

US EPA ARCHIVE DOCUMENT

**AMENDED RECORD OF DECISION/  
FINDING OF NO SIGNIFICANT IMPACT**

**FINAL ENVIRONMENTAL IMPACT STATEMENT  
U. S. Forest Service**

**AND**

**SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT  
U.S. Army Corps of Engineers**

**AND**

**SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT  
U.S. Environmental Protection Agency**

**for the**

**CARLOTA COPPER PROJECT**

**U.S. Environmental Protection Agency  
Region IX**

**DECISION TO BE MADE**

This Amended Record of Decision (ROD)/Finding of No Significant Impact (FONSI) documents the decision by the U.S Environmental Protection Agency (EPA) Region IX pertaining to issuance of a National Pollutant Discharge Elimination System (NPDES) permit authorized under Section 402 of the Clean Water Act (CWA) to the Carlota Copper Company for the proposed Carlota Copper Project. EPA, Region IX initially public noticed a ROD for this permit on July 24, 2000 and issued an NPDES permit to the Carlota Copper Company on that same date. The permit was subsequently appealed to the Environmental Appeals Board (EAB). In accordance with 40 C.F.R. § 124.19(d), EPA withdrew two contested permit conditions in order to allow comment on these conditions and to review compliance with the National Environmental Policy Act (NEPA) for these conditions. The two contested conditions under Part I.A.11 of the permit are described as follows:

Part I.A.11.a. Reclamation activities to be performed at the Gibson mine to reduce copper loadings to Pinto Creek prior to commencement of discharge,

Part I.A.11.b. Wellfield Mitigation Program allowing periodic discharges of ground water from a developed wellfield to waters of the U.S.

This Amended ROD/FONSI is being issued pursuant to NEPA, 42 U.S.C. § 4321 et seq., the Council on Environmental Quality (CEQ) NEPA regulations at 40 C.F.R. Parts 1500-1508, and EPA's NEPA implementing regulations at 40 C.F.R. Part 6, Subpart F (Environmental Review Procedures for the New Source NPDES Program). The decision is based upon the analyses included within the three NEPA documents prepared for the project: Final Environmental Impact Statement (Final EIS), issued July 22, 1997 by the U. S. Forest Service; Supplemental Environmental Assessment (Corps EA), issued January 23, 1998 by the Army Corps of Engineers (Corps) and the Supplemental Environmental Assessment (EPA Supplemental EA) public noticed on May 9, 2001. The Finding of No Significant Impact pertains to the information in the EPA Supplemental EA as there is no significant impact from the two permit conditions analyzed in that document: the wellfield mitigation discharge and the partial remediation of Gibson Mine.

## INTRODUCTION

The Carlota Copper Company has proposed to construct, operate, and reclaim the Carlota Copper Project, an open-pit copper mine located approximately 6 miles west of Miami, Arizona. The proposed mine is located partly on lands administered by the Globe Ranger District of the Tonto National Forest and partly on private lands. The proposed action would involve conventional open-pit mining techniques and would produce an estimated 900 million pounds of copper. Mining activities, including leaching of ore, would continue for approximately 20 years. Following the end of operations and reclamation, the Forest Service has required that Carlota demonstrate that closure has been achieved through post-closure monitoring. Mine closure would likely be completed in approximately 2 to 3 years, depending on the results of post-closure monitoring.

The lead agency for preparation of the Carlota Copper Project Final EIS was the U. S. Forest Service, Tonto National Forest. The Corps and the Arizona Department of Environmental Quality (ADEQ) were cooperating agencies on development of the document. The 1997 Final EIS was prepared to address regulatory requirements of the federal permitting agencies, pursuant to NEPA. The lead agency for preparation of the Corps EA was the Corps. The Corps EA, prepared to supplement information provided in the 1997 Final EIS, was necessary in order to meet the Corps' regulatory responsibilities. The Corps EA includes information to support the CWA Section 404 (b) (1) Guidelines alternatives analysis (Appendix A, Final EIS), provides additional information regarding both off and on-site alternatives, and documents additional mitigation requirements, which are intended to minimize potential adverse impacts of the project.

