, and a ruling by EPA's General Counsel [CITATION] all require compensation for loss of waters due to secondary impacts. The requirement that secondary impacts be fully compensated is essential given that the range, extent and severity of secondary adverse impacts upon aquatic resources are no less significant than the direct impacts.

Precedent exists for the USACE, including South Pacific Division, to consider and require mitigation for groundwater-related secondary impacts. USACE has done this in a number of previous 404 permit decisions; for example:

- Dos Pobres/San Juan Copper Mine: In 2004, the USACE issued a 404 permit to Phelps Dodge authorizing fill associated with the Dos Pobres/San Juan Copper Mine located in Safford, Graham County, Arizona. The Corps was a cooperating agency on BLM's EIS. The 404 permit authorized direct impacts to 21.4 acres of waters and indirect impacts to 93.2 acres of waters. Modeling predicted peak impacts to the Gila River from groundwater drawdown at model year 450. USACE required, as an enforceable condition of the permit, mitigation for indirect impacts to the Gila River, located 8 miles downstream from the project site, from groundwater drawdown.

- Breckenridge Ski Area 404(q) Elevation: On January 19, 2001, EPA elevated the proposed decision by the Corps to permit development of ski lifts and base village facilities at Breckenridge Ski Area located in the Cucumber Gulch watershed in Summit County, Colorado. The project would result in direct impacts to 0.70 acre of wetlands and temporary impacts to 0.21 acre of wetlands. EPA's primary concern: construction of substantial below-grade building foundations and the installation of accompanying drains would intercept the groundwater flow supporting and sustaining wetlands in Cucumber Gulch, which lie immediately down-slope of the project. The Army Civil Works 404(q) decision concluded that the Special Conditions in the 404 permit adequately protected the aquatic resource. These Special Conditions required mitigation if the results of a groundwater study show indirect impacts to wetlands from groundwater drawdown.

- Adam's Rib Recreation Area: Located in Eagle County, Colorado, the Adam's Rib Recreation Area was a proposed ski area at the head of a narrow wetland valley in western Colorado. The developer planned to fill 45.81 acres of wetlands and a stream course in Vassar Meadow. Development included subsurface drains that would lower the water table to the extent that wetlands could not be



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maintained. The applicant rejected practicable alternatives proposed by the Corps to avoid direct as well as indirect impacts to wetlands from groundwater drawdown; therefore, USACE recommended that the application for a 404 permit be denied (February, 1993).

**Commented [GK2]:** Should this say that the Corps District Office recommended denial? It seems odd to say that USACE made a recommendation, given that the decision is USACE's to make.

**Commented [JC3R2]:** This still requires additional follow up. I'm working with Elaine Suriano to get a bit more information.

For all of the above reasons, EPA strongly disagrees with the positions taken by the USFS and the USACE that neither agency has the jurisdictional scope or authority to prevent or mitigate the proposed project's potential impacts to surface water resources resulting from groundwater drawdown. Rather, USFS has the regulatory authority to select the no action alternative in the face of unreasonable environmental impacts for which it cannot require compensation and the likelihood that the project would violate state and federal law, while the USACE has the jurisdictional obligation to require mitigation for secondary impacts associated with groundwater drawdown, such as those that would occur as a result of the fill of waters at the Rosemont Mine site.

Furthermore, EPA notes that the FEIS contains only a cursory discussion of possible mitigation for groundwater drawdown related impacts. EPA finds that this is contrary to the USFS' and Corps' obligations under NEPA. CEQ guidance states that "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs of these agencies. Sections 1502.16(h), 1505.2(c)".[23] EPA finds that this obligation has not been met by the USFS and USACE.

## II. EXISTING ENVIRONMENTAL REQUIREMENTS OR POLICIES THAT WOULD BE VIOLATED BY THE MATTER

### Clean Water Act Section 404

As currently proposed, the project would not comply with CWA §404 230.10(a-d) and would result in significant degradation of waters (230.10(d)). Effects contributing to significant degradation would not be mitigated. In the absence of sufficient compensatory mitigation, the proposed project cannot be authorized under CWA §404. See attachment XX for a detailed analysis of this matter.

