

# **RECORD OF DECISION**

**USDA Forest Service  
Kaibab National Forest**

## **CANYON MINE PROPOSAL**

**Final Environmental Impact Statement**

**Coconino County, Arizona**

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## CANYON MINE PROPOSAL Final Environmental Impact Statement

Coconino County, Arizona

### I. Introduction

This Record of Decision documents my approval of a modified Plan of Operations for the Canyon Uranium Mine on the Kaibab National Forest. The alternatives considered and my rationale for selecting the preferred alternative are described in this Record of Decision. The environmentally preferred alternative is also identified.

In October, 1984, Energy Fuels Nuclear, Inc. (EFN), submitted to the USDA Forest Service, Kaibab National Forest, a proposed Plan of Operations to mine uranium on unpatented mining claims on the Tusayan Ranger District. The proposed mine is located in Coconino County, Arizona, approximately six miles south of the community of Tusayan.

A detailed description of the proposed mine operations can be found in the Environmental Impact Statement (EIS). In brief, the proposed Canyon Mine would involve underground mining of a breccia pipe uranium deposit and would require disturbance of approximately 17 acres for the mine shaft and surface facilities. Ore from the mine will be trucked to the licensed mill near Blanding, Utah.

When the Plan of Operations was submitted, the Forest Service sought public review and comment on the proposal to assist in determining the appropriate level of analysis and documentation required under the National Environmental Policy Act (NEPA). The Forest Service decided the preparation of an EIS was warranted and a notice to prepare an EIS was published in the Federal Register on April 30, 1985.

A Draft EIS was prepared and released to the public on February 28, 1986. A Final EIS, including public comments on the Draft EIS and Forest Service responses, was completed and released on September 29, 1986. The purpose of the EIS was to present information to allow for an informed decision on whether to reject, accept, or accept with modifications the proposed Plan of Operations. The EIS analyzed potential environmental, social and economic impacts of the proposed mine and developed and evaluated mitigation measures designed to minimize potential impacts from mining and ore transportation.

## II. Decision

My decision is to select Alternative 5, the alternative preferred by the interdisciplinary team in the EIS.

The Selected Alternative includes approval of a modified Plan of Operations for an underground uranium mine and allows EFN to choose between two ore transportation options: Haul Route #6, an all-highway route along Highway 64, Interstate 40 and Highway 89, from the mine site to Blanding; and Haul Route #7, another southern route which crosses State and private lands on gravel roads near SP Crater. A detailed description and analysis of the haul route options considered and selected is provided in the EIS. If EFN chooses to use Haul Route #7, it must negotiate the necessary rights-of-way with the State of Arizona and private landowners.

Other important operational features of the Selected Alternative include:

1. Expanded monitoring of soil, air and water to determine the environmental impacts, if any, of mine operations and ore transport, and the need for imposing additional mitigation measures, if necessary;
2. Construction of an overhead powerline from Highway 64 following the access road to the mine site;
3. Transportation of mine workers by company van or bus;
4. Modified surface water diversion structure to provide increased protection from storm runoff;
5. Mitigation measures for the replacement of disturbed wildlife habitat and key wildlife waters; and
6. Expanded mine reclamation plan.

The operational components of the Selected Alternative are analyzed in detail in the EIS. The mitigation measures which have been adopted as part of my decision are described in Section VII of this Record of Decision. All practicable means to avoid, minimize and monitor environmental impacts have been adopted.

## III. Alternatives Considered

Based on available data, all reasonable alternatives to the proposed Plan of Operations were developed and analyzed in the EIS. The following alternatives were considered in detail:

### **Alternative 1 — No Action, Disapproval of the Plan of Operations.**

No mine would be developed at the Canyon Mine site. While the Forest Service can impose reasonable environmental controls on a mining operation, we do not have the authority to disapprove a reasonable operating plan for a mining operation which will be conducted in an environmentally responsible manner. The use of this alternative,

however, is consistent with previous Forest Service administrative decisions to treat the no action mining alternative as the no project option.

**Alternative 2 — Proposed Plan of Operations.**

This alternative is the Plan of Operations as proposed by EFN, in October, 1984.

