

## **CHAPTER 2**

### **LAND USE**

#### **2.1 PRE-MINING AND EXISTING LAND USE**

Land Use in the Navajo Mine vicinity prior to coal mining operations is characterized as very low intensity livestock grazing, with few scattered dwellings and few primitive roads crossing the area. Existing land use in the Permit area and adjacent areas exhibits much of the pre-mining use character, where traditional Navajo society is based on rangeland resources and livestock, principally sheep, goats, cattle, and horses. Rangeland plants, primarily through livestock grazing, provide the principal means by which the scant and scattered rainfall of the area is useful to the Navajo people. The reader is referred to CHAPTER 8, SOIL RESOURCES, and CHAPTER 9, VEGETATION for details of land productivity. Presently, the Navajo Mine and associated facilities constitute a substantial portion of land use in the Permit Area. Adjacent to the north Permit Area on the west is Arizona Public Service Companies Four Corners Power Plant. East of the Permit Area is the Navajo Indian Irrigation Project (NIIP). Minor land uses in the Permit Area presently are two public roads (Table Mesa Road between Area III complex and Mason reclaim area, and Burnham road see Exhibit 11-82 and 11-83) and several natural gas pipelines and power transmission line easements. An existing dwelling, which is within 100 feet of mining, is the residence of Emma Yazzie in the Pinto area (See Exhibit 11-8).

Reservation land belongs to the Navajo Nation. Individuals and families are granted permits to use this land for grazing. Claims to land use are based on traditional (customary) use rights and grazing permits. Grazing permits issued by the Bureau of Indian Affairs (BIA) Agency Superintendent based on recommendations of the Tribe's District Grazing Committee entitle the permittee to a range area of sufficient size to graze a specified number of animals. Original grazing permits, established by the BIA, were limited to 10 head of horses or 350 sheep units (minimum 10 to 350 maximum) annually. However, severe over-grazing has reduced the carrying capacity of the grazing permit areas (Navajo Grazing Handbook, Published by Navajo Tribal Counsel Jan 1958).

The capability and productivity of range sites are identified in CHAPTERS 8, 9, and 12. EXHIBIT 1-4, "Customary Use Area", as presented in CHAPTER 1, ADJUDICATION, depicts the respective grazing permittees within the permit area. BHP has compensated previous customary users for loss of grazing areas in the North Area and Areas II, III, and IV.

It should be noted that grazing unit boundaries are generally unfenced and rely primarily on topographic features, roads, arroyos, and streams. Grazing seasons are year-long on all range units.

Wildlife habitat is also considered a use of land in the permit area (CHAPTER 10, FISH AND WILDLIFE). Also, the permit area includes portions of numerous watersheds (CHAPTER 7, SURFACE WATER).

Sources of livestock water are located in appropriate watersheds by constructing earthen ponds after consultation with the BIA Branch of Land Operations, Tribal District Grazing Committee, and Customary users. These earthen ponds are located off the permit area. There are two BIA stock ponds located within the permit area (CHAPTER 7, EXHIBIT 7-2), one at Area III and the other in Area IV.

## **2.2 POSTMINING LAND USE**

The postmining land use for the Navajo Mine coal leasehold has been designated as rangeland for the grazing of domestic livestock and wildlife habitat. This designated land use was developed in agreement with the Navajo Nation and BIA (APPENDIX 2-A) and is the same as the premining land use. Objective No. 2 of Navajo Mine's Land Reclamation Program (CHAPTER 12) states:

“Adequate forage at least equal in extent of cover to the natural vegetation of the area”

Navajo Mine has grazed livestock (cattle) for brief periods on the mine as early as 1991. Since 1995 cattle have grazed areas on a year round basis. The Grazing Management Program (GMP) has been based upon a Holistic Resource Management (HRM) Model. Using this HRM model all persons with a interest in the land were invited to collaboratively develop the GMP goals and plans

The initial start of grazing on Navajo Mine (1991) involved using large herds of livestock to impact small plots in pre-law areas. The following phase of the program involved large-scale planned grazing of livestock on several hundred acres of reclaimed land in Watson and Bitsui. Knowledge gained from these phases was used to develop a biological plan which eventually lead to grazing nearly all pre-law and many interim areas from Mason to the north end of the Mine.