### Federally Approved Water Quality Standards

In an independent review prepared by EPA [ATTACHMENT], we concluded that the proposed project would likely degrade water quality in Davidson Canyon Wash and Lower Cienega Creek, which the State of Arizona has designated as Tier 3 (Outstanding National Resource Waters), under Section 303 of the CWA, 40 CFR 131.12 and Arizona Administrative Code R18-11-112. Based upon our analysis, it is likely that construction of the Rosemont Mine, as proposed, would result in increases in the concentrations of mercury, lead, molybdenum, selenium and silver in downstream receiving waters, as well as increases in temperature and suspended solids, and decreases in dissolved oxygen. At minimum,

23 Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 40 CFR Parts 1500-1508, Federal Register, Vol. 46, No. 55, March 23, 1981.



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these impacts would violate the EPA-approved State anti-degradation standard applicable to those waters, and would likely adversely affect the long term viability of populations of fish, bird and other wildlife species that depend upon the waters downstream of the project area.

**Forest Service Manual 2800 – Minerals and Geology**
The US Forest Service is obligated to prevent violation of laws and regulations as defined at 2814.23 of the Forest Service Manual as empowered under the Organic Administration Act of June 4 1897 (36 CFR 228). As outlined above, the selection of the preferred alternative would result in the violation of the Clean Water Act Section 404, destroy resources protected under Arizona Administrative Code R18-11-112, and violate water quality standards defined by Arizona law at R18-11-107, Section 303 of the Clean Water Act, and regulations at 40 CFR 131.12. Accordingly, the USFS is obligated to return the plan to the applicant with the reasons for disapproval and request submission of a new plan to meet the environmental concerns identified.

**National Environmental Policy Act**

While EPA recognizes the tremendous efforts of the USFS to address the tens of thousands of comments received over the course of the NEPA review for the Rosemont Mine Project, we find that the deficiencies of the DEIS and the new information presented in the FEIS and SIR are of such magnitude that to proceed with a final Record of Decision without first publishing a revised or supplemental Draft EIS would violate the letter and the intent of the National Environmental Policy Act.

**Commented [JC4]:** Should we also note the USACE might be neglecting its NEPA responsibilities by not requiring a revised/supplemental EIS based on the extensive mitigation package and the great deal of additional information that they have fed into their permit decision that was not available to the USFS for the NEPA analysis? This might be a bit of a stretch.

**Commented [GK5R4]:** I don't think it is a stretch to say that a lot of information has been generated about the mitigation package since the FEIS was published, and that such information, e.g., re: the likely effectiveness of the mitigation, should have been incorporated into the EIS, since it is relevant to an evaluation of the impacts and the reasonableness of the proposed plan of operations.

In our comments on the DEIS [ATTACHED], EPA highlighted the many critical pieces of information absent from that NEPA document that required presentation to the public in a draft format. At that time, we recommended that a revised or supplemental Draft EIS be published addressing these deficiencies. Against EPA's recommendation, USFS proceeded with the publication of a Final EIS. In an effort to provide assistance in the preparation of this document, EPA provided feedback and edits to early drafts of the Final EIS, while noting our objections to the chosen course of action. Upon publication of the Final EIS, EPA found that substantial additional information was added to the NEPA document, the cumulative nature of which strongly supported EPA's assertion that further public review in a draft format was necessary. The new information included changes to the project design (i.e. removal of the heap leach facility and alternations to the stormwater management structures for the preferred alternative), revised modeling and impact analyses associated with numerous resources areas (i.e. air quality, water quality, hydrogeology, endangered species), and new monitoring and mitigation measures for numerous resource areas. Furthermore, despite the new information provided, EPA noted that critical information remained absent from the FEIS. Of particular concern was the missing information related to Clean Water Act Section 404 compliance, impacts to threatened and endangered species, and the legally mandated mitigation for addressing these impacts. While much of the absent information is now available in the project record, it has not been made available to the public in a NEPA document as required by law. The USFS has been clear in stating that the Supplemental Information Report it has prepared is not a NEPA document. Accordingly, it does not provide the public the appropriate venue for commenting upon this new information.