The proposed project requires an NPDES permit from EPA. Because the project is defined as an NPDES new source (33 U.S.C. § 1316(a)(2); 40 C.F.R. 122.2 and 122.29), EPA is

required to comply with NEPA prior to final action on the NPDES permit, 33 U.S.C. § 1371 (c)(1). As outlined above, on July 24, 2000, the EPA issued a ROD by which it adopted the 1997 Final EIS and Corps EA to fulfill EPA's NEPA requirements associated with the new source NPDES permitting action. EPA hereby amends that ROD to include the additional analyses in the EPA Supplemental EA which resulted in a Finding of No Significant Impact for the two analyzed conditions: the wellfield mitigation discharge and the partial remediation of Gibson Mine.

## **DESCRIPTION OF THE PROPOSED ACTION**

Chapter 2 of the Final EIS provides a detailed description of the proposed action and project alternatives. The proposed action would involve conventional open-pit mining techniques, such as blasting, truck hauling from the pit to the crusher, and transport of ore from the crusher to a leach pad. The Carlota and Cactus deposits would be mined as a single pit referred to as the Carlota Cactus pit. A channel would be constructed to divert approximately 7,500 feet of Pinto Creek around the pit. Mine rock (i.e., waste rock) would be taken from this pit and deposited in the Main mine rock disposal area located northwest of the Carlota Cactus pit and in the Cactus Southwest mine rock disposal area located south of the pit. In addition, mine rock would be used to partially backfill the Carlota Cactus pit. Ore would also be mined from three smaller pits referred to as the North, South, and Middle Eder pits during the latter half of the project. Mine rock from these pits would be hauled to the Eder mine rock disposal area located between the Eder North and South pits.

Processing facilities would consist of crushers, a heap-leach pad, and a solvent-extraction/electrowinning (SX/EW) plant. The heap leach pad would be located in the Powers Gulch drainage. A channel would be constructed to divert approximately one mile (5,250 feet) of Powers Gulch around the leach pad. Surface runoff from areas upgradient of the leach pad would be rerouted around the facility via an inlet control structure and the diversion channel. Ore processing would include curing the material with sulfuric acid and leaching it to produce a copper-bearing solution, which would be collected in internal ponds, and then piped to the SX/EW plant for the production of copper cathodes.

The water supply requirements for the project would be an average of approximately 590 gallons per minute (gpm). The proposed water sources would consist of a maximum of five ground water supply wells in the Pinto Creek drainage and dewatering wells around the pits. Additional facilities for the proposed action would include access and haul roads, power lines, an equipment maintenance shop and warehouse, office and laboratory buildings, water, fuel and reagent tanks, and sewage treatment/disposal systems.

## **DESCRIPTION OF PROJECT ALTERNATIVES**

Project alternatives were evaluated to address issues identified during the scoping

processes. Alternatives were selected for analysis in the Final EIS on the basis of the specific criteria listed below:

- C Public or agency issue or concern
- C Ability to meet project purpose and need
- C Technical, legal, or economic feasibility
- C Potential environmental advantage over the proposed action

The alternatives were developed and evaluated to address major issues identified. Alternatives considered in detail included a no action alternative, three mine rock disposal alternatives, one leach pad alternative, and two water supply well field access road alternatives. The alternatives discussed in the EPA Supplemental EA include the action and no action alternative: a third alternative, removal of the Breccia ore body, was considered but not further analyzed because it could not be completed prior to discharge. The alternatives considered in the Final EIS and Corps EA are summarized as follows:

#### No Action Alternative

This alternative would preclude the development of the Carlota Copper Project on the public lands in question, and the ore reserves in the area would remain undeveloped. The No Action alternative assumes the continuation of the existing conditions in the project area.