The GMP program is successful in demonstrating that reclaim areas can support the postmine land use (livestock grazing) at Navajo Mine. Grazing has occurred during severe drought and favorable precipitation periods. Through all these environmental conditions the health of the reclaim areas were at best maintained and in many instances improved.

One goal of the GMP program is to assist in training local livestock operators in all grazing management decisions. To this point in the program all day to day maintenance and decision making has been accomplished by GMP technicians employed by BHP. The next phase of the program is to allow local livestock owners to perform the day to day livestock maintenance and herd movement. This will enable greater participation with the Grazing Management Program in creating the land use plans that will guide management of the reclaimed lands following final bond release. In this way, continuity in management will be assured during the transition of reclaimed lands from BHP to their postmining managers. BHP will continue to provide expertise in developing grazing plans. It is noted that responsibility for grazing reclaim land rests solely with BHP until final bond release. Therefore, it is made clear to all participants in the program, that a condition for their participation is their stated recognition that the authority for the program rests with BHP.

BHP will replace several preexisting livestock watering ponds that have been or are scheduled to be disturbed in the mining process. For details regarding these livestock watering ponds refer to section 12.3.4 and Exhibit 10-3. BHP will interact with the BIA and Navajo Nation to determine if fences and or roads used in the mining process may remain after reclamation. Roads and fences which the BIA and Navajo Nation agree to maintain in order to support livestock grazing postmining will remain following land release.

Section 10.6 Wildlife Mitigation Plan contains a discussion on how wildlife habitat will be achieved along with supporting activities.

### 2.2.1 Grazing Rights

Grazing rights on the Navajo Reservation are administered by the BIA and Navajo Nation Grazing Committees. Individuals or families of Navajo descent are issued grazing permits that allow them to graze a fixed number of livestock in a specific area, often called a "customary use area". This system of grazing permits is in effect for the Navajo Mine leasehold and customary use areas are shown on EXHIBIT 1-4, in CHAPTER 1. With the development of the North Area and Area II, mining leasehold land within a grazing permit area was withdrawn from that permit area and the holder of the permit was compensated for the loss of grazing rights. This land will be returned to the Navajo Nation following reclamation and compliance with all applicable laws and regulations. The extent of the compensation areas is shown on EXHIBIT 1-4. This practice was changed with development of the extreme southern portion of Area II and Area III. In these areas, the grazing permit holder has retained grazing rights and they will be returned directly to the permit holder following reclamation and final bond release.

The predominant use on those areas not disturbed of the Navajo Mine leasehold was and is currently for the grazing of livestock. In discussions with representatives of the Navajo Nation, the trend is toward the use of cattle. Sheep will still be the primary class of livestock grazed on the reclaimed areas. However, the end use is optional to the user.

### 2.2.2 Livestock Nutrient Requirements

Revegetation success standards presented in CHAPTER 12 for vegetation cover, production, species diversity and woody plant density ensure that a productive and nutritious balance of forage will be available to domestic livestock, as well as meeting wildlife species needs for food and cover habitat. The plant species used in the revegetation program were selected on the basis of:

1. Adaptability to local environmental conditions,
2. Palatability and nutritional value to livestock and wildlife, and
3. Ability to provide cover for wildlife.

To meet basic physiological functions, range livestock and wildlife species require a proper balance of forage nutrition. Positive benefits in terms of animal gains and conditioning are realized when the quality of forage is above that which is necessary to meet minimum nutritional needs. Providing forage above nutritional minimums not only improves economic returns, but also better allows animals to maintain themselves during seasonal periods when forage quality and quantity is low. Protein, energy, phosphorus and carotene (Vitamin A) are the four nutrients most critical to range livestock production. In "Nutritive Value of Seasonal Ranges" (Cook and Harris, 1977), the authors demonstrated that digestible protein was the best indicator of forage quality and was one of the better nutrients associated with animal gains. Forage nutrient quality is directly related to the growth stage of the plant species, the plant's palatability, and seasonal variations in both of these factors. Proper range and livestock management is therefore related to sustaining the quantity and quality of range forage during

different seasons and over the succeeding future years.

TABLE 2-1 shows the nutrient requirements for digestible protein, energy, phosphorus and carotene for both sheep and cattle.