Finally, EPA notes that the approach taken by the USFS in its FEIS inappropriately biases the alternatives analysis in favor of the proponent's preferred alternative. As EPA pointed out to the Forest on numerous occasions, we disagree with the decision to incorporate key design changes into the preferred alternative, but not into the other action alternatives. Because these changes were designed to minimize potential impacts upon various resource areas (i.e. air quality, wildlife, water quality, aquatic resources), the decision not to include similar changes for the other action alternatives results in an unbalanced analysis that does not give the full range of action alternatives fair consideration.

**Public Law 106-538**

Public Law 106-538 directs the Secretary of Interior to "conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important aquatic, wildlife, vegetative. . .recreational … scenic …riparian resources and values of the Las Cienegas National Conservation Area." As described above, the Rosemont Mine would significantly degrade the natural resources of the LCNCA managed by the Bureau of Land Management. Such degradation is directly contrary to the BLM's statutory obligations… [STILL WORKING ON THIS SECTION]

## III. WHY EPA BELIEVES THE MATTER IS ENVIRONMENTALLY UNSATISFACTORY

In accordance with EPA's Policy and Procedures for the Review of Federal Actions impacting the Environment (October 2, 1984), EPA has determined that the proposed action warrants an **Environmentally Unsatisfactory (EU)** rating on the basis of the following factors:

1. *The action might violate or be inconsistent with achievement or maintenance of a national environmental standard.*

   Based on EPA's careful review of project information, including the applicant's proposed compensatory mitigation plan, and our analysis of the full range of direct and secondary adverse impacts to the aquatic ecosystem that would result from the construction and operation of the Rosemont Mine, we find that the proposed project does not comply with §§ 40 CFR 230.10(d) of the Clean Water Act (CWA) section 404(b)(1) Guidelines and should not be permitted under Section 404 of the Clean Water Act. In order to receive a CWA 404 permit, the impacts of the project must mitigated below the threshold of significant degradation. To date, inadequate mitigation has been proposed to compensate for direct impacts to 40.4 acres of waters and indirect impacts to an additional 28.4 acres of waters[24]. In addition, secondary impacts from groundwater drawdown would result in detrimental effects to the surface flows in several streams, springs and wetlands, including an undetermined number of acres of jurisdictional waters, likely in the tens to hundreds of acres. Only mitigation for endangered species is presently proposed for these secondary impacts; no mitigation is proposed to offset the impacts

24 [INSERT CITATION TO SIG DEG ANALYSIS]



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of groundwater drawdown to waters of the U.S. or riparian resources.

2. *The Federal agency would violate its own substantive environmental requirements that are related to EPA's areas of jurisdiction or expertise.*

   As previously noted, the selection of the preferred alternative would be contrary to US Forest Service guidance contained in the Forest Service Manual at 2814.23 because so doing would violate federal and state water quality statutes and the Clean Water Act.

3. *Proceeding with the proposed action would set a precedent for future actions that collectively could result in significant environmental impacts.*

   The proposed action would result in the destruction of federally protected resources (Empire Gulch Spring and other areas of the LCNCA), contrary to congressional mandate, and establish a precedent that groundwater drawdown related impacts are exempt from the jurisdiction of the federal authorizing agency so long as such impacts do not occur on that agency's own lands, even if the impact occurs on the broader federal government's shared properties.