**Alternative 3 — Modified Plan of Operations with Additional Monitoring, Mitigation and Haul Routes #1 and 2.**

This alternative includes an expanded monitoring program for soil, air and water, an alternative haul route and additional mitigating measures, including the replacement of disturbed wildlife habitat and key wildlife waters.

**Alternative 4 -- Modified Plan of Operations with Additional Monitoring, Mitigation and Haul Route #5.**

This alternative includes the monitoring and mitigation measures of Alternative 3, but considered different haul routes. Alternative 4 also includes company provided transportation for mine workers.

**Alternative 5 — Preferred Alternative.**

The Preferred Alternative includes the monitoring program and mitigation measures considered in Alternatives 3 and 4, haul route options #6 and 7, company transportation for mine workers and a surface powerline along the access road to the mine site.

The project alternatives differ primarily in the level of monitoring and mitigation required, and the haul routes evaluated. The alternatives also consider different operational features of the mine, including power supply, worker transportation and surface water diversion.

In addition to the alternatives described above, several other alternatives were considered but eliminated from detailed study in the EIS. Two alternatives that were initially considered as possible agency actions, but dropped from further consideration, were withdrawal of the land from mineral entry and patenting (fee title ownership of the mine site) of the lands in the area of the proposed Canyon Mine by EFN. Patenting remains a discretionary option still available to EFN, and the authority of the Forest Service to influence project mitigation and monitoring under this alternative would be much less. Other non-project alternatives considered but eliminated from detailed analysis as remote, speculative and conjectural, providing no additional information which could aid the public or the Forest Service in considering the impacts of the proposed Canyon Mine include energy conservation, alternative energy development and obtaining uranium from other sources. The reasons for eliminating these alternatives from detailed study are discussed in Chapter 2 of the EIS.

#### IV. Response to Public Comments

Two hundred and thirty-eight letters were received in response to the Draft EIS. The major concerns expressed in these letters fell mainly into the following broad categories: Proximity of the proposed mine to the Grand Canyon National Park, including the perception that the mine was located within the boundaries of the Park; cumulative impacts of several uranium mines; potential for groundwater contamination; the "valuable mineral" test under the 1872 mining law; radioactive dust exposure along haul routes; potential human health effects; effects on wildlife and wildlife habitat; heavy truck traffic; and, opposition to the proposed mine because of social issues and controversy associated with the use of uranium.

The EIS was revised to reflect the comments received on the Draft EIS. Important changes include:

1. **Addition of Indian religious concerns as an issue and concern.** The potential impact of the Canyon Mine on Indian religious sites and practices was considered in the Draft EIS in conjunction with a general analysis of impacts on American Indians. Comments on the Draft EIS by the Hopi and Havasupai Tribes alleged that religious sites and practices would be adversely affected by the Canyon Mine, a concern which was not raised by the Tribes during scoping or earlier consultation with the Tribes. Based on those comments and continuing consultation with the affected Tribes, Indian religious concerns was added to the list of issues evaluated in detail by the EIS. The text of the EIS includes an expanded discussion of Indian religious sites and practices, and beliefs about the affected area. Following the printing of the EIS, Havasupai and Hopi representatives met with Forest Service representatives and provided additional comments and information with respect to these issues. Consultation with the Tribes regarding religious concerns will continue during the review, construction and operation of the mine.
2. **Expanded discussion of potential groundwater impacts.** Several comments expressed concern about potential depletion or contamination of groundwater resources in the area, including potential impacts on seeps and springs which flow from underground aquifers. The Draft EIS evaluated the impacts on surface and subsurface water as a major issue and concern. The Draft EIS concluded that adverse impacts either during or after mining operations were extremely unlikely. In response to public comments, the EIS was revised to include an expanded discussion and analysis of groundwater conditions and potential impacts. The additional analysis confirms the conclusion of the Draft EIS that no adverse groundwater impacts are expected.

Many letters responding to the Draft EIS expressed concerns related to the milling process in Blanding, Utah, rather than the extraction of uranium ore at the mine site. There seems to be some confusion over the two separate processes. The proper handling and disposal of tailings at the Blanding mill site and the safe transport of "yellowcake" surfaced frequently in letters. Both of these concerns are associated with the concentration process of the uranium ore at the mill in Blanding, Utah. No uranium ore will be processed at the Canyon Mine site. Therefore, comments related to the potential

impacts of uranium milling are not appropriate and are beyond the scope of the Canyon Mine EIS.