#### Mine Rock Disposal Alternatives

The three mine rock disposal alternatives analyzed in the Final EIS were developed in an attempt to locate disposal areas on previously disturbed and/or private lands. These alternatives included (1) using two additional disposal areas for mine rock from the Carlota Cactus pit (Cactus South and Cactus Central sites), (2) additional backfilling of the Carlota Cactus pit, and (3) additional backfilling of the Eder South pit.

#### Eder Side-Hill Leach Pad Alternative

An alternative leach pad location that was considered the most feasible site for avoiding Powers Gulch was defined and analyzed. The Eder side-hill leach pad would be composed of two separate pads with embankments located on the east and west sides of Powers Gulch. This alternative would require relocating the Eder mine rock disposal area.

#### Water Supply Alternative

The water supply alternative evaluated in the Final EIS would satisfy Carlota water requirements by using low-quality water that has been degraded by other existing or historic mining operations in combination with good quality water derived from both the Pinto Creek well field and dewatering wells around the pits. Low-quality water is suitable for use on the leach pad and could potentially supply up to 59 percent of the water needs for the project.

#### Alternative Water Supply Well Field Access Roads

The Final EIS considered two alternative routes to access the water supply wells from the north. Alternative A would involve upgrading the existing road within the Pinto Creek flood plain; Alternative B would follow Forest Service Road 287A west from the Iron Bridge, south and east along Fifty Dollar Spring to well site TW-3 and the existing road. Alternatives A and B, as well as the proposed action would follow the same alignment between well sites TW-3 and TW-1.

### **COMPARISON OF THE ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES**

Chapter 3 of the Final EIS evaluates the environmental effects associated with the project alternatives for all resources. A comparison of environmental effects of the project alternatives for each resource is included by reference to the 1997 Final EIS. Table ES-1 of the EPA Supplemental EA includes a comparison and evaluation of environmental effects of the two withdrawn permit conditions.

### **ENVIRONMENTALLY PREFERABLE ALTERNATIVE**

The environmentally preferable alternative is the alternative which causes the least damage to the biological and physical environment, and which best protects, preserves, and enhances historic, cultural and natural resources. The No Action alternative best meets this definition since no additional disturbance would take place. This alternative would result in the least environmental impact in comparison to any of the mine development ("action") alternatives. The two withdrawn conditions analyzed in the EPA Supplemental EA are designed to mitigate water quality impacts and, thus, would have a beneficial impact in comparison to the "no action" alternative considered in that document.

### **ENVIRONMENTALLY PREFERABLE ACTION ALTERNATIVE**

The U.S. Forest Service identified an environmentally preferable action alternative (EPAA), based on the analysis of individual project components and alternatives documented in the Final EIS. This alternative was identified based on evaluations of environmental effects of the proposed action and each identified alternative.

The EPAA is that of the proposed action with three additional components:

- C Inclusion of the alternative to place additional backfill into the Eder South pit, as described in Section 2.2.1.1 of the Final EIS.
- C Inclusion of the water supply alternative, which combines low-quality water with water supply wells and dewatering wells, as described in section 2.2.1.4 of the Final EIS.
- C Inclusion of access road Alternative A to the well field in place of the proposed north access road, as described in Section 2.2.15 of the Final EIS.

The U.S. Forest Service did not select the No Action alternative because it would not meet the purpose of and need for the project. The environmentally preferable action alternative (EPAA) was selected because it best meets the project purpose and need and is consistent with all laws, regulations, and policies applicable to the decision. The key differences in environmental impacts that would result as a result of incorporating the three additional alternatives into the proposed action are as follows:

#### ***Backfill of the Eder South Pit***

Air Quality. Slight decreases in long-term emissions.

Geology and Minerals. Increased long-term stability of the Eder South pit wall, Eder slope, and Powers Gulch area; reduced threat to Powers Gulch diversion system and heap-leach pad.