4. *The potential violation of or inconsistency with a national environmental standard is substantive and/or will occur on a long-term basis.*

   *and*

5. *The severity, duration, or geographical scope of the impacts associated with the proposed action warrant special attention.*

   The proposed project would adversely affect three types of Special Aquatic Sites (wetlands, sanctuaries and refuges, and riffle and pool complexes, see 40 CFR 230.40-45) as well as Tier 3 "unique waters"[25]. EPA identified these waters as "Aquatic Resources of National Importance", pursuant to the 404(q) MOA. Based upon the best available science, the project would result in the elimination of perennial flow in Empire Gulch at Empire Gulch Spring and could result in a reduction in flow in Upper Cienega Creek due to groundwater drawdown. Such a transition from perennial to intermittent or ephemeral flow would destroy the ecological values for which these waters were deemed worthy of federal protection in a National Conservation Area. According to the Final EIS, these impacts would be likely to occur between ten and one thousand years after mining ceases and would persist for such a duration into the future that it is reasonable to consider them permanent (hundreds to thousands of years).

6. *The potential environmental impacts resulting from the proposed action are of national importance because of the threat to national environmental resources or to environmental policies.*

   See Section "IV. ISSUE RAISED IS OF NATIONAL IMPORTANCE", below.

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25 i.e., portions of Davidson Canyon Wash and Cienega Creek are designated by the State of Arizona as "Outstanding Arizona Waters" (section 303 of the CWA and 40 CFR 131.12).



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EPA has considered the following "**Criteria for referral**", specified at 40 CFR 1504.2, and has concluded that the proposed project warrants referral to the Council on Environmental Quality:

*(a) Possible violation of national environmental standards or policies.*

See discussion of *Environmentally Unsatisfactory* criterion #1, above.

*(b) Severity.*

See discussion of *Environmentally Unsatisfactory* criterion #4 and #5, above.

*(c) Geographical scope.*

Impacts from the proposed project include direct and secondary impacts to riparian resources that will result in the loss, conversion and functional degradation of aquatic, wetland and terrestrial habitats on a watershed scale. According to modeling performed by Tetra Tech [CITE] to determine the impacts associated with the groundwater drawdown that would result from dewatering the mine pit, the 5-foot groundwater drawdown contour would encompass greater than 64,000 acres within the Cienega Creek watershed, while the 1-foot drawdown contour would encompass an area many tens of thousands of acres larger. The riparian and wetland resources at Empire Gulch Spring and Upper Cienega Creek threatened by project development include an unknown number of acres of waters of the United States, estimated to be in the dozens to hundreds.

*(d) Duration.*

Many of the impacts associated with the proposed project represent an irrevocable commitment of resources. Many of the direct and indirect impacts associated with the fill of waters of the United States would persist in perpetuity. According to the groundwater modeling in the Final EIS and Supplemental Information Report [CITE], once groundwater begins to be removed from the aquifer by the mine, either by pumping and dewatering during active mining, or through evaporation from the pit lake after closure, groundwater drawdown in the aquifer would continue steadily over time, eventually reaching equilibrium. The models estimate equilibrium would not be reached until between 700 and7000 years after the closure of the mine.[26] During this time, the groundwater cone of depression would expand outward, influencing the base flow of any perennial waters it feeds. Furthermore, the perennial surface waters potentially affected by the project are highly sensitive to changes in base flow. It is likely that once perennial flow is lost, reestablishment of flow at some later date would not result in the return of ecological functions nor biological diversity.

26 FEIS, p. 503.



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*(e) Importance as precedents.*

Sanctuaries and refuges are areas designated under state and federal laws or local ordinances to be managed principally for the preservation and use of fish and wildlife resources. Portions of lower Davidson Canyon and Cienega Creek are designated by the State of Arizona as "Outstanding Waters" and are within the Cienega Creek Natural Preserve (CCNP), a 4,000 acre sanctuary along 12 stream miles noted for its ecological significance and natural beauty as a desert riparian oasis.[27] In addition, portions of Empire Gulch lie within the Las Cienegas National Conservation Area (LCNCA), administered by BLM, a 45,000 acre preserve set aside in large part to protect riparian wetlands and native aquatic organisms including endangered fish and amphibians.