TABLE 2-2 lists the nutrient content of the major range forage species contained in the reclamation seed mix. The mixture of warm and cool season grasses, and palatable shrubs ensures forage of sufficient nutrient quality will be available during both the growing and dormant seasons. A comparison of TABLES 2-1 and 2-2 shows that the forage resources of reclaimed areas will provide forage of suitable quality during all four seasons. While only minimum maintenance needs may be met during the winter months, forage resources of higher quality during the growing seasons will provide animal gains and conditioning benefits to livestock that may be drawn upon during lean periods.

A suitable grazing management plan must be applied to reclaimed areas to ensure the long-term availability and sustained productive capability of the forage resource on these areas. The Navajo Nation has indicated that livestock will be grazed year-round on the areas in and around the Navajo Mine leasehold. In order to maximize use of the range forage resource and to protect against its degradation, the grazing management plan outlined in Section 2.2 has been developed for use on reclaimed areas at the Navajo Mine.

**TEXT CONTINUED ON PAGE 2-11a**

TABLE 2-1

RECOMMENDED NUTRIENT REQUIREMENTS FOR CATTLE AND SHEEP  
 UNDER RANGE CONDITIONS DURING GESTATION AND LACTATION  
 ON A DRY-MATTER BASIS <sup>1</sup>.

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Percentage of ration or amount/pound of feed

Phase of production	DP <sup>2</sup> (%)	ME <sup>3</sup> (kcal/lb)	P (%)	Carotene (mg/lb)
Gestation	4.4	665	0.17	0.6
Lactation				
First 8 weeks	5.4	900	0.22	1.6
Last 12 weeks	4.5	700	0.20	1.6

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<sup>1</sup> Nutrient requirements are slightly higher for sheep because smaller animals have a somewhat higher metabolic requirement per unit of body weight.

<sup>2</sup> DP represents digestible protein.

<sup>3</sup> ME represents metabolizable energy.

Source: Cook and Harris, 1977.



TABLE 2-2

NUTRIENT CONTENT AT VARIOUS STAGES OF GROWTH FOR FORAGE  
SPECIES IN REVEGETATION SEED MIX.

Species	Stage of Growth	DP <sup>1</sup> (%)	ME <sup>2</sup> (kcal/lb)	P (%)	Carotene (mg/lb)
Alkali sacaton ( <u>Sporobolus airoides</u> )	Vegetative	5.3	950	.24	45.00
	flower	7.2	890	.22	-
	mature	3.4	880	.14	25.00
	standing cured	1.4	750	.08	0.67
Fourwing Saltbush ( <u>Atriplex canescens</u> )	Vegetative	9.4	1180	.21	65.00
	mature	6.5	1060	.19	25.00
	standing cured	5.8	847	.10	18.01
Galleta ( <u>Hilaria jamesii</u> )	Vegetative	5.6	845	.20	-
	boot	5.4	845	.06	-
	mature	4.4	621	.12	25.00
	standing cured	1.9	429	.08	0.92
Giant dropseed <sup>3</sup> ( <u>Sporobolus giganteus</u> )	Vegetative	5.4	1090	.24	46.00
	boot	4.2	973	.22	-
	mature	3.9	933	.10	0.52
	standing cured	1.6	913	.05	0.61

TABLE 2-2 (cont'd)

Species	Stage of Growth	DP (%)	ME (kcal/lb)	P (%)	Carotene (mg/lb)
Indian ricegrass ( <u>Oryzopsis hymenoides</u> )	Vegetative	9.0	1276	.26	35.00
	flower	5.6	992	.25	0.40
	mature	4.2	851	.15	-
	standing cured	1.4	760	.09	0.09
Sand dropseed ( <u>Sporobolus cryptandrus</u> )	Vegetative	5.4	1090	.24	46.00
	boot	4.2	973	.22	-
	mature	3.9	933	.10	0.52
	standing cured	1.6	913	.05	0.61
Shadscale ( <u>Atriplex confertifolia</u> )	Vegetative	9.1	918	.17	25.00
	mature	8.1	920	.14	22.00
	standing cured	4.4	916	.06	-
Western Wheatgrass ( <u>Agropyron smithii</u> )	4th leaf	5.0	1068	.20	-
	boot	11.9	1080	.26	60.00
	mature	3.9	1000	.16	-
	standing cured	4.4	995	.10	0.10

TABLE 2-2 (cont'd)

Species	Stage of Growth	DP (%)	ME (kcal/lb)	P (%)	Carotene (mg/lb)
Winterfat ( <i>Ceratoides lanata</i> )	Vegetative	9.0	960	.27	35.00
	boot	8.2	842	.18	25.00
	mature	6.1	749	.19	20.00
	standing cured	6.0	488	.14	5.00
Scarlet globemallow ( <i>Sphaeralcea coccinea</i> )	Vegetative	12.2	1344	.18	-
	full leaf	9.4	1270	.18	-
	mature	8.1	1264	.15	-
	standing cured	6.6	928	.15	-

<sup>1</sup> DP represents digestible protein

<sup>2</sup> ME represents metabolizable energy

<sup>3</sup> Sand dropseed values were also used for Giant dropseed, because of the species similarity and the unavailability of specific values for Giant dropseed.