In addition to comments made about specific elements of the Draft EIS, many letters expressed a preference for one or more of the alternatives evaluated in the Draft EIS. One hundred and fifty responses were supportive of the mining development. Seventy four letters, including some with multiple signatures, expressed opposition to all mining alternatives, preferring the No Action Alternative. Section 1.1.1 of the EIS discusses the statutory and regulatory authorities of the Forest Service to administer mining activities. The general mining laws provide a statutory right to explore and extract certain minerals from the National Forests. The Forest Service does not have the discretionary authority to categorically deny access for the purpose of prospecting for and extracting minerals on those National Forest System lands that are open to mineral entry. It is the responsibility of the Forest Service to review and where necessary, modify proposed plans of operation for the development of a mine. Review and modification of plans is to ensure that the mining operations will be conducted in a manner which minimizes, prevents, mitigates or repairs adverse environmental impacts. The Forest Service does not have the authority to categorically deny reasonable operations proposed under the mining laws.

Many comments also expressed the need for a "regional programmatic planning document" for uranium mining operations on the entire Coconino Plateau and Arizona Strip. The option of preparing a broader, regional analysis of uranium mining was considered and rejected in the decision to prepare the EIS for the Canyon Mine proposal. NEPA requires such an analysis in two instances; when there is a comprehensive federal plan for the development of a region and where various federal actions have significant cumulative or synergistic environmental impacts in a well defined region. The first requirement is clearly inapplicable. The second was analyzed in detail but rejected for several reasons. First, only one mining plan was pending before the Forest Service. While other mine plans are possible, and perhaps even likely, only one federal decision in the region south of the Grand Canyon required NEPA analysis, the review of the Canyon Mine Plan of Operations. Second, evidence from similar mines operating north of the Grand Canyon indicated that impacts were localized and that major interactive impacts were unlikely. The distance between the two areas and the unique geology which separates them creates two distinct regions.

We were also influenced by the practical problems of such a regional analysis. Since no other mine sites had been proposed, a regional analysis would have required us to hypothesize sites and development schedules for an unspecified number of future mines. Since the location and timing of the mines would determine whether cumulative or interactive impacts existed, the outcome of the study would have been determined by the selection of mine sites. Such an artificial study did not appear to be valuable in the review of the Canyon Mine Plan of Operations.

While there was no basis for a regional environmental impact statement, the EIS does recognize the possibility of cumulative impacts from the development of additional mines in the area. Potential cumulative impacts on the region were analyzed by considering two scenarios; one additional mine in the Tusayan area near the Canyon Mine and three additional mines in Coconino County south of the Grand Canyon. The conclusion of the EIS was that, apart from transportation and social and economic impacts, the impacts of

development of mines such as the Canyon Mine are limited to a relatively small area near the mine site. While several commentors asked for more detailed analysis of cumulative impacts, no comment challenged the conclusion of the Draft EIS or provided any evidence to the contrary.

Finally, the Forest Service land management planning process is the agency's primary broad environmental analysis effort. Special resource values and uses that could be affected by exploration and mining have been identified in the proposed Forest Land Management Plan. Standards and guidelines in the proposed Plan specify restrictions and mineral withdrawals to protect these special resources. Thus, while it does not specifically focus on uranium mining, the proposed Plan is, to some extent, comparable to an "area wide" EIS for the entire Kaibab National Forest, which includes Forest lands both north and south of the Grand Canyon. The lands in the Grand Canyon region are managed under a myriad of federal, state, private and tribal jurisdictions and, taken collectively, both the Canyon Mine EIS and the proposed Forest Land Management Plan reflect an appropriate level of analysis at this time in light of the past, present and reasonably foreseeable proposals.