The Rosemont Mine would significantly degrade downstream reaches of Davidson Canyon and Cienega Creek. The state designation of Davidson Canyon and Cienega Creek as "Outstanding Waters" affords them special protection, prohibiting any lowering of water quality. Federal regulations for state-designated outstanding waters similarly state, *Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected (40 CFR 131.12(a)(3)).*

Current federal regulations do little to manage or limit the extraction of groundwater resources even when such extraction would have an enormous deleterious effect on otherwise protected surface water and wetland resources, such as those within the Las Cienegas National Conservation Area and the Cienega Creek Natural Preserve. While all federal decision makers involved in the Rosemont Mine Project accept and acknowledge the impact the project would have upon distant surface water resources as a result of dewatering, no federal agency believes it has the legal jurisdiction to act to require adequate compensation for these impacts. Therefore, the prevailing regulatory interpretation by the federal agencies in question has the potential to enable the destruction of otherwise protected resources.

This is contrary to the Departments of Agriculture's obligation to prevent unnecessary or unreasonable environmental impacts under the Organic Administration Act of June 4, 1897 and the Forest Service's responsibility to prevent violations of laws and regulations as defined at 2814.23 of the Forest Service Manual. The precedent in question, therefore, is whether a federal agency has the authority to approve an action that would implicitly violate the statutory obligation of another agency.

*(f) Availability of environmentally preferable alternatives.*

No feasible action alternative has been proposed or identified that would avoid the critical

27 http://rfcd.pima.gov/wrd/landmgt/cienegapreserve/



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environmental impacts described above. Based upon a thorough examination of the potential project alternatives evaluated in the EIS, both EPA and the USFS have concluded that the environmentally preferable alternative in this case is the "No Action" alternative as described in the Final EIS.[28]

## IV. ISSUE RAISED IS OF NATIONAL IMPORTANCE

**EPA believes the issues raised in this referral are of national importance for the following reasons.**

### A. Rarity of the impacted resources

Established October 4, 2000, the Las Cienegas National Conservation Area was created by Congress "in order to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important aquatic, wildlife, vegetative, archaeological, paleontological, scientific, cave, cultural, historical, recreational, educational, scenic, rangeland, and riparian resources and values of the Cienega Creek watershed." It is one of only 16 National Conservation Areas nationwide. The USFS action to approve the Mine Plan jeopardizes the continued existence of the unique water features for which the National Conservation Area was created.

The State of Arizona has taken special administrative action to protect the water quality of Davidson Canyon Wash and Cienega Creek. These waters have been designated as "Outstanding Arizona Waters" by the State of Arizona under Arizona Administrative Code R18-11-112. Only 22 so designated waters exist in the state. Davidson Canyon Wash and Cienega Creek are at risk of degradation from the loss of surface flow due to the placement of the mine upstream and its capture and blockage of stormwater flows.

EPA has designated the surface water resources that would be impaired or destroyed as "Aquatic Resources of National Importance" under our Memorandum of Agreement with the Army Corps for implementing Section 404(q) of the Clean Water Act.

The project area is home to the only jaguar known to exist in the United States. Although the U.S. Fish and Wildlife Service has determined that the proposed action would not jeopardize the continued existence of the jaguar species, the Service concluded that the proposed action would result in take of the nation's only known jaguar. In addition, the populations of Gila topminnow and Chiricahua leopard frog imperiled by the project represent some of the healthiest populations of these listed species remaining in the State of Arizona.

### B. National Relevance of the Question of Clean Water Act Section 404 Applicability to Groundwater Drawdown Related Effects.

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28 USFS Draft Record of Decision, p. 11 (see also p. 46): "I recognize that each of the action alternatives would result in significant environmental and social impacts and that the no action alternative is the environmentally preferable alternative. . ."



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**[TO BE ADDED]**

## V. ADDITIONAL ISSUES OF SIGNIFICANT CONCERN

The following issues are raised not as bases for referral, but as concerns that are relevant to an understanding of the full impacts of the proposed action. EPA recommends that these concerns be taken into consideration in the development of any remedy for the referral issues.