Source: Cook and Harris, 1977.

### 2.2.3 Alternative Land Uses

The applicant has received strong indication from the BIA and Navajo Nation that the postmine land use will be grazing of domestic livestock and establishment of wildlife habitat. However, to satisfy conditions of CFR 30: 780.23 (b) the following is a brief discussion of the potential alternative uses for reclaim lands at Navajo Mine.

Correspondence with the BIA indicate that attempts have been made to produce crops using dryland agriculture prior to mining on or near Navajo Mine lease which resulted in limited success. Physical and chemical characteristics of the soil combine with variable precipitation are factors that would preclude reclaim areas from being prime farmland.

The following are potential land uses, which may be possible for reclaim areas at Navajo Mine.

#### Industrial:

Landfill- A pit could remain open after mining which could be filled with waste material.

Commercial Vehicle Training Facility- Haulroads could be used to train individuals to operate large commercial vehicles.

#### Recreational:

Hiking/Bird watching- Morgan Lake attracts a variety of bird species; reclaim areas next to the lake could provide hiking and bird watching opportunities.

#### Residential:

A small subdivision (NAPI Region II housing) is located close to current mine lease. With appropriate engineering practices reclaimed land may be used for residential purposes.

### 2.2.4 Waivers

Navajo Mine exemption waiver applies to the following public roads; Burnham and Table Mesa access road between Area III complex and Mason Reclaim area (See Exhibit 11-82 and 11-83). The dwelling exemption under this waiver includes the Emma Yazzie residence in Pinto area. (See Exhibit 11-8). This waiver is to conduct coal mining and reclamation operations within 300 feet of an occupied dwelling or 100 feet of a public road as stated in the letter to OSMRE from BHP-UUI (APPENDIX 2-C).

## 2.3

## SOCIOECONOMIC IMPACT ASSESSMENT

The Navajo Mine began operation in 1963 and achieved its current production level by 1971. The mine has been an integral part of the economy and society of San Juan County, New Mexico and the Navajo Nation for more than thirty years.

### 2.3.1 The Navajo Mine Workforce

As of December 2003, there were 329 (247 hourly, 76 salary, and 6 NMOS salary) employees, of whom 87 percent were American Indians. Employment is expected to fluctuate no more than 10 percent from this level throughout the life of the mine. However, it is not possible to accurately estimate when fluctuations in the size of the workforce might occur.

The Navajo Mine workforce is broken down into the following classes:

Management	37
Professional	30
Technical	8
Clerical	7
Skilled	120
Semi-skilled	105
Unskilled	15
Warehouse	7
	<hr/>
	329

Employees of the Navajo Mine live primarily in San Juan County, New Mexico and commute to work in private vehicles.

The outline below shows where Navajo Mine employees reside in the vicinity.

<i>State</i>	<i>City</i>	<i>Total Percent</i>
AZ	Kayenta	0.3%
	Red Valley	0.3%
	Rock Point	0.3%
	Teec Nos Pos	0.3%
AZ Total		<hr/> 1.2%
NM	Aztec	0.9%
	Bloomfield	4.3%
	Crownpoint	0.3%
	Farmington	26.4%
	Flora Vista	1.8%
	Fruitland	21.0%
	Kirtland	24.0%
	La Plata	0.3%
	Newcomb	0.6%
	Prewitt	0.3%
	Sanostee	0.6%
	Sheepspring	0.3%
	Shiprock	11.6%
	Tohatchi	0.6%
	Vanderwagon	0.3%
Waterflow	5.2%	
Yah-Ta-Hey	0.3%	
NM Total		<hr/> 98.8%

Wages and salaries paid to mine employees will average about \$18,000,000 per year (1985 dollars) for the life of the mine.