## V. Issue Resolution

Although none of the project alternatives fully resolves all of the identified issues and concerns, the modified project alternatives with specified mitigation measures are all considered environmentally acceptable. A brief discussion of how each alternative analyzed in the EIS addresses each issue is provided below:

1. **Social and Economic Impacts.** Social and economic impacts on the community of Williams and Coconino County as a whole are considered to be beneficial and virtually the same for Alternatives 2-5. If the No Action Alternative were implemented, there would be no change in current levels of employment, income, tax revenue or output as a result of the Canyon Mine.
2. **Reclamation Measures.** Reclamation measures required at the mine site are satisfactory in Alternatives 2-5, although additional measures called for in the modified project alternatives (Alternatives 3-5) are more comprehensive and oriented toward improving wildlife habitat at the mine site upon its closing. No reclamation would be required at the mine site under the No Action Alternative.
3. **Project Costs.** The least cost alternative is Alternative 2. Alternatives 3-5 all result in increased expenditures depending on the haul route used and mitigation measures required. Increased expenditures are generally associated with mitigation requirements. The costs of exploration and environmental review already incurred by EFN could not be recovered under the No Action Alternative.
4. **Wildlife Impacts.** Wildlife habitat will be affected to varying degrees in all alternatives depending on the ore transportation route used. Alternative 5 has the least impact on wildlife. Alternative 2 would have the greatest impact because of a lack of

mitigation requirements. Mitigation measures in Alternatives 3 and 4 should be effective in reducing the adverse impacts on wildlife resulting from increased road traffic.

Alternatives 3-5 all call for equivalent habitat replacement to offset impacts to wildlife habitat caused by the mine and expanded transportation system. Alternative 3 also includes a proponent choice of road closure during May and June in lieu of habitat replacement.

The No Action Alternative would have no impact from mining or ore transport on wildlife or wildlife habitat and would, therefore, require no mitigation.

5. **Impacts on Vegetation.** Alternatives 2-5 will have a negligible and insignificant effect on the make-up of vegetative types now present on the Tusayan Ranger District. The No Action Alternative would have no impact on vegetation at the Canyon Mine site.
6. **Visual Quality Impacts.** Visual quality associated with the Grand Canyon will not be affected by the development of the Canyon Mine regardless of the alternative selected for implementation. Alternatives 2-5 will alter the short term visual quality at the mine site. Alternative 4 requires constructing a road off the Coconino Rim in a location that would be visible to travelers going to and from the Grand Canyon using the east Highway 64 entrance. The No Action Alternative would have no impact on the visual quality of the area.
7. **Impacts on Air Quality.** Implementation of Alternative 2-5 will have no appreciable effect on the air quality, which includes particulates, radon gas, or radioactive dust, at either the Grand Canyon or the community of Tusayan. Increases in particulate matter will be site specific along haul routes and at the mine site itself and are expected to be well within air quality standards. Current levels of air quality in the vicinity of the Canyon Mine site and haul routes would be unchanged by the No Action Alternative.
8. **Impacts from Ore Transportation System.** Implementation of Alternative 5 and use of either the SP Crater haul route or the Federal and State Highway system would minimize impacts on National Forest resources and general forest environmental setting. The haul route identified in Alternative 4 would be most cost effective in providing a road that would meet long term management needs in the event other mines are developed in the eastern quadrant of the Tusayan Ranger District. Haul routes analyzed in Alternatives 2 and 3 are the most cost effective routes for hauling ore from the Canyon Mine to the mill in Blanding, Utah. No ore would be transported under the No Action Alternative.
9. **Impacts on Soil, and Surface and Ground Water.** Mitigation measures, operational procedures and monitoring requirements included in Alternatives 3-5 will reduce the possibility of radionuclide contamination to soil, and surface and subsurface water sources, and identify any contamination at the earliest



possible time. Alternative 2 does not include air, water and soil monitoring requirements to ensure the operational designs of the mine are functioning properly. Current parameters for water quantity and water quality would remain unchanged at the mine site under the No Action Alternative.

Neither the water quality on the Havasupai Indian Reservation nor the Grand Canyon National Park should be environmentally affected by the development of the Canyon Mine under Alternatives 2-5.