Water Resources. Reduced long-term risks of sediment transport and potential impacts to Powers Gulch diversion by eliminating the Eder mine rock area at closure.

Soils and Reclamation. Additional reclaimed areas within the pit and at the disposal site; increased costs; reduced potential for erosion because of the elimination of the Eder mine rock disposal area.

Terrestrial Biology. Additional reclaimed areas for upland vegetation and associated wildlife; increased potential area for reclaiming upland habitat, especially for sensitive species such as loggerhead shrike.

Socioeconomics. Beneficial (gains in employment) and adverse (lack of housing) impacts of the workforce for additional 2-3 months.

Land Use. Additional reclaimed areas associated with the additional backfill of the Eder mine rock area available for postmining uses.

Visual Resources. Reduced visible extent of disturbed areas and a more open view of the background.

Noise. Slight, temporary increase of noise levels.

### *Use of Low-quality Water*

Geology and Minerals. Addition of several miles of low-quality water pipeline and associated risks to the pipeline from landslides and slope instability.

Water Resources. Potential reduction of impacts to Haunted Canyon and Pinto Creek associated with water supply well field pumping. (If the pipeline is damaged during the life of the project, released water could potentially affect ground and/or surface water quality.)

Land Use. Potential for an additional pipeline right-of-way on National Forest System lands.

Aquatic Biology. Potential for reducing impact to surface water flow and associated impacts to aquatic biota.

### *Access Road Alternative A*

Geology and Minerals. Reduced soil disturbance and erosion in a portion of Pinto Creek; reduced risk of induced slope instability.

Water Resources. The alternative is located in the Pinto Creek flood plain; more efficient access to water monitoring sites.

Soils and Reclamation. Slight decrease in soil disturbance; no new road construction.

Terrestrial Biology. Continued disturbance of riparian vegetation during project operation.

Land Use. Reduced land use disturbance in Pinto Creek area.

Recreation. Slight reductions in noise and visual impacts on hiking and horseback riding.

## **MITIGATION MEASURES AND MONITORING**

### Mitigation Measures

Mitigation includes avoidance, minimization, reduction of impacts, and compensation for unavoidable impacts. Chapter 3 of the Final EIS provides a discussion and list of mitigation measures. Following release of the Final EIS, the Corps revised the mitigation measures required



under the CWA Section 404 permit. These revisions, including the details of the additional mitigation requirements, are included in the Corps EA. The additional mitigation requirements include the following: the requirement to create a one-acre wetland upstream of the Pinto Creek diversion channel; the requirement to fence and remove all exotics from Pinto Creek riparian private areas; the requirement to acquire and put into non-use a 22,000 acre grazing allotment (Brushiest Allotment); and a requirement that Carlota either purchase an agreed-upon conservation area or contribute \$700,000 to a land trust association or agency approved by the Corps for the purchase and/or management of such an area.

In addition, the two withdrawn permit conditions are included as mitigation measures. The reclamation activities at the Gibson Mine would offset copper loadings from storm water discharges from the Carlota Copper Project. The discharges of ground water under the Wellfield Mitigation Program are intended to maintain base-flow conditions downstream.

### Monitoring

Monitoring will be required to determine project compliance with the required federal and state permits. Monitoring provisions under the authority of the Forest Service are approved as part of the Plan of Operations. Monitoring provisions under the authority of other agencies are included in their respective permits.