### 2.3.2 Navajo Mine Estimates on Revenues & Services

Per Capita income of San Juan County residents in 2000 was \$18,128 for a population of 113,801 (US Census Bureau). Average annual salary per job in San Juan County during the same time was \$27,473. In 2000 the total employed labor force in San Juan County was 45,380 with an unemployment rate of 7.1%. The total payroll based upon Navajo Mine employment for 2003 at 329 employees generated approximately \$24,244,130, or approximately 1.1 percent of the total (2000) revenues contributed.

Since Navajo Mine was started in 1963, services provided by local towns have not fluctuated much. As noted in the 1985 La Plata Mine Environmental Impact Statement (EIS), housing will keep up with demand, all four school districts are at or near capacity, health care is adequate, although rural areas are "underserved", particularly in ambulance and emergency treatment, outdoor recreational is abundant, road improvements are lacking, and water supplies are adequate.

### 2.3.3 Employment of Native Americans

Article 11. of the mining lease between BHP (formerly Utah Mining and Construction Company, and Utah International Inc. (UII)) and the Navajo Nation, dated July 26, 1957, states:

"Lessee agrees to employ Navajo Indians when available in all positions for which they are qualified in the judgement of the lessee, and to pay prevailing wages to such Navajo employees, and to utilize services of Navajo contractors whenever feasible in the judgement of the lessee. Lessee agrees to make special efforts to work Indians, giving priority to qualified members of the Navajo Tribe, into skilled, technical and other higher jobs in connection with lessee's operations under this lease".

### 2.3.4 Evaluation of Scenic Resources

Navajo Mine extends in an irregular fashion for 25 miles due south of Fruitland, New Mexico varying in width from one to four miles. The area is made up of plateaus and arroyos intersecting the plateaus. The area has been classified as Class IV under BLM Visual Resource Inventory Handbook 8410-1. The BLM manual describes the class as:

"Class IV: Contrasts may attract attention and be a dominant feature of the landscape in terms of scale; however, the change should repeat the basic element inherent in the characteristic landscape."

The area will have minimal scenic impact due to reclamation of the area in which the land is returned to the approximate original configuration and vegetation.

#### 2.3.5 Evaluation of Noise Levels

Following is an excerpt from the Navajo Mine EIS, 1976. Current noise levels remain consistent with this assessment.

Except for the loading and hauling operations, there generally will be only one activity in progress at a specific location at any given time.

Generally the locations of different activities would be separated sufficiently so that noise levels at one work location would not be influenced by the levels at other work locations.

In the work areas of the existing Navajo Mine, noise levels were found to be ranged from 68-82 dBA measured at distances of 50 to 150 feet from the source.



Noise levels in the vicinity of machinery used in exposing and removing coal from the coal seams vary with the operations and the machine involved. Sound pressure levels range from 62 dBA measured 170 feet from Marion 7900 Dragline to 72 dBA measured 100 feet from the loading operation. Maximum noise levels measured 75 feet from the centerline of a haul road were 82 dBA for loaded trucks going uphill and 80 dBA for empty trucks going downhill. The trucks used for hauling coal from the Navajo Mine to the stockpiles nominally have 120 ton capacity. A typical passage of a coal haul truck would affect the noise level of the environment for approximately one minute. The distance at which truck noise would not be noticeable would vary from 1/3 mile to 1 mile, depending on wind conditions. Blasting will be done during the day and the noise generated would be of a short duration and be of impulse noise classification.

The noise levels at the mine should result in minimal impacts since applicable standards will be met employees in noisy areas are provided with hearing protection.

## 2.4 REFERENCES

- Bureau of Indian Affairs. 1971. District 13 Soil and Range Inventory. Navajo Area, Shiprock Agency, Technical Report. 115p.
- Bureau of Land Management. 1979. Final Environmental Impact Statement: Animas La Plata Project, Colorado, New Mexico. November.
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- Bureau of Reclamation. 1975. Western Gasification Company (WESCO), Coal Gasification Project, and Expansion of Navajo Mine.
- Bureau of Reclamation. 1976. Western Gasification Company (WESCO) Coal Gasification Project and Expansion of Navajo Mine (2 vols.). (Note: Covers only Areas IV and V of Navajo Mine). (INT FES 76-2). January 14.
- Bureau of Reclamation. 1976. Final Environmental Statement. Proposed Modifications to the Four Corners Powerplant and Navajo Mine (2 vols.). (INT FES 76-36). July 6.