10. **Impacts on Indian Religious Sites and Practices.** Development of the mine site under Alternatives 2-5 and haul route options requiring the new road construction (Alternatives 2-4) could slightly reduce the land area available for Indian religious practices consisting of plant gathering and ceremonial activities. However, the current level of religious activity is not expected to be curtailed by any alternative nor will access to any known religious sites or areas be restricted. Although there is no physical evidence of Indian religious activity at the mine site itself, the Havasupai have recently stated that sacred camping and burial sites are present in the general area north of Red Butte, and perhaps at the mine site itself. However, the Havasupai Tribe refuses to disclose the location of the sites. The Havasupai Tribe has also recently stated that the general area around the mine is important to the Tribe's religious well being because it lies within a sphere of existence or continuum of life extending generally from the Grand Canyon to Red Butte. They explain that any uranium mining or similar activity within the sphere or continuum will violate unidentified Havasupai religious values and, may pose a threat to their very existence. The Havasupai have steadfastly declined to provide any additional information concerning the nature or importance of this sphere of existence, because, they stated, to discuss it further would be sacrilege.

In comments regarding other proposed actions on the Kaibab National Forest, the Hopi Tribe has expressed a belief that the earth is sacred and that it should not be subjected to digging, tearing or commercial exploitation. While this conflict has not been raised directly in relation to the Canyon Mine, it is acknowledged that commercial use of the Forest within the area of Hopi ancestral occupancy is inconsistent with these stated beliefs.

Further consultation with the Havasupai and Hopi people will continue during project review, construction and operation in an effort to better identify the religious practices and beliefs that the Havasupai and Hopi believe may be affected, to avoid or mitigate impacts and otherwise avoid placing unnecessary burdens on the exercise of Indian religious practices or beliefs.

The No Action Alternative would have no impact on Indian religious sites or practices. The Hopi and Havasupai Tribes have expressed a preference for the No Action Alternative, stating that no degree of project mitigation is acceptable.

## Environmentally Preferred Alternative

Alternative 1, the No Action Alternative, represents the no project option. Under Alternative 1, no impacts from mine development and ore transport would occur. Therefore, Alternative 1 is the environmentally preferable alternative.

## VI. Reasons for Decision

While the Forest Service acknowledges the controversy surrounding the eventual uses of processed uranium and the heated debate over potential health hazards from radiological contaminants, the EIS disclosed no potential significant environmental impacts of the proposed Canyon Mine which could not be substantially mitigated or avoided entirely. These controversial issues of national debate are clearly outside the scope of the Canyon Mine analysis in light of anticipated impacts of the proposed mine and the well-defined legislative mandates and authorities of the Forest Service. Although none of the modified project alternatives were considered environmentally unacceptable, the Selected Alternative represents the combination of operational components, mitigation measures and haul routes which minimize potential impacts and best responds to the issues and concerns identified in the EIS.

Based on the EIS, no significant environmental impacts are expected from mining operations or ore transportation. Impacts are expected to be small and localized near the mine site. The mitigation measures adopted as part of this decision further reduce the potential impacts to acceptable levels. Accordingly, I feel that the Canyon Mine can be permitted consistent with my responsibilities to minimize degradation of Forest resources.

Specific reasons and factors which I gave particular attention to in selecting Alternative 5 are listed below. No single factor determined the decision. Based on consideration of these factors, I feel the Selected Alternative provides the highest level of issue resolution and best meets the intent of the laws and regulations governing Forest Service operations.

1. Expanded Monitoring -- The air, soil and water monitoring program responds to issues and concerns raised during scoping and evaluated in the Draft EIS, and to comments made on the Draft EIS. The groundwater monitoring well, while expensive, is an important element of the monitoring and mitigation strategy as it responds to the unique concerns raised by the proposed Canyon Mine. The groundwater monitoring will confirm or invalidate assumptions about groundwater hydrology used in the Canyon Mine analysis. It helps assure that important water sources, including springs which are sacred to the Hopi and Havasupai Tribes, will not be adversely affected by the Canyon Mine. The monitoring program also responds to the fear of radioactive contamination of air, water and soil expressed by some members of the public. It will help determine the need to further modify the Plan of Operations to provide additional mitigation measures, including the construction of other groundwater monitoring wells, should any unforeseen impacts occur. Finally, the results of the monitoring program will provide important data needed for the evaluation of future mining proposals in the area, if any should occur.

