

**SECTION 22**

**SUPPORT FACILITIES**

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**LIST OF REVISIONS DURING PERMIT TERM**

<b>REV. NUMBER</b>	<b>REVISION DESCRIPTION</b>	<b>DATE APPROVED</b>
1404	2014 Navajo Mine Permit Renewal	

## **22 SUPPORT FACILITIES**

Mine facilities for the Navajo Mine are comprised of transportation facilities, topdressing stockpiles, water and air monitoring facilities, diversions, and water storage and/or treatment facilities such as ponds, impoundments, berms, or embankments.

Support facilities include various permanent structures (structures in place for greater than 6 months) which are greater than 100 ft<sup>2</sup> and not readily mobile (e.g. not on wheels or skids) or are attached to a permanent foundation. This may include structures within industrial complex areas, equipment storage areas, water pipelines, water loadouts, electric power lines, explosives/blasting agent storage areas, and coal sizing and storage facilities. [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#) show the locations of all mine facilities.

Various structures not meeting the size criteria outlined above, mobile structures, utility connections, and other such facilities of insignificant magnitude will be situated on lands classified as Approved Disturbance/Bond Areas (see Exhibit 26-19 through 26-23). These structures will be operated under the regulatory requirements, but will not require regulatory approval. Plans for all proposed Support Facilities as defined in OSM's December 2, 1992 letter, will be submitted to OSM for prior approval per 30 CFR § 780.38

Upon bond release, the support facilities will become the property of the Navajo Nation, as specified in Navajo Mine's lease agreement. The bond amount is based on the maximum reclamation requirements (Section 50 – Bonding) and includes removal of all facilities. The bond will be adjusted accordingly in the future if the Navajo Nation wants to retain any facilities. Following removal, the affected areas will be regraded, topdressed, and revegetated as discussed in Part 5 – Reclamation Plan.

### **22.1 Existing Support Facilities and Structures**

#### *22.1.1 Coal Handling Facilities*

The coal plant is owned and operated by the Navajo Mine and is located adjacent to the Four Corners Power Plant ([Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#)). It includes a coal delivery terminus, crushers, conveyors, and stacking and reclaiming equipment. The coal delivery terminus is a rail/truck-conveyor interface in which coal is dumped from bottom-dump rail cars or trucks into hoppers. From there the coal is fed into the crusher and conveyor system for stacking in blend piles. From the blend piles, the coal is reclaimed for delivery to the Four Corners Power Plant. The sales grade of the coal is based on contract obligations with the power plant. Delivery to the power plant is on a continuous, 24 hour basis.

Coal waste materials are also stored at various locations from time to time within the plant area. This is to allow for staging waste materials prior to being disposed of in pit. All of the area containing waste materials is within primary sediment control and permitted disturbance.

These facilities are designed, constructed, maintained, and used in a manner which prevents additional contributions of suspended solids to runoff outside the Permit Area. The facility is not a coal cleaning operation, but a stacking and reclaiming facility; therefore, no water or Coal Plant wastes are discharged from the Coal Plant area. Total water usage is confined to dust suppressant sprays and housekeeping. Fugitive dust control measures are outlined in Section 40 – Environmental Protection.

### *22.1.2 Coal Transportation Facilities*

#### 22.1.2.1 Railroad

The Navajo Mine Railroad consists of one main line and five spurs. The five spurs are as follows:

Pinto Siding: Located south of the North Area Industrial Complex

Spur B: Located at Hosteen Stockpile,

Spur C: Located at Barber Stockpile,

Spur D: Commences in Area 2 and continues to Area 3, and services Lowe Stockpile, and North Spur: The tail track for access to the North Shop locomotive repair bay.

In general, the mainline of the railroad is parallel to the mine's permit line geometry in the north-south direction. The end points of the mainline are at the North Plant (Area 1) and Lowe Pit (Area 3). The majority of the alignment consists of a single track, although the railroad stockpiles have double tracks to accommodate coal loading operations. The railroad alignment layout is shown in Exhibit 10-1 through 10-5.

The main railroad line beginning from the north operations of Area 1 was constructed around 1975. As the mine progressed to the south, the railroad extension of Spur D into Area 3 was constructed in 1982.

A railroad service road runs parallel to the railroad tracks for the entire alignment. The service road is properly maintained to ensure that no adverse conditions arise that are harmful to the environment. Two 7-foot diameter reinforced concrete pipes serve as a cattle crossing near railroad culverts CP-1 and CP-6.