Cook, C.W. and L.E. Harris. 1977. Nutritive Value of Seasonal Ranges, Bulletin 472. Utah Agricultural Experiment Station, March. Soil Conservation Service. National Range Handbook, U.S. Department of Agriculture, July 1976.

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Office of Surface Mining. 1985. Final Environmental Impact Statement. Proposed Mining Plan and Transportation Corridor Plan, La Plata Mine, San Juan County, New Mexico. (OSM EIS-17). September.

Reno, Phillip. 1979. Navajo Resources and Economic Development. Department of Economics, The University of New Mexico, Albuquerque, New Mexico.

Savory, A. 1988. Holistic Resource Management. Island Press, Covelo, California.

Soil Conservation Service. 1976. National Range Handbook, U.S. Department of Agriculture. July.

**APPENDIX 2-A**

**LAND USE CORRESPONDENCE**

(9/93)

## INTER-OFFICE CORRESPONDENCE

TO: A. F. GEIGER

DATE: April 5, 1971

FROM: A. KING

COPIES TO:

 B. Grant Files

SUBJECT: NAVAJO AMENDMENT # 4

REFERENCE: Contract No. # 14-20-603-2505  
Mining Lease - Tribal Indian Lands

The Amendment # 4 was passed 68-0 at a regular chapter meeting at the Nenahnezad Chapter on April 4, 1971. Although it took two meetings and a total of about six hours discussion on the amendment, the following were the peoples' main concern;

1. Reclamation in all areas that are mined, so eventually they will be able to reuse the land for grazing. They were assured the company will make all efforts to knock down the spoil piles and make it safe enough so the land will be reuseable.
2. Employment of as many Navajos as we possibly can take. It was mentioned that there are many non-Navajos employed where a Navajo should be working. They were told that we employ Navajos where they are qualified, but we have to have experience and trained personnel on all technical positions.
3. Compensation for their grazing rights and personal property on leased lands. They were advised that the tribe will make appraisal of the grazing land, property, and we are sure they will be fair and make proper compensation.

The meeting was very orderly, but was slow at times. Everything was settled in a friendly atmosphere.

A. King

cc. J. S. Anderson  
C. C. Dietrich



# United States Department of the Interior

## BUREAU OF INDIAN AFFAIRS

Shiprock Agency

P.O. Box 966

Shiprock, New Mexico 87420

IN REPLY REFER TO:  
Economic Development  
Land Operations

March 4, 1983

Navajo Mine  
William Skeet  
Environmental Coordinator  
P.O. Box 155  
Fruitland, New Mexico 87416

Dear Mr. Skeet:

The intent of this correspondence is to clarify the land use status of the area presently under lease by Utah International (Navajo Mine).

The predominant use of the area in question has been in the form of livestock grazing. Although dryland farming has been attempted, these endeavors have been very limited in scope and have met with marginal results.

Furthermore, the physical and chemical characteristics of the soil types in the area, when coupled with the lack of available irrigation water, precludes the existence of prime farmland in the vicinity of the lease.

If I can be of any further assistance, please do not hesitate to contact me.

Respectfully,

Jerry W. Thomas  
Natural Resource Manager



RESOLUTION OF THE  
RESOURCES COMMITTEE  
OF THE NAVAJO TRIBAL COUNCIL

Adopting the Grazing Concept of the  
Holistic Resource Management or Other Adequate Practices  
On Strip Mine Lands and Other Disturbed Rangelands

WHEREAS:

1. In accordance with Navajo Tribal Code, T2 § 692 and their Plan of Operation, the Resources Committee of Navajo Tribal Council is responsible for the Nation's Natural Resources which includes the development of long range plans for efficient utilization of grazing resources.

2. The Resources Committee recognizes the Surface Mining Control and Reclamation Act of 1977 and subsequent regulations governing the reclamation of minelands and other disturbed lands; and

3. The Resource Committee understands the need for more intensive reclamation and grazing management practices on disturbed Navajo rangelands; and

4. The Resources Committee has previously adopted the use of the Holistic Resource Management (HRM) as a means of improving and maintaining the Navajo Nation's rangeland and livestock economy; and

5. The Resources Committee also recognizes the beneficial influence of proper grazing program on reclaimed rangelands, whether disturbed by mining or were subjected to previous grazing mismanagement; and

6. The Resources Committee would like these disturbed lands be returned to their former productive state or better through proper grazing management programs.

