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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

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TO: Internal File

THRU: Jim D. Smith, Team Lead JDS

FROM: Wayne H. Western, Reclamation Specialist WHW

RE: Cottonwood Fan Portal Phase I Bond Release, Energy West Mining Company, Cottonwood/Wilberg Mine, C/015/019-BR00D-2

SUMMARY:

On August 8, 2001, the Division received a revised bond release application for the Cottonwood fan portals. The Permittee disturbed the area to do engineering test to determine if and where fan portals should be constructed. After the engineering work was done, the Permittee decided no to construct the portals.

TECHNICAL ANAYLSIS:

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

RECLAMATION PLAN

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The requirements for approximate original contour restoration are couched in terms of backfilling and grading requirements. Those requirements include the following:

- Minimize off-site effects
- Achieve a final surface configuration that closely resembles the general surface configuration of the land before mining
- Provide a subsurface foundation for a vegetative cover capable of stabilizing the surface from erosion
- Support the postmining land use

Off-site effects usually involve hydrologic issues. If the permittee meets the general hydrologic requirements then the Division usually considers that the off-site impacts will be minimized.

The two hydrologic issues that affect AOC at this site are do the drainage patterns blend into and complement the drainage pattern of the surrounding terrain and will the exposed coal seams impact surface and groundwater. A full analysis of the hydrologic requirements will not be done in this section. See the hydrology section of the TA for additional information.

The Division found that the reclaimed surface blends. The general shape of the reclaimed surface is similar to that of the surrounding areas. The surrounding areas have steep slopes with rock outcrops that form near vertical cliffs. See drawing KS1699D sheets 1 and 2 for more details.

The reclaimed surface must closely resemble the general surface configuration of the land before mining. This requirement does not have specific standards that must be met. The Division makes this determination by using the judgment of it staff members. The staff has reviewed the postmining landscape and found that it resembles the surrounding terrain.

The Division usually considers the requirements that the subsurface foundation can support vegetative and is capable of stabilizing the surface from erosion are met if the reclamation plan meets the revegetation requirements. The ability for the reclaimed site to support the postmining land use is discussed in other sections of this TA.

Findings:

The information in the submittal meets the minimum regulatory requirements of this section.

BACKFILLING AND GRADING

Analysis:

For purposes of backfilling and grading, 5 main terraces have been identified on the hillside of the Cottonwood Fan Portal area. These have been designated, from lowest to highest, Terrace 1, Terrace 2, Terrace 3, Terrace 4 and Terrace 4A. Terraces 1 and 2, the lowest terraces, are the areas of most concern.

The Hiawatha coal seam outcrops at Terrace 1. When the Division reviewed the approved reclamation plan, the location of the Hiawatha coal seam outcrop was noted. The Division required that the Permittee completely backfill the exposed Hiawatha coal seam. During backfilling and regarding the Permittee did completely cover the Hiawatha coal seam. See drawing KS16999D sheet 1 and 2 for details.

After the Permittee, completed backfilling and grading the Division's staff inspected the site. They noticed what appeared to be several outcrops of coal above the first and second terraces. The Permittee tested two of the suspect outcrops and found that one met the ASTM requirements for coal.

R645-301-553.300 requires that all coal seams be either covered or treated to control the impact on surface and groundwater and to prevent sustained combustion. The rider coal seams were found to be non-acid and non-toxic forming. See the soils and hydrology sections of the TA for more details about how the rider coal seams could affect surface and groundwater, and vegetation.

The Division is concerned that the rider seams could be subject to sustained combustion. The Permittee states that sustained combustion is unlikely because of the because of the low BTU rating (4,911 BTU/lb.) The Division does not have a standard for determining when coal is capable of sustained combustion.

MSHA has standards for combustible material stored in or around coal seams. Those regulations CFR 77.1915 deal mostly with shaft and mined coal seams not rider seams.

The rider seams are not exposed to heavy vegetation cover. The Division assumes that if a wildfire were to occur the surrounding vegetation would not provide enough fuel to ignite the rider seams. Several rider seams are exposed in the surrounding area and none are sustaining combustion.

A direct lighting strike could ignite the rider seams. The Division considers the chances of a direct lighting strike remove. Even if a lighting strike were to ignite a rider coal seam the changes of the fire spreading to the Hiawatha seam are remove, and even if that were to occur that area of the Hiawatha seams is not scheduled to be mined.