***Air Quality***

**Commented [JC6]:** Air Division is working on a new analysis of air impacts. These impacts are not intended to be a basis for referral, but just another impact of concern. Their analysis will be an attachment and a more detailed summary of concerns will be added here when ready.

The proposed project and its alternatives (including the preferred alternative) are predicted to degrade regional visibility and increase airborne nitrogen deposition in excess of identified thresholds for a number of Class 1 areas, including Saguaro National Park. EPA recently required retrofitting of power generating facilities in the region to reduce their visibility impacts. EPA acknowledges the USFS, National Park Service, and proponent's efforts to address these issues, but we note that significant impacts are still predicted and further project control/mitigation measures and updated modeling would be necessary to demonstrate that these impacts have been reduced. EPA has continuing concerns about the project's air impact analysis methodologies and a number of key assumptions that were incorporated into that analysis. Our concerns include: the possibility that maximum air quality impacts might occur beyond the fence line, while modeling only considered fence line impacts; use of three years of meteorological data instead of five years; the representativeness of the low $NO_2$ background concentration assumed in the modeling used; and possible undocumented modifications to the CALPUFF model. As a result, EPA cannot determine whether revised modeling addressing these matters might predict violations of the National Ambient Air Quality Standards (NAAQS) or the relevant Prevention of Significant Deterioration (PSD) increments. EPA's concerns related to these matters are discussed in greater detail in our "Air Quality Concerns" attachment. [ATTACHMENT]

***Tribal/Cultural Impacts***

The project would have significant adverse impacts on tribal and cultural resources. The Tohono O'odham Nation and Pascua Yaqui tribe have expressed great concern regarding the project's impacts upon the cultural resources both within the project area and as a result of the landscape-scale impacts to the Santa Rita Mountains. [ATTACHMENT] Under the proposed action, 85 cultural resource sites would be buried, destroyed or damaged. Of these, 31 are known or likely to have human remains. The Tohono O'odham Nation, which has also represented other tribes during the consultation process with the Forest Service, remains strongly opposed to the project.

Furthermore, EPA notes that according to the FEIS,

> "Under the Southern Arizona Water Rights Settlement Act and associated legislation, restrictions have been placed on well drilling and pumping with respect to the water supply of the Tohono O'odham Nation. Based on modeling conducted to support the FEIS and described in this section, it does not appear that impacts from the Rosemont Copper water supply pumping would intersect the Nation boundary in a way that would violate these statutory restrictions—



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specifically, a drawdown greater than 10 feet intersecting the boundary of the Nation after 5 years of pumping. As shown in figure 49, the 10-foot drawdown contour just touches the boundary of the Nation after 20 years of pumping."[29]

While the use of a 10 foot drawdown threshold is appropriate for consideration of compliance with the Southern Arizona Water Rights Settlement Act, 10 feet of groundwater drawdown does not necessary constitute the appropriate significance threshold for NEPA purposes. It is well understood and accepted, as discussed elsewhere in this document and through the NEPA record for this project, that groundwater drawdown of much less than 10 feet can have significant financial and environmental consequences. Accordingly, the use of the 10 foot drawdown contour appears to understate the potential impacts of the project upon the Tohono O'odham Nation. We further find that the FEIS states that groundwater drawdown associated with the water supply wells near Sahuarita would continue to expand outward for many years post-closure. It is unclear the extent to which drawdown resulting from the mine would further encroach upon Tohono O'odham Nation lands after the 20 years of pumping modeled in the FEIS.