There are 10 rail storage yards along the rail right-of-way. See Mine Structures Map, [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#), for locations. These areas are used to store both old and new rail materials for maintenance and replacement of deteriorated sections of track. Materials include but are not limited to ballast, ties, rail, fill dirt, and hardware related to track construction. All storage areas have sediment control as described in Section 25 – Sediment Control Plan and Table 25-1 for miscellaneous applications. On occasion new panel tracks (new complete sections of track) will be placed at various locations, both in and out of storage yards, along the rail right-of-way to facilitate track repairs. This practice will not be a long-term storage of materials but a process to facilitate track maintenance in a short period of time. Length of time will vary however from a few days to possibly a few months due to customer demand and scheduling down time for the rail. In instances where materials are not in an approved

storage yard, sediment control methods from Section 25 – Sediment Control Plan will be used to mitigate any offsite disturbance.

#### 22.1.2.2 Railroad Maintenance

Railroad maintenance will consist of railroad track repairs, rail testing, maintaining drainage control structures, and maintaining access roads. The railroad shall be inspected periodically and repairs will be made to areas found defective or unsafe. The inspection will include the railroad track, drainage controls structures, and roads along the railroad. The overhead catenary system will be inspected on a monthly basis. The steel rail will be routinely tested and maintained according to the test results. All drainage control structures along the railroad will be maintained to ensure that no adverse condition that maybe harmful to the environment will arise. Structures will be inspected after each major storm event, any adverse conditions identified will be corrected. The railroad access road will be maintained as outlined in Section 23 – Roads.

#### 22.1.2.3 Coal Storage

The Navajo Mine has four coal stockpiles. Three are field stockpiles located at railroad spurs, and the fourth stockpile is an emergency coal stockpile located near the north area coal plant. The approximate maximum capacities and date of construction of these stockpiles are listed in [Table 22-1](#).

Barber, Hosteen and Lowe field stockpiles are divided down the center by the railroad spur to facilitate blending. This division allows coal of varying qualities to be stacked on either side of the rail.

The stockpiles are built with bottom-dump haul trucks and rubber-tired dozers. The trucks drive up a pile on one end, dump their loads, then drive off the other end. Rubber-tired dozers then level the pile and compact the coal. Large front-end loaders load the coal from the piles onto trains for delivery to the coal plant. [Figure 22-1](#) and [Figure 22-2](#) show typical cross sections and plan views of the coal stockpiles, while [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#) show their locations. Section 26 – Drainage Control Plan, provides detailed descriptions of the surface runoff impoundments in the stockpile areas.

The employee coal dump is maintained near the Area 3 facilities to allow employees and chapter members to gather coal for their own use. The dump is cleaned out periodically, and the coal is transported to field stockpiles. Typically the employee coal dump is open from October through March.

## **22.2 Buildings and Support Facility Areas**

### *22.2.1 Industrial Complex*

The industrial complex is composed of two major portions:

1. The North Area support facilities, covering approximately 70 acres and located adjacent to the Four Corners Power Plant about four miles south of the northern end of the Permit Area and,
2. The Area 3 support facilities, covering approximately 30 acres and located about 11 miles south of the northern end of the Permit Area.

The Navajo Mine North Area (built starting in 1962) includes; a heavy equipment repair shop, a carpentry and plumbing shop, an auto repair shop, fuel and lube tanks, storage yards, a coal waste storage yard, a tire installation and repair shop, change rooms, a heavy equipment ready line, a wash bay, a sewage treatment facility, a coal plant, a weld shop, an irrigation system pump house, a reclamation seed building, a reclamation yard, a coal lab, a railroad yard, a warehouse with associated storage yard, a communication tower, offices for training, field maintenance, and security. South of the North Area Support facilities is a potable water tank that is used for these facilities.

Area 3 (built starting in 1982) includes an engineering and production office building, an equipment maintenance shop, a weld shop, an equipment loading dock, a vehicle fueling area, a propane tank, a warehouse-storage building, change rooms, a wash bay, a potable water tank, a heavy equipment ready line, an employee coal stockpile, a recycling facility, a sewage facility, a solvent containment building, a safety building and security offices. South of Area 3 is a second communication tower for the mine radio system transmitter/repeater.

The North Area and Area 3 Diesel Loadout areas are protected from spills by containment bunkers.

All of these facilities are currently in use and maintained in good condition. The Navajo Mine area support facilities and associated parking lots are designed to comply with Federal Regulation 30 CFR Part 816.181.

