



APPENDIX A

Finding of No Significant Impact –
Navajo Mine (No. NM-0003F)

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING AND RECLAMATION
FINDINGS OF NO SIGNIFICANT IMPACT
FOR
Navajo Mine - Significant Revision Application
Permit No. NM-0003F
Navajo Tribal Lease 14-20-603-2505
OSM Project No. NM-0003-F-R-01

1. Introduction

BHP Navajo Coal Company (BNCC) submitted to the Office of Surface Mining (OSM) under the Indian Lands Program (30 CFR Chapter VII, Subchapter E) a significant permit revision application. The revision application outlines BNCC's proposed plans for mining in the area south of Dixon Pit known as Area IV North at the Navajo Mine. The revised mine plan with miscellaneous support activities covers a total of 3800 acres. OSM is recommending approval of the revision application with the following special conditions:

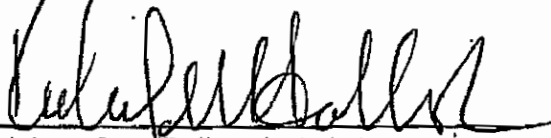
- Prior to any disturbance in Area IV North BNCC must complete a thorough ethnographic study and develop, approve and implement mitigation/data recovery plans.
- Prior to any disturbance of Burnham Road (N5082) BNCC must follow the regulations at 30 CFR 761.14(b) that describe the required procedures for relocating a public road.

2. Statement of the Environmental Significance of the Proposed Action

The undersigned person has determined that the above-named project would not have an impact on the quality of the human environment under section 102(2)(C) of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4332(2)(C), and therefore, an Environmental Impact Statement is not required.

3. Reasons

This finding of no significant impact is based on the attached Environmental Assessment (EA) prepared by OSM which identifies and discusses the environmental impacts of the proposed action and which provides sufficient evidence and analysis for this finding of no significant impact. OSM takes full responsibility for accuracy, scope and content of the attached EA.



Richard M. Holbrook, Chief
Southwest Branch, Program Support Division
Western Region

Date

10/7/05

ENVIRONMENTAL ASSESSMENT

**Navajo Mine
Significant Revision Application
Permit No. NM-0003E
Navajo Tribal Lease 14-20-603-2505
OSM Project No. NM-0003-E-R-01**

SOUTH DIXON MINE EXTENSION

October 2001

CHAPTER I INTRODUCTION

1. Purpose and Need for a Federal Action

The Office of Surface Mining (OSM) received a significant permit revision application from BHP Navajo Coal Company (BNCC) in May 2001. The revision application outlines BNCC's proposed additional disturbance of 708 acres to the south of the existing Dixon Pit at the Navajo Mine. OSM is the regulatory authority on Indian lands in New Mexico and, pursuant to the Indian Lands program (30 CFR Chapter VII, Subchapter E), must make a decision whether to approve or disapprove the revision application.

2. Background / General Information

The Navajo Nation granted a 24,000 acre coal lease (Navajo Tribal Coal Lease 14-20-603-2505) in July 1957 to Utah Construction and Mining Company (now BHP Navajo Coal Company). Through a series of subsequent lease revisions and amendments the lease area has since been increased to 33,601 acres. The surface and mineral rights of the lease and permit area are owned by the Navajo Nation. The lease is located just south of the San Juan River at Fruitland, New Mexico and extends in a southerly direction for 25 miles. The northern portion of the lease is narrow (1 mile) but the southern portion widens to approximately 4 miles. The lease is subdivided into 5 administrative areas known as Areas I, II, III, IV and V. There is approximately 1.1 billion tons of strippable, low sulfur coal remaining within the lease area. Mining has nearly been completed in Area I at the north end of the lease area. No mining has occurred in areas IV or V on the south end. Currently, BNCC is actively mining in Areas II and III.