2. Modified Surface Water Diversion -- The alternative flood diversion plan is clearly superior to that proposed in the Plan of Operations. It provides for increased flood control capacity (a 500-year event) with less surface disturbance at the mine site.
3. Haul Routes -- The Selected Alternative offers EFN the choice of two haul routes. Either haul route option minimizes potential impacts on wildlife, cultural resources and the Grand Canyon National Park. These benefits, however, create substantial increased costs for the proponent, EFN. Haul route #6 is the longest route, resulting in the highest hauling costs. Haul route #7 is the next most expensive option and will also require that EFN acquire State and private rights-of-way at additional costs.

These haul route options were selected despite the increased costs for several reasons. These routes are most responsive to public comments. While the EIS states that the impacts of any haul route option can be successfully mitigated, routes #6 and #7 have the least potential for adverse impacts. Finally, and most importantly, they provide the most flexibility for future transportation decisions and preclude an irrevocable commitment of resources to road construction or improvements which might foreclose future transportation options. As the EIS notes, future uranium mines in this region are possible, however, it is impossible to predict the specific sites or timing of any future mine proposals. This decision which uses existing roads and minimizes new construction, will allow reconsideration of ore transportation routes when future mines, if any, are proposed. This decision also allows future decisionmakers to consider the option of consolidating or dispersing ore truck traffic to minimize transportation costs and environmental impacts.

4. Overhead Powerline -- The EIS evaluated a buried powerline and two surface powerline routes, one following the shortest route from the existing powerline to the mine site and one following the mine site access road. The surface powerline along the access road has been selected because it disturbs no new area. The buried line was rejected because it substantially increases project costs without any significant corresponding environmental benefit.
5. Transportation of Mine Workers -- Company transportation of mine workers is preferable to private transportation because it reduces surface disturbance (no large employee parking lot is required) and traffic to and from the mine.
6. Wildlife Mitigation -- While the potential wildlife impacts of the Selected Alternative are less than those of the other project alternatives considered in the EIS, any loss of key wildlife habitat should be mitigated. Implementation of this decision will require that EFN replace the 32 acres of big game foraging habitat lost at the mine site and replace one key watering source impacted by the mine access and ore transportation route. In addition, operating restrictions may be imposed on the use of haul route #7 to avoid potential impacts on elk migration.

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7. Other Mitigation -- This decision also adopts an extensive list of additional mitigation measures designed to minimize potential environmental impacts. These measures are listed and discussed in the following section.

## VII. Mitigation Measures

The mitigation measures and operational components described in Sections 2.2.1.2 and 2.5 of the EIS are all adopted as part of my decision. Important measures include:

1. **Regulatory Requirements with Associated Monitoring.** Compliance with all applicable federal, state and local statutory and regulatory requirements will be assured by monitoring of EFN activities during construction, operation and reclamation of the mine and through appropriate language in permitting documents.
2. **Reclamation Plan.** The reclamation plan in the Plan of Operations (Appendix A) and those Forest Service modifications contained in Appendix B of the EIS are adopted as part of this decision. EFN will be required to post a performance and reclamation bond in the amount of \$100,000 before mining activities begin.
3. **Visual Impacts.** The mine head frame and support facilities will be painted with earth tone colors.
4. **Public Safety.** The mine site will be fenced, posted and secured.
5. **Ore Haulage.** Ore trucks will be tightly covered with a tarpaulin. Any ore spilled will be cleaned up immediately and the spill reported to appropriate federal, state and tribal authorities.
6. **Air Quality.** Ore stockpiles will be managed to minimize wind dispersal of dust. This may require management of the stockpiled ore by wetting or chemical treatment.
7. **Ore Stockpiles.** Prior to stockpiling ore, ore pads a minimum of one foot thick will be constructed to prevent leaching of mineral values from the ore into the soil. Uranium ore will be removed and trucked to a distant processing plant. During post-mining reclamation operations, only barren or slightly mineralized waste rock may be replaced into the mined-out workings.
8. **Holding Ponds.** Holding ponds will be constructed with a minimum capacity of six acre feet, with no more than three acre feet of storage used at any time. Total holding pond storage capacity is sufficient to accommodate runoff from a 100 year storm event, plus normal annual runoff and water that may be pumped from the mine. The ponds must be lined with plastic or impervious material to prevent percolation into the substrate.
9. **Noise.** The mine will be designed and operated in a manner to reduce noise to the lowest practical levels. All equipment will be carefully maintained.