## VI. STEPS TAKEN BY EPA TO BRING ITS CONCERNS TO THE ATTENTION OF THE FOREST SERVICE AT THE EARLIEST POSSIBLE TIME

| DATE | MILESTONE |
|---|---|
| 7/28/11 | EPA comments on the preliminary Draft EIS identify serious concerns related to water quality, water quantity/groundwater, riparian/wetland resources, mine design, geochemistry, alternatives, biological resources, mitigation, and air quality. |
| 01/05/12 | In response to Corps Public Notice, EPA Region 9 reaffirmed a 2009 designation of Davidson Canyon and Cienega Creek as "aquatic resources of national importance," identifying the 404 action as a candidate for EPA/Corps HQ review under the 1992 404(q) MOA |
| 02/21/12 | EPA Region 9 rated the Forest's Draft EIS as Environmentally Unacceptable and Inadequate ("EU-3") on the basis of anticipated impacts to air quality and water resources and inadequate information on mine design, geochemistry, reclamation, water resources, and air quality. Many key concerns are similar or identical to those raised in our 7/28/11 comments. |
| 3/6/12 | Site visit by Regional Administrator Jared Blumenfeld and staff |
| 11/19/12 | Site visit by Communities and Ecosystems Division Director Enrique Manzanilla and staff |
| 6/27/13 | Site visit by wetlands scientist Dr. Robert Leidy |

29 FEIS, page 339



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| | |
|---|---|
| 8/15/13 | EPA provides extensive comments on the preliminary Final EIS wherein we again notify the USFS of our serious concerns related to impacts to waters of the US, riparian/wetland resources, biological resources, mine design, mitigation, and air quality. |
| 10/2013 – 11/2013 | EPA and USFS have a number of meetings to discuss impacts to aquatic resources resulting from groundwater drawdown and the limitations of the available data and modeling. |
| 11/7/13 | Region 9 Water Division informs the Corps that our review of the proponent's 404 mitigation plan determined that it is inadequate to compensate for impacts to aquatic resources. Forest Supervisor Jim Upchurch receives a courtesy copy. |
| 12/13/13 | Forest issues Final EIS (FEIS) and draft Record of Decision (ROD) and Finding of Non-significant Forest Plan Amendment. EPA contacts USFS shortly thereafter and notifies them that, based upon preliminary review of the FEIS, the project remains a candidate for referral to CEQ. |
| 1/2014 | CEQ initiates regular, recurring interagency calls in an effort to resolve remaining concerns and "referral-worthy" issues; EPA and USFS regularly participate. |
| 01/29/14 | EPA Office of Federal Activities Director Susan Bromm, Regional Administrator Jared Blumenfeld , and staff joined CEQ, USFS, USFWS, USACE, BLM and the proponent on a site visit |
| 4/7/2014 | EPA letter to ADEQ notifying them of our objection to and disagreements with the issuance of the CWA Section 401 Certification. USFS receives a copy. |
| 4/15/14 | EPA letter to Corps regarding "other water quality aspects" concerns. USFS receives a copy. |
| 09/26/14 | Corps provides Forest with revised Habitat Mitigation and Monitoring Plan (HMMP). Limitations, faults and inadequacies are discussed at length on interagency calls. |
| 2015? | EPA provided USFS with comments on Supplemental Information Report. |
| 2014-16 | EPA continued to participate in regular CEQ/interagency calls. |
| 4/21/16 | EPA Strategic Planning Associate Division Director Nicole Moutoux and staff joined CEQ, USFS, USFWS, USACE, BLM, and the proponent on a site visit. |

## VII. EPA'S RECOMMENDATIONS TO REMEDY THE SITUATION

Considering the rarity of the resources at risk, the severity of the potential impacts, and the limited availability of options for mitigation, EPA does not believe that compensatory mitigation can sufficiently offset project impacts below the threshold of significant degradation and thus does not believe that the project can be brought into compliance with the Clean Water Act Section 404. Therefore, EPA recommends that, in accordance with each agency's statutory authorities and obligations as outlined above, the USFS select the "No Action Alternative" in its Record of Decision and the USACE deny the Clean Water Act Section 404 Permit Application.



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**List of Attachments**

Attachment 1: Map of Rosemont Copper Mine Project preferred alternative (Barrel)
Attachment 2:
Attachment 3:
Attachment 4:
Attachment 5:
Attachment 6:

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