#### *22.2.2 Reclamation Storage Yard*

The reclamation storage yard is a 5.6-acre storage area located west of the Lowe loadout. The facility was created by blading the area level, applying a thin layer of regolith material, followed by the creation followed by the creation of 3 ft. berm ([Figure 22-3](#)) around the yard. The facility is used for the storage of revegetation equipment (tractors and implements), irrigation pipe and supplies, fencing material, and other reclamation materials.

#### **22.3 Water, Sewage, and Other Utility Facilities**

A potable water line is used to supply the facilities with fresh water. It is supplied from the Navajo Tribe Utilities Authority (NTUA) line that runs between Farmington and Shiprock, New Mexico. It supplies the North Area and Area 3 support facilities. The location and details of the potable water line are displayed on [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#). Construction of the potable water line began in 1962, and continued in 1982 to the Area 3 Industrial Complex.

### 22.3.1 Sewer and Loadout Facility Ponds

[Table 22-2](#), [Table 22-3](#), [Table 22-4](#), [Table 22-5](#), and [Table 22-6](#) list the sewer and loadout facility ponds at Navajo Mine with a brief description of each pond. Navajo Nation Permit No. 96.289 allows for the use of lagoon water from the North Sewer Lagoon for operational use, subject to permit conditions.

### 22.3.2 Water Pipelines

The irrigation pipeline (built starting in 1975) provides water from Morgan Lake for the irrigation of revegetation plots. The pipeline also supplies water to the storage ponds at the Barber and Lowe water loadout facilities. The location and details of the pipeline are displayed on [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#).

The location of three major water supply intakes for current users of surface water flowing into, out of, and within one mile of the Navajo Mine Permit Area are shown on [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#). The three sites are all in the Morgan Lake vicinity and include the Four Corners Power Plant's intake canal, Navajo Mine's irrigation uptake, and a water loadout facility which intakes near the irrigation uptake.

Other surface water use on or within one mile of the Permit Area consists of livestock watering ponds. These ponds have been constructed to capture and store the intermittent surface waters near the Permit Area and are shown on Exhibit 16-2.

A water monitoring network and various water control measures, as described in this Section and in Section 42 – Monitoring, Maintenance, Inspections and Examinations, will be implemented throughout the life of the mine to ensure that impacts to surface waters are minimized. Navajo Mine has water rights on the San Juan River which can be used to offset any adverse impacts to the State of New Mexico and present users. These rights will be maintained throughout the mining operation and a period thereafter, for retirement, if required to any affected San Juan Basin water users. Should it become necessary, Navajo Mine will develop water supplies of suitable quantity, quality and location, and provide an adequate distribution system to ensure that water supplies will be maintained at an equal or better condition.

### 22.3.3 Water Loadouts

There are three water loadouts, one at the North Complex, one near Barber Stockpile, and one near Lowe Stockpile. These loadouts supply water to water trucks used for haulroad dust suppression. A water loadout typically consists of:

1. A storage pond, (except at the North Complex),
2. An overhead pipe for filling the trucks,
3. A concrete pad for parking while the truck is being filled, and
4. A pump to fill the trucks.

These facilities have been constructed to minimize erosion and siltation. Embankments and drainageways are regularly examined after each storm event. The location of the water loadouts is shown on [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#).

## 22.4 Pipelines, Electrical Lines, and Communications Facilities

### 22.4.1 Electric Power Lines

Arizona Public Service Company supplies the mine with power at 69,000 volts. Approximately 31 miles of mainline and nine miles of stublines make up the existing power distribution network for Areas 2, 3, and 4 North. The mainlines originate at the FCPP and branch to the east and west sides of the pits in Areas 2, and 3, and 4 North. Stublines service the pits about every 5,000 feet from the east side. On the west, the power line follows the railroad catenary. See [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#) for details. Power lines will be constructed to meet the recommended design criteria (Miller et al., 1975) to prevent the electrocution of raptors.

## 22.5 Other Structures and Facilities

### 22.5.1 Explosives Handling and Storage Facilities

There are four ammonium nitrate and emulsion storage facilities at Navajo Mine:

1. Yazzie Silos (Inactive),
2. Barber Silos,
3. Lowe Silos, and
4. Gilmore Silos.

A typical storage facility has nitrate silos, diesel fuel storage tanks, and silos for emulsion blasting agent product. The location of these facilities is shown on [Exhibit 22-2](#) and [Exhibit 22-3](#).

There are explosives magazines at the north-end of Lowe Pit which was built in accordance with the Bureau of Alcohol, Tobacco, and Firearms Division regulations 26 CFR Parts 181.198 and 181.200. This area is used for storing primers, blasting cord, delays, and wet hole blasting product. See [Exhibit 20-3](#) for locations of these stores.