10. **Erosion Control.** Erosion will be controlled by revegetating disturbed areas. Stabilization of stockpiled topsoil will be accomplished by revegetation. The outside slopes of the diversion dikes that surround the mine yard will be riprapped.
11. **Fire Protection.** The riprapped dike slopes surrounding the mine yard will serve as a fire break and a water tank and fire extinguishers will be maintained on site for fire suppression.
12. **Radiological Monitoring.** Baseline measurements of radiation values in soil, air and water have been taken. Monitoring will continue after the mine becomes operational. The monitoring program may be extended, expanded, suspended or curtailed by the Forest Service based on the results obtained. Monitoring will continue until sufficient data is available to assure that there are no significant off-site radiological impacts. A final radiological survey will be conducted at the time the mine is closed to assess the impact of the mine, and the need for additional reclamation measures and monitoring, of the project area. Radiological surveys and appropriate cleanup measures will be required for all unplanned events, including ore haulage accidents and failure of the surface water control structures. All monitoring will be by independent contractors and all costs will be borne by the applicant, EFN.
13. **Groundwater Monitoring.** A water well to the Redwall-Muav aquifer will be constructed and tested prior to the intersection of ore by mining operations. If groundwater is present, it will be sampled at regular intervals and analyzed. If groundwater becomes contaminated during mining operations, continuous pumping will be maintained until concentrations of the critical constituents are reduced to recommended primary drinking water standards or to within ten percent of ambient concentrations, or to some comparable level approved by the Forest Service. If new information surfaces which suggests the need for an expanded groundwater monitoring program, the Forest Service reserves the right to impose additional monitoring and mitigation measures it deems necessary, including the construction of other groundwater monitoring wells.

If groundwater is not yielded from the Redwall-Muav aquifer at the mine site, the test borehole will be plugged and abandoned in accordance with requirements of the Arizona Department of Water Resources.
14. **Floodwater Control.** This decision adopts the modified surface water diversion system described in detail in the EIS in Section 2.5.12 and Appendix D. The modified design increases the flood carrying capacity of the channels to handle a 500 year event and precludes the possibility of runoff from local intense storms from either entering or leaving the operating site, thereby eliminating the potential of downstream radionuclide contamination from ore stock piles.
15. **Traffic Control.** Signing, and other measures if deemed necessary, will be used to control traffic at the intersection of Highway 64 and Forest Road 305.

16. **Wildlife Mitigation.** The acreage temporarily lost to development of the mine site will be mitigated by the creation of a foraging area in a different location. Important wildlife waters disturbed by mine development or ore transportation will be replaced. The location and design of these replacement habitats will be coordinated with the Arizona Game and Fish Department.
17. **Raptor Protection.** The overhead powerline will have a 60 inch minimum separation.
18. **Worker Transportation.** EFN will provide transportation for mine workers by van or bus and will discourage use of private vehicles.

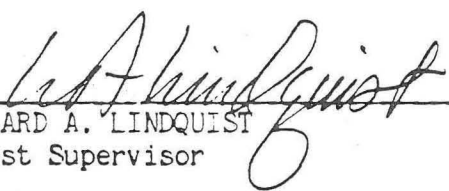
### VIII. Right to Administrative Review

This decision is subject to administrative review in accordance with the provisions of 36 CFR 211.18. The operator also has appeal rights under 36 CFR 228.14. Notice of appeal must be made in writing and submitted to:

Leonard A. Lindquist, Forest Supervisor  
Kaibab National Forest  
800 South 6th Street  
Williams, Arizona 86046

Appeal notices must be submitted within 45 days from the date of this decision. A statement of reasons to support the appeal and any request for oral presentation must be filed within the 45 days allowed for filing a notice of appeal.

Implementation of this decision will not take place sooner than 30 days after publication by the Environmental Protection Agency of the Notice of Availability for the Final EIS.

  
LEONARD A. LINDQUIST  
Forest Supervisor

September 26, 1986  
Date