### **EPA DECISION**

EPA has decided to issue an NPDES permit for the EPAA, as described in the 1997 Record of Decision for the Carlota Copper Project prepared by the lead agency, the U.S. Forest Service, Tonto National Forest, with additional requirements and mitigation as described in the Corps EA and the EPA Supplemental EA. When the Final EIS was released, two significant section 404 concerns raised by EPA still remained unresolved - the siting of the heap leach pad in Powers Gulch and the Section 404 mitigation plan. To ensure that the proposed project met EPA's requirements for a CWA Section 404 permit, EPA conducted additional analyses to determine if the heap leach site was the least-environmentally damaging practicable site and worked with the Corps to improve upon the proposed mitigation measures. These analyses are documented in EPA's letter to the Corps dated October 28, 1997 and in the Corps EA. EPA hereby adopts the EPAA selected in the Final EIS, combined with the additional mitigation documented in the Corps EA and EPA Supplemental EA.

The NPDES permit only allows discharges to Pinto Creek during a 100-year, 24-hour storm event and into Powers Gulch during a 10-year, 24-hour storm event. The permit requires the maintenance of the retention basins built to meet the above conditions. In addition, the NPDES permit requires monitoring and reporting of characteristics of discharges, implementation of best management practices (such as maintenance of retention ponds, etc.), as well as monitoring of surface waters and biological organisms in the surrounding watershed to

assess any impacts which may result from project discharges. The permit also requires Carlota to remediate portions of Gibson Mine, an inactive copper mine, thus removing a significant source of copper currently discharging into Pinto Creek, prior to discharging into that waterbody. The permit allows Carlota to discharge ground water in order to maintain base-flow conditions in Pinto Creek. Finally, the NPDES permit includes a reopener provision which allows EPA to reopen and modify the permit to impose additional requirements if new information, such as monitoring results, indicates that permit conditions are not sufficient to protect water quality.

## FACTORS CONSIDERED IN THE DECISION

EPA's authority relevant to the decision extends to either the granting (with specific limitations and/or conditions) the NPDES permit, which is required for the project to proceed, or the denial of the NPDES permit. In making this decision, EPA is required to take into account "any significant beneficial and adverse impacts of the proposed action and a review of the recommendations contained in the EIS..." [40 C.F.R. 122.29 (c)(3)].

EPA has taken into consideration the evaluations as described in the Final EIS, Corps EA and EPA Supplemental EA. EPA has also taken into consideration the results of consultations conducted by the Forest Service and EPA to determine compliance of the project with the National Historic Preservation Act (NHPA) and the Endangered Species Act (ESA). The Arizona State Historic Preservation Officer (SHPO) issued a letter to the Forest Service dated October 25, 1998 confirming that the Mining Plan of Operations complies with the NHPA. EPA subsequently met with Tribes and hired a consultant to perform an additional survey of the areas affected by the discharges authorized by EPA's NPDES permit. EPA received a letter dated June 29, 2000 from the SHPO concurring with the determination that there were no cultural resources with unmitigated impacts or Tribal Cultural Places within the area impacted by the discharges. The U.S. Fish & Wildlife Service issued a Biological Opinion for the project on April 26, 1996, stating that the project is not likely to jeopardize the continued existence of the lesser long-nosed bat and Arizona hedgehog cactus, the only two species protected under the ESA that might be affected. Finally, EPA further analyzed the above factors for the two withdrawn permit conditions in the EPA Supplemental EA.

EPA has analyzed project alternatives, associated environmental impacts, the extent to which environmental impacts could be mitigated, and has considered the objectives of the project proponent, the Carlota Copper Company. EPA also considered public and agency comments received during the U.S. Forest Service's Draft EIS public comment period, as well as agency and public comments received during EPA's public comment period for adoption of the Final EIS & Corps EA and issuance of the related NPDES permit and later comment period for the EPA Supplemental EA and on the two withdrawn permit conditions. The selected alternative, combined with the requirements and mitigation documented in the Corps EA and EPA Supplemental EA, best addresses the issues identified during the EIS scoping process and the comments received during the public comment periods. EPA concludes that all practical means

to avoid or minimize environmental harm from the selected alternative have been adopted.