## 22.6 Overburden Stockpiles

There are no overburden stockpiles in the Permit Area.

## 22.7 Soil Stockpiles

### 22.7.1 Topdressing Stockpiles

There are numerous topdressing stockpiles in use in the Permit Area, as shown on [Exhibit 22-1](#), [Exhibit 22-2](#), and [Exhibit 22-3](#). [Table 22-7](#) gives the stockpile inventories and approximate volumes. Removed topsoil is stockpiled only when it is impractical to be promptly redistributed on graded areas.

Topdressing is not removed from stockpiles until required for redistribution on graded areas. However, stockpiles may be relocated to facilitate mining and/or reclamation. Changes or revisions to the permit necessitated by topdressing stockpile relocations will also be submitted to OSMRE.

Topdressing stockpiles are situated on stable sites in such a manner as to minimize wind and water erosion, and to avoid sources of contamination. Berms and/or surface water control structures are constructed around the stockpiles as described in Section 26 – Drainage Control Plan. Topdressing stockpiles may be stockpiled with slopes at angle of repose. Topdressing stockpiles which remain undisturbed for greater than six months will be mulched on side slopes less than 4:1 (H:V). Topdressing stockpiles which will be undisturbed for greater than one year or longer will be seeded and mulched, on side slopes less than 4:1, during the next appropriate seeding period using procedures described in Part 5. After the stockpiles are reclaimed, the stockpile areas will be left with adequate topdressing so that they may also be reclaimed. All stockpiles are clearly marked so that other mining activities do not inadvertently disturb or contaminate them.

Snow fences are currently used on several stockpiles for stabilization ([Table 22-7](#)). Where snow fences are not controlling erosion they will be removed and the stockpiles will be seeded and mulched. In the future, snow fencing will not be used on topdressing stockpiles.

[Table 22-8](#) lists the miscellaneous mitigation area capacities.

#### *22.7.2 Regolith Stockpiles:*

Regolith stockpiles to be used as topsoil substitute or root zone material will be identified and managed the same as topdressing stockpiles.

#### *References*

Miller, Dean; E. L. Boeker; R. S. Thorsell; R. R. Olendorff. 1975. Suggested Practices for Raptor Protection on Powerlines. Raptor Research Foundation, Inc., for Edison Electric Institute.

US Environmental Protection Agency. 1994. Quality Assurance Handbook for Air Pollution Measurement Systems: Volume II, Ambient Air Quality Monitoring Program. EPA-600/R-94/038A; April.

Table 22-7 Topdressing Stockpile Approximate Volume

New Stockpile Name <sup>1</sup>	Old Stockpile Name	Approx. Volume (cyds) <sup>3</sup>
Airport_TS	Airport 1	9,919
DBR13_TS_W	Doby R13	226,000
HSR1_TS_S		148,743
BBR5_TS_S	Barber 5	94,572
BBR6_TS_S		14,794
Hosteen Redisturbance		141,790
LWR1_TS_W	Lowe 2	250,338
LWR4_TS_N		716,713
LWR4_TS_S		106,100
DXR1_TS_N		353,111
DXR1_TS_S		875,793
DXR2_TS_W		413,515
DXR4_TS		879,068
IBR_TS_N		178,168
IBR_TS_S		217,741

**Regolith Stockpiles Capacities**

New Stockpile Name <sup>1</sup>	Old Stockpile Name	Approx. Volume (cyds) <sup>3</sup>
DXR1_RG_W	Dixon 3	468,633
Dixon Sand Piles		175,450
LWR1_RG_N		796,795
LWR4_RG_N		468,633
LWR4_RG_E		154,451

<sup>1</sup>Topdressing stockpiles are shown on Exhibits 22-1 through 22-3

TS, Topdressing stockpiles. RG, Regolith stockpiles.

<sup>2</sup>Designates stockpiles that have snow fences installed.

<sup>3</sup>Volumes were calculated using aerial survey and/or loader count. Volumes do not include 10% rehandling loss so total volume will differ from 36-1 and 36-3.

Table 22-8 Miscellaneous Mitigation Area Capacities

Miscellaneous Mitigation Areas<sup>1,2</sup>

Area Name	Capacities (cyds)
Yazzie Overlook	315,027
Hosteen Spoil Cut Area	225,205
Yazzie Spoil Cut Area	166,980
Daisy Borrow Area	180,000

1 Areas identified as suitable mitigation material, which is Not Regolith material

2 Areas are shown on Detailed Soils Maps (Section 14 Exhibit 14-1).