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TO: File

THRU: Pam Grubaugh-Littig, Bond Release Coordinator *PGL*

FROM: Susan M. White, Senior Reclamation Biologist *SMW*

RE: Phase III Bond Release, Huntington #4 Mine, Mountain Coal Company, ACT/015/004, Folder #3, Emery County, Utah

Synopsis

Mountain Coal Company submitted Application for Phase III Bond Release for the above referenced mine; date received April 2, 1996. A bond release site inspection was conducted June 27, 1996. Mountain Coal Company completed reclamation at its Huntington Canyon No. 4 Mine in the fall of 1985, thus meeting the minimum 10 year liability period in the fall of 1995. Several items and deficiencies exist in the application which must be addressed prior to Division review of the application. On June 27, 1996 the reclaimed sediment pond area did not have established vegetation. The bond should not be released.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Standards for Success.

The Application for Phase III Bond Release presented information from vegetation sampling in 1995. Vegetative cover, production, diversity, and shrub densities were sampled as required by the permit. The regulations, for areas previously disturbed by mining that were not reclaimed, are that the vegetative ground cover will be not less than the ground cover existing before redisturbance and will be adequate to control erosion and achieve the approved postmining land use. The Division's interpretation is that continuously mined sites also apply to this standard. R645-301-357 states that the vegetation parameters will equal or exceed the approved success standard during the growing seasons for the last two years of the responsibility period and that, in areas of less than 26 inches or less average annual precipitation,



the period will be for not less than ten full years.

The operator has met the 10 year requirement. The operator has also sampled the agreed vegetation parameters for the last two years of the growing season, 1994 and 1995. However, the 1994 data was not included in the application. Prior to review the application must contain two years of vegetation sampling.

R645-301-356 states that approved sampling methods are identified in the Division's Vegetation Information Guidelines. All methods used in the No. 4 Mine sampling are approved by the Guidelines except for the minimum sample size formula. The formula used in the application is very close to the Divisions, but is not the approved formula. The 1994 and 1995 data must have the minimum sample size recalculated and resubmitted. All sampling must meet the minimum sample size requirements. Several parameters identified in Table 41 of the application do not meet minimum sample size requirements. The Division must deny Phase III Bond Release and require an additional two years of sampling unless this issue is resolved.

Table 35 of the vegetation study has missing numbers.

Page 3-67a of the permit states:

The success of the reclamation effort will be evaluated by detailed sampling of cover and production on reclaimed areas. These data will then be statistically compared with data for the same parameters collected from the reference areas ... If there is no significant difference in cover and production between the reclaimed areas and the reference areas when tested at the 95 percent significance level using a one-tailed t-test, then the areas will be judged to be adequately reclaimed relative to cover and production. Woody plant density will be judged adequate based on a stocking rate equal to or greater than 90 percent of the stocking of live woody plants that are contained in the reference area.

The 1995 cover data meets the requirements of the permit and the regulations. Vegetation cover on the lower area (47 percent) and the upper road (48 percent) was equal to or greater than the associated reference area (31 percent) cover. Vegetation cover on the riparian area (70 percent) was not significantly different than the vegetation cover of the riparian reference area (71 percent).

The 1995 production data does not meet the requirements of the permit. The production of the lower area (690 lbs/acre) and upper area (828 lbs/acre) was significantly greater than the total annual biomass from the associated reference area (208 lbs/acre). The production of the riparian area was significantly lower in the reclaimed area (270 lbs/acre) than the total annual biomass from the riparian reference area (464