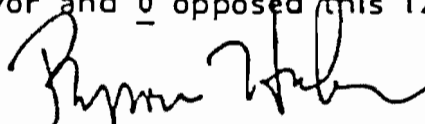
NOW THEREFORE BE IT RESOLVED THAT:

1. The Resources Committee hereby adopts the concept of utilizing HRM and other proper grazing practices as reclamation treatments on disturbed rangelands; and

2. The Resources Committee directs the NCMA staff to develop proper grazing management treatment programs on reclaimed stripmine lands on the Navajo Reservation.

C E R T I F I C A T I O N

I hereby certify that the foregoing resolution was duly considered by the Resources Committee of the Navajo Tribal Council at a duly called meeting in Window Rock, Navajo Nation (Arizona), at which a quorum was present and that same was passed by a vote of 5 in favor and 0 opposed this 12th day of October, 1983.



Byron Huskon, Presiding Chairman  
Resources Committee

APPENDIX 2-B

NAVAJO MINE GRAZING MANAGEMENT PLAN

(10/93)



## Navajo Mine Grazing Management Plan

The Navajo Mine Grazing Management Program is designed to:

1. Ensure the long-term availability and sustained productive capability of the forage resource;
2. Provide for an adequate and stable supply of forage for range livestock throughout the year;
3. Ensure compatibility with the management skills of the operator and the class of domestic livestock to be grazed;
4. Develop long-term plans for management of reclaimed lands before and after bond release;
5. Provide for a smooth transition of reclaimed land to local Navajo grazing permittees following bond release.

The Grazing Management Program is based upon the use of the Holistic Resource Management (HRM) Model (Savory 1988) for making management decisions about land use for the reclaimed lands at Navajo Mine. Under the HRM Model, all persons with an interest in the land are invited to collaboratively develop a temporary three-part goal. The goal is essential: It describes what the land must look like in the future in order to support economic and ecological productivity which, in turn, are required to support the quality of life desired by the people who live on and manage the land. The goal is temporary because of the need to explicitly acknowledge the fact that people and the physical environment will change over time, thereby requiring periodic

review and updating of the goal. The goal always has three parts: Quality of life; forms of production; and, landscape description. Without a complete goal that explicitly includes the quality-of-life values of the people on the land, management decisions cannot be economically, ecologically, and socially sound.

Once the temporary goal is formed, land managers are required to examine their understanding of the ecosystem, and the ecological constraints that regulate the land. With at least a basic understanding of community dynamics (or, "succession"), the water cycle, the mineral cycle, and energy flow, managers can determine what physical resources they have available to achieve their goal. The Navajos who will eventually manage the reclaimed lands have a sophisticated understanding of ecosystem processes, and their knowledge is sufficient to begin the process of planning for grazing on the reclaimed lands.

Once all the interested people have come together to form a temporary goal, and knowledge of the ecosystem is available, managers can then examine the tools available to them to achieve the goal. Monitoring of the condition of the land is built into the requirements for management. Daily monitoring of forage condition and plant recovery is required in order to determine the timing of herd movements between pastures. Other, more detailed monitoring, is conducted at the end of the growing season to provide data for subsequent planning.

At Navajo Mine, the Grazing Management Program (initially known as the "Holistic Resource Management Project") brought together during monthly meetings in 1991, members of the local community (including people with grazing permits on and near Navajo Mine), local Chapter officials, Navajo Nation officials, representatives of BLM and OSM, along with Navajo Mine staff, to form a temporary goal. That phase of the Program was completed in January, 1992; periodically, the temporary goal is reviewed, and future meetings with community members may result in changes to the goal. The Grazing Management Program subsequently learned about animal impact on reclaimed land through trials using large herds of livestock on small plots in the Watson and Bitsui (pre-law) areas. The next phase of the Program will involve large-scale planned grazing of livestock on several hundred acres of reclaimed land in Watson and Bitsui (pre-law areas), using the knowledge gained from the animal impact trials as input to the biological planning under the guidance of the HRM Model.