In addition to impacts evaluated by the Final EIS, EPA further considered factors associated with the non-attainment of the water quality standard for copper in Pinto Creek in making this decision. Pinto Creek has been listed by the State of Arizona under Section 303(d) of the CWA for non-attainment of the water quality standard for dissolved copper, due to factors including uncontrolled and abandoned mines impacting the watershed, as well as natural mineralization. The EPA issued a final Total Daily Maximum Load (TMDL) for Pinto Creek in April 2001 to address this issue. The TMDL establishes loading capacities, determines background conditions, assigns allocations to point and nonpoint sources, and contains an implementation plan to ensure future compliance with water quality standards.

While the U.S. Fish & Wildlife Service determined that the project as a whole is not likely to jeopardize threatened and endangered species, EPA made the determination in a letter to U.S. Fish & Wildlife Service dated September 15, 1998 that any discharges allowed under an NPDES permit will have No Effect on any threatened and endangered species in the area. EPA has determined that discharges allowed under the permit will not adversely impact water quality due to the expected infrequency of discharges, the high degree of dilution which would be associated with any discharges, and the predicted characteristics of discharges based on EPA's review of waste rock characterization data. Based on facility design and included as a permit requirement, Carlota is only allowed to discharge runoff from waste rock dumps through retention ponds during major storm events. Specifically, Carlota has designed retention ponds on Pinto Creek to contain the volume of storm water which would result from the 100-year, 24-hour storm event and on Powers Gulch to contain the volume of storm water which would result from the 10-year, 24-hour storm event. EPA's permit prohibits any discharges into Pinto Creek containing detectable amounts of dissolved copper, until Carlota performs the partial remediation of Gibson Mine as outlined in the EPA Supplemental EA. The EPA Supplemental EA concludes that the implementation of the partial reclamation at the Gibson Mine could have positive secondary impacts on many threatened, endangered and special status species by improving water quality within Pinto Creek. Implementation of the wellfield mitigation plan would mitigate impacts to riparian zones and aquatic habitat by ensuring that base flows in Haunted Canyon, Powers Gulch and Pinto Creek do not drop below defined monthly minimum streamflows.

In addition to management of storm water discharges, all process solutions and process waste waters are managed in facilities designed to contain flows that would result from ½ the Probable Maximum Precipitation Event, as documented in the Final EIS.

## **NPDES PERMIT**

The draft NPDES permit, Final EIS, and Corps EA were released for public comment on September 29, 1998. Since EPA was not a cooperating agency on the NEPA documents prepared by the U.S. Forest Service and the Corps, EPA was required to recirculate and take

comments on these NEPA documents prior to adoption to satisfy the NEPA compliance component of the NPDES permit. EPA's public comment period for these EPA actions ended on December 31, 1998. In response to comments received on these actions, EPA prepared a Response to Comments document addressing all comments and outlining all revisions made to the draft NPDES permit. On July 24, 2000, EPA issued a final permit and ROD for this project. The permit was subsequently appealed to the EAB. In accordance with 40 C.F.R. § 124.19(d), EPA withdrew two contested permit conditions in order to allow comment on these conditions and to review compliance with NEPA for these conditions. A response to those comments has been prepared and EPA has received CWA section 401 certification from ADEQ for the NPDES permit. The Final EIS, Corps EA, EPA Supplemental EA, NPDES Fact Sheet and Responses to Comments provide the basis for the final NPDES permit, which is issued concurrently with this Record of Decision. The NPDES permit includes monitoring requirements and other conditions imposed to protect water quality and to comply with the state water quality standards. Mitigation measures developed in the Final EIS have been included as conditions of the NPDES permit to the extent EPA is authorized under the CWA, such as monitoring of surface waters and biological organisms. These measures are specified in the NPDES permit and are made a part of this decision. EPA has determined that the above requirements ensure compliance with the technology-related pollutant control requirements of the Clean Water Act.

#### **CONTACT PERSON**

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#### **Approved by:**

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Wayne Nastri  
Regional Administrator

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Date