Terrace 1 will received enough fill material to completely cover the Hiawatha coal seam and backfill most of the overlying ledge. The fill was placed at a maximum slope of 1.5h:1v, which will provide a static stability safety factor of 1.3. Gravel drains were incorporated into the fill to drain water from seeps. Boulder-size rocks from nearby will be placed along the toe of this fill to further enhance its stability. This is important because the fill will be placed on a solid rock stratum that slopes away from the face of the ledge.

Terrace 2 received enough material to backfill all but the upper 1 or 2 feet of the overlying ledge. This fill will also be placed at a maximum slope of 1.5h:1v in order to provide a static stability safety factor of 1.3.

Terraces 3, 4 and 4A each received 1 to 2 feet of material. This material was used to fill the voids at the base of the cuts and will provide a layer of suitable plant growth medium for revegetation.

A diversion along the entire length of the upper boundary of the site collects undisturbed runoff and discharges it into a nearby natural drainage. At its lower end, it makes a right-angle turn on unconsolidated material in order to reach that natural drainage. This diversion has been stable for many years and will thus be left in place.

Findings:

The information in the submittal meets the minimum regulatory requirements of this section.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645 -100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

Reclamation

The access road to the Cottonwood fan portal area was reclaimed; see cross sections on drawing KS1729C. The access road was reclaimed as a trail for access to the Old Johnson mine site. The trail does not have many of the typical features of an engineered road such as ditches and slide that slope away from the centerline. However, the trail has been designed to be stable and there are no signs of instability or erosion.

The trail is needed for access to the Old Johnson site because 1) the portals seals at the Old Johnson mine are failing and AML needs access to the site for repairs and 2) the public needs access to the historical mine site. Thus, the trail is compatible with the postmining land use.

Retention

No roads will be retained at the Cottonwood fan portal. The access road to the site that went through the Old Johnson mine site was reclaimed to a foot trail.

Findings:

The information in the submittal meets the minimum regulatory requirements of this section.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645 -301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Discharges into an underground mine

No underground mine openings exist in the Cottonwood fan portal site. Therefore, water does not discharge into underground mine openings at this site. However, sealed portals do exist in the Johnson mine site.

Gravity discharges.

There are no underground mine openings in the Cottonwood Fan Portal Phase 1 reclamation site. Therefore, water does not discharge from underground mine openings at this site. However, seal portals do exist in the Johnson mine site.

Impoundments

Two sediment basins will remain on the site until erosion is control by vegetation.

Findings:

The information in the submittal meets the minimum regulatory requirements of this section.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645 -301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Affected area maps

Plate 5-5, Drawing KS1710D Cottonwood Fan Portal Surface Facilities Map Phase I Reclamation, shows the area that the permittee request Phase I bond release. The permittee shows the areas that have been interim revegetation, final vegetation and final reclamation. The drainage controls, French drains, have also been shown.

Drawing KS17170D shows the areas for which Phase I bond release has been sought. The undisturbed Johnson Mine site is clearly shown as an undisturbed island.

On Drawing KS17170D, the permittee lists the dates for some reclamation activities. The terraces were backfilled on November 1998 and the revegetated area had final reclamation done in 1981.

A bonded area map

The Division considers the affected area map to be equivalent to the bonded area map for the Cottonwood Fan Portal.

Reclamation backfilling and grading maps

Drawing KS1729C shows the as-built for the reclaimed road at the Cottonwood fan portal. Drawing KS1715D sheet 1 and 2 shows the as-built for the reclaimed fan portal area. Those drawings are adequate for the Division to used to determined if the site meets the minimum reclamation requirements.

Reclamation facilities maps

The facilities associated with the Cottonwood Fan Portal area are shown on drawing KS1742D. The retained facilities include the undisturbed drainage ditch, ditch DD4 and a 24-inch culvert that passes beneath the Emery County road.

Final surface configuration maps

The final surface configuration is shown on drawing KS1700D.

Reclamation monitoring and sampling location maps

The permittee did not show any monitoring or sampling locations on the maps.

Findings:

The information in the submittal meets the minimum regulatory requirements of this section.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645 -301-800, et seq.

Analysis:

Determination of bond amount

The permittee states that they want to reduce the bond amount for the area from $58,194 to $38,796.

Findings:

The requirements of this section of the regulations are considered adequate concerning the proposed Phase I bond release.

RECOMMENDATIONS:

The Division should approve the request for bond release.