The Navajo Mine is a multi-seam surface coal mine located along an 11-mile long section of the Fruitland Formation of Late Cretaceous age. The economically important stratigraphic interval in the permit area is the lower 250 feet of the Fruitland where 11 different minable seams occur. Most of these coal seams are lenticular and are only minable in localized areas. Mining is currently conducted in three pits (South Barber, North Barber and Dixon). Three other pits (Lowe, Hosteen and Pinto) are idle, but will be mined out in the future. Overburden is removed with two large draglines. Topsoil and suitable topdressing material are salvaged for later use in revegetation. Coal is trucked to stockpiles where it is loaded on the mine's internal electric railroad for transport to the adjacent Four Corners Power Station. As mining progresses, the overburden is backfilled into the previous dragline cut and then graded with bulldozers to blend into the surrounding terrain. The salvaged topsoil and suitable topdressing material is then replaced. The reclaimed area is seeded with a mixture of native grasses and shrubs and irrigated to reestablish vegetative cover capable of supporting the approved postmining land uses of grazing and wildlife habitat.

The Federal permit to mine coal was renewed in September 1999 and the current reserves,

permit and contract allow mining to continue at its current rate through 2004. About 13,400 acres are within the current permit and are covered by the current reclamation bond of almost \$119,000,000. Presently about 7700 acres have been disturbed by mining operations. The Navajo mine operates 24 hours a day in three shifts and has about 330 employees. Approximately 87.5% of the work force is American Indians serving in all company positions. The annual production rate for 2000 was 8.45 million tons. The contract with the Four Corners Power Plant contains provisions for extending production until 2019.

3. Description of Current Proposal

The revision proposes to change the mining sequence and expand mining operations within the approved permit area. The extension area will disturb approximately 708 acres in Areas III and IV and about 32 million tons of coal will be mined. In addition, the North Fork of Cottonwood Wash will be temporarily diverted to the Middle Fork of Cottonwood Wash; the existing Lowe-Dixon Diversion will be temporarily extended to Cottonwood Wash; and a public road, Burnham Road (N5082), will be permanently moved. The road relocation will have three phases. The first phase will straighten approximately 3,250 feet of the road and will last until about 2008. The second phase will extend the road from approximately 7,500 feet to slightly over 14,500 feet and will last until the projected Dixon Pit closure in 2019. The third phase will be a permanent reroute that will straighten and upgrade the road.

The breakdown of disturbed acres is as follows:

 Mining Area – 636 acres

 North Fork Diversion – 15 acres

 Burnham Road Realignment Phase 2 – 57 acres

D. Existing / Related Environmental Studies and Documents

The following environmental studies have been prepared for the Navajo Mine and surrounding general area:

1. Western Gasification Company (WESCO) Coal Gasification Project and Expansion of the Navajo Mine by Utah International, INC., New Mexico. Final Environmental Impact Statement. U.S. Department of the Interior, Bureau of Reclamation. (FES 76-2), 1976.
 FES 76-2 evaluated the development of four coal gasification plants by WESCO, a joint venture, west of Areas IV and V of the Navajo Mine lease and the mining of coal in Areas IV and V by Utah International, Inc. for use in the WESCO project.
2. Proposed Modifications to the Four Corners Powerplant and Navajo Mine, New Mexico. Final Environmental Impact Statement. U.S. Department of the Interior, Bureau of Reclamation. (FES-76-36), 1976.

FES-76-36 evaluated the modification of the Four Corners Powerplant to bring it into compliance with then existing air pollution control laws and regulations. It also evaluated the Navajo Mine proposal to amend its lease (amendment 4) by incorporating 3,224 acres to the west and east of its lease. This acreage was needed to fully utilize the coal resources of the lease and adjacent areas. The mining area included Areas I, II, and III of the lease.