"Planned grazing," under the HRM Model, is the term used to describe the process of planning and managing livestock grazing. Planned grazing differs from all grazing systems, especially rotational grazing and its variants, in that no pre-determined numbers of pastures or animals or timing of herd movements are used. Instead, before grazing takes place, available forage is measured, logistical constraints (such as water, fence, animal handling facilities, etc.) are spelled out, and these factors, along with wildlife-related concerns, are explicitly incorporated into a grazing plan. Then, grazing periods in each pasture (paddock) are planned by taking into consideration the impact of likely drought or slow growth on plant recovery after each grazing. Once grazing begins, the grazing plan is re-evaluated daily or weekly, and changes are made in the plan (if necessary) based upon animal performance, weather, plant recovery following

grazing, or any other factors that may have changed since the original plan was developed. The manager monitors the animals and the land every day, and changes the plan as necessary to insure that what is happening on the land mean progress toward the goal.

More than anything else, it is the built-in requirement for flexibility and adaptation to complex, changing circumstances that makes the HRM Model appropriate for planning land use at Navajo Mine. In arid or semi-arid environments, most conventional rotational or modified rotational grazing systems eventually fail due to their inflexibility in the face of inevitable drought or other ecological constraints. In contrast, planned grazing under the HRM Model forces the manager to be flexible and alert to the need to change the plan as circumstances change.

As more is learned about the biological and logistical issues involved with grazing on reclaimed lands, the Grazing Management Program will expand planned grazing into the Interim area and Permit area reclaimed lands. Careful monitoring of plant and soil conditions is an integral part of the Grazing Management Program, with a New Mexico State University range scientist in charge of continually monitoring and reporting changes on the land.

Local Navajo livestock operators are part of the Grazing Management Program, and are being trained in management decision-making using the HRM Model. They will participate with the Grazing Management Program in creating the land use plans that will guide management of the reclaimed lands following final bond release. In this way, continuity in management will be assured during the transition of reclaimed lands from BHP to their post-mining managers.

**APPENDIX 2-C**

**LETTER TO OSMRE FROM BHP-UIL, 8/25/87**



**UTAH**  
International

Utah International Inc.  
Navajo Mine  
Post Office Box 155  
Fruitland, New Mexico 87416  
(505) 598-5861

August 25, 1987

Peter A. Rutledge, Chief  
Federal Programs Division  
Office of Surface Mining Reclamation & Enforcement  
Brooks Towers  
1020 15th Street  
Denver, Colorado 80202

- Re: 1. Navajo Mine 1985 Reorganized Permit Application Package (PAP),  
December 1985.
2. OSMRE'S Initial Completeness Review (ICR) of the Navajo Mine PAP dated  
08/29/86 (also known as the "deficiency letter").

Dear Mr. Rutledge:

This letter is in response to the ICR item 1\*d (ref. 2., above), which states:

UII must include all waivers to conduct coal mining and reclamation operations within 300 feet of an occupied dwelling or 100 feet of a public road in Volume 1. These documents are not confidential. (30 CFR 778.16(c) as referenced to 30 CFR 761.12(a) and 761.11(d) and (e)).

Navajo Mine began operations in 1962. Therefore, the Navajo Mine has valid existing rights and surface coal mining operations existed on the date of enactment of SMCRA. We are exempted for that reason.

Valid existing rights are defined to be such mining rights such that if mining is prohibited the prohibition would constitute a taking entitling the owner of the rights to compensation under the United States Constitution. Navajo Mine meets that test. Further, 30 CFR 761.5 provides that a person is deemed to have valid existing rights if the person proposing to conduct surface coal mining operations can demonstrate that the coal is both needed for and immediately adjacent to, an ongoing surface coal mining operation which existed on August 03, 1977. Navajo Mine clearly meets that test. 30 CFR 761.5 provides yet further that where an area comes under the protection of Section 522(e) of the Act, valid existing rights shall be found if "on the date the protection comes into existence, a validly authorized surface coal mining operation exists on that area." Again, Navajo Mine meets that test.

The Navajo Nation granted the present Navajo Mine lease (including the proposed permit area in Areas I-IV North) before the enactment of SMCRA. This lease agreement allows Navajo Mine to conduct surface coal mining operations on said lands (Refer to Chapter 3 of the PAP for excerpts from the lease agreement and amendments).

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August 24, 1987  
Letter to Mr. Rutledge  
John W. Grubb

This letter is to become a part of the Navajo Mine PAP.

Please contact Sterling Grogan or Charlene L.B. Gorman at (505) 598-5861 with any questions.

Sincerely,



John W. Grubb  
Mine Manager

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