3. San Juan River Regional Coal Environmental Impact Statement. U.S. Department of the Interior. Bureau of Land Management, March 1984.
The San Juan Regional EIS evaluated the effects of leasing additional and mining federal coal resources in northwestern New Mexico. Additional lease acreage at the Navajo Mine was included.
4. Environmental Assessment, Navajo Mine Permit Application, Permit No. NM-0003A, Office of Surface Mining, U. S. Department of the Interior, July 1989.
The Environmental Assessment consolidated the impact assessments of FES 76-2, FES 76-36 and the regional EIS for purposes of describing and evaluating the projected impacts of mining within the 12,092 acre area pursuant to a proposed permanent program permit for Indian Lands at 30 CFR 750.
5. Environmental Assessment, Navajo Mine Permit Application, Permit No. NM-0003B, Office of Surface Mining, U.S. Department of the Interior, January 1991.
The Environmental Assessment described and evaluated projected impacts of the 829 acre amendment to the existing mining operations to encompass 12,921 acres pursuant to a proposed the permanent program permit for Indian Lands at 30 CFR 750.
6. Environmental Assessment, Navajo Mine Permit Application, Permit No. NM-0003C, Office of Surface Mining, U.S. Department of the Interior, May 1993.
The Environmental Assessment described and evaluated the projected impacts of adding a 508 acre amendment to the existing mining operations to encompass 13,429 acres pursuant to a proposed permanent program permit for Indian Lands at 30 CFR 750.
7. Environmental Assessment, Navajo Mine Permit Application, Permit No. NM-0003E, Office of Surface Mining, U.S. Department of the Interior, July 2000.
The Environmental Assessment described and evaluated the projected impacts of coal combustion byproduct (CCB) haulage operations from Four Corners Power Plant Units 4 and 5 and disposal in final pits and ramps on permanent program lands and proposed modification of the final surface configuration (FSC) of Areas I and II.

CHAPTER II
DESCRIPTION OF THE ALTERNATIVES

1. Primary Alternatives Under Analysis

1. Approval

Under this alternative, OSM would approve the revision. BNCC would be allowed to change the mining sequence within the approved permit area, divert the North Fork of Cottonwood Wash, extend the Lowe Dixon diversion, and move the Burnham Road; disturbing an additional 708 acres in Areas III and IV.

This is the preferred alternative.

2. Disapproval

Under this alternative, OSM would disapprove the revision application as submitted by BNCC if the application as submitted would not meet the requirements of SMCRA or other laws. Under this alternative, BNCC would not be authorized to change the mining sequence or implement the other proposed changes. Mining and related activities would continue according to the currently approved permit application.

2. Other Alternatives Considered, But Eliminated From Detailed Analysis

1. The no action alternative was evaluated and determined not to be reasonable because BNCC has filed a complete application for a permit revision. Therefore, a decision by OSM on whether to conditionally approve, approve or disapprove is required by law (30 CFR §750.6 and sections 710 and 510 of the Surface Mining Control and Reclamation Act of 1977 SMCRA). The impacts on the human environment of implementing the no action alternative would be the same as those for disapproving the proposal. Thus, for the purposes of this EA, these alternatives are considered equivalent and the no action alternative will not be analyzed further.
2. This proposed significant permit revision does not involve unresolved conflicts concerning alternative uses of available resources. Therefore, consideration of alternatives pursuant to Section 102(2)(E) of NEPA, 42 U.S.C. 4332(2)(E), is not required.

CHAPTER III THE AFFECTED ENVIRONMENT

1. General Setting

The Navajo Mine permit covers about 13,400 acres and is located in northeastern New Mexico, approximately 35 miles south of Farmington on lands of the Navajo Reservation. It is in the arid and semi-arid climatic region of the Colorado Plateau physiographic province of the Western United States. Elevation ranges from 5,000 to 5,600 feet above sea level. The average annual precipitation is about 6 to 8 inches with an average net evaporation rate of 55 inches. Native vegetation is typical of the Colorado Plateau salt-desert shrub ecosystem. This ecosystem contains a large number of salt tolerant species and a large shrub component. Very low intensity livestock grazing, with a few scattered dwellings and a few primitive roads in the area characterize land use.

2. Critical Elements

1. Cultural, palentological, or historic resource values

Archeological surveys have been conducted for the Navajo mine as part of the approved permit application and include the proposed extension area. Eligible sites have been identified and mitigative measures already have been taken.

2. Water quality/supply values

a. **Surface Water**

The Navajo mine area is within the San Juan River Basin. The Basin covers approximately 12,900 square miles, of which the mine covers about 0.2 percent of the watershed area. Cottonwood Wash and its North, Middle and South Fork tributaries are the major surface-water features near the proposed extension area. Overall, surface-water quality is poor with high levels of total sediment (TS) and total dissolved solids (TDS). The water does not meet minimum standards for either domestic (500 mg/l) or livestock (5000 mg/l) use.

Cottonwood Wash is a major sand bed ephemeral drainage that passes through the southern portion of the mine. The wash has a drainage area of about 80 square miles of which 6% lies within the permit area. This area includes about 12 square miles of the Chinde Wash drainage (located to the north) that is diverted by the Navajo Indian Irrigation Project (NIIP) Ojo Canal into Cottonwood. The TS and TDS concentrations average about 98,000 mg/l and 650 mg/l, respectively.

b. **Ground Water**

Water-bearing units found in the mine area are the Pictured Cliffs Sandstone, coal seams of the overlying Fruitland-Kirtland Formation and alluvial deposits of the Chinde and Cottonwood Washes. Because of low yield and poor quality, the ground

water is also not suitable for either domestic or livestock use.

Pictured Cliffs Sandstone is well cemented and laterally continuous with low permeability and low yield. Water quality is poor with total dissolved solids (TDS) ranging from 5200 mg/l to 16,690 mg/l and high levels of chloride, sodium and sulfate.

Fruitland Coal Seams in the mine area that are water bearing include the No. 8, No. 7, No. 4-6 and No. 2-3. The coal seams are laterally discontinuous with low permeability and low yield. Water quality is poor for all coal seams with total dissolved solids ranging from 4,475 mg/l to 50,000 mg/l and high levels of manganese, nitrates and boron.

Alluvial deposits of the Chinde and Cottonwood Arroyos average about 10-15 feet in thickness. The material consists of localized unconsolidated sand and gravel. Permeability is higher than in the bedrock units but quantity is seasonal. Water quality is poor with total dissolved solids ranging from 7,700 mg/l to 13,700 mg/l and high levels of sodium, sulfate and chloride.

c. Wetland values

No wetlands exist in or near the proposed mine extension area. Manmade wetlands exist along the Chinde Wash waterway and temporary diversion. These wetlands are the result of Navajo Indian Irrigation Project (NIIP) outflow into the Chinde Wash upstream of the Navajo mine area.

3. Floodplain/unstable geology concerns

No floodplains or areas of unstable geology and natural hazards are found in or around the mine area.

4. Threatened or endangered plant/animal species

In April of 2001, BNCC conducted a threatened/endangered/sensitive species survey for the proposed extension area. No endangered or threatened plant species were found. Two sensitive plant species that have the potential to occur in or near the proposed extension area are the Mancos milkvetch and the Mesa Verde cactus. Federally listed animal species that are considered threatened or endangered that have been identified as potentially occurring in or near the proposed extension area are the black-footed ferret, the golden eagle, the ferruginous hawk, the Mountain Plover, the Pronghorn, the Southwest willow flycatcher and the American peregrine falcon. At the request of the Navajo Nation Fish and Wildlife Department, BNCC has agreed to take specific mitigative measures to protect possible nesting locations for the ferruginous hawk and the mountain plover.

5. Migratory birds of high Federal interest

Annual raptor surveys are conducted at Navajo mine as part of the approved permit application and include the proposed extension area. Migratory birds of high Federal interest that have been observed on or near the Navajo mine are the ferruginous hawk, the golden eagle, the mountain plover, the white-face ibis, the great blue heron and the marsh wren.

6. Renewable resource/unique agricultural values

No prime farmlands are present in or around the mine area. The NIIP is located east of the Navajo Mine permit area, but none of the NIIP irrigation fields are adjacent to the proposed extension area.

7. Recreational resources values

No recreational resources are present in the proposed extension area.

8. Social and economic values

The general population in this area is typical of a rural Navajo community, living in widely scattered individual dwellings. Cattle and sheep grazing is the predominant activity of the residents in the vicinity of the active mining operations. There are no individuals living in or directly adjacent to the proposed extension area.

9. Federal, State, tribal, and/or local land use plans, programs, and policies

The entire Navajo Mine is on land within the boundaries of the Navajo Nation. The Navajo Nation is a sovereign government. The designated post mining land use is grazing and wildlife habitat. Because the North Fork of Cottonwood will be temporarily diverted, the U.S. Army Corps of Engineers has required that BNCC obtain a Section 404 Nationwide Permit from the Corps and a Clean Water Section 401 Certification from the U.S.Environmental Protection Agency.

CHAPTER IV ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

Under either alternative, approval or disapproval of the proposed revision, mining and related activities will continue according to the approved permit application plan. Therefore, the environmental consequences to the following critical elements will be the same:

- Ground water - No impact
- Cultural, paleontological, or historic resource values – Eligible sites mitigated/ No impact
- Wetland values - Not present/No Impact
- Floodplain/unstable geology concerns - Not present/No Impact
- Threatened or endangered plant/animal species – No impact
- Migratory birds of high Federal interest - No impact
- Renewable resource/unique agricultural values – Not present/No impact
- Recreational resources values – Not present/No impact
- Federal, State, tribal, and/or local land use plans, programs, and policies - No impact

Impacts to surface water could be different for the two alternatives.

Approval – The overall impact to surface water from the proposed mine revision would be negligible. The North Fork of Cottonwood Wash will be temporarily diverted to the Middle Fork of Cottonwood Wash. The total length of the diversion will be approximately 6,300 feet. The existing Lowe-Dixon Diversion channel will be temporarily extended to the south about 5,100 feet to Cottonwood Wash. The diversion channels are predicted to be stable but a slight increase in erosion is expected to occur for storm events greater than the 10 year-6-hour peak flow. When the diversions are no longer needed they will be re-graded and reclaimed according to the approved reclamation plan.

Disapproval – The North Fork of Cottonwood Wash would not be diverted and the Lowe-Dixon Diversion would not be extended. Mining would continue according to the approved permit application.

Impacts to the social environment could be different for the two alternatives.

Approval - The overall impact to social and economic values from the proposed mine extension would be negligible. The Burnham road, N5082, is a public road and is maintained by the U.S. Bureau of Indian Affairs. It is a major access for local people to the Burnham Chapter house. Access to the Burnham Chapter house will be maintained throughout the proposed mining extension operations. The road will be relocated three times. The Phase 2 relocation will disturb 57 additional acres. The relocated portions of

the road will be improved and built to New Mexico county road standards for all three relocations

Disapproval – The Burnham Road would not be moved and improved and the 57 additional acres would not be disturbed.

**CHAPTER V
CONSULTATION AND COORDINATION**

1. Persons, Organizations or Agencies Contacted

BHP Navajo Coal Company, Fruitland New Mexico
The Navajo Nation, Window Rock, Arizona
Bureau of Indian Affairs, Farmington, New Mexico
U.S. Fish and Wildlife Service, Albuquerque, New Mexico

2. Prepared by

Brenda A. Steele, Hydrologist
Western Regional Coordinating Center

E. Reviewers

Floyd McMullen, Jr., Senior Project Manager
Western Regional Coordinating Center

Navajo Mine Team Members

**CHAPTER VI
REFERENCES**

Permit Application Package for the Navajo Mine prepared by BHP Navajo Coal Company, OSM
Permit No. NM-0003E. 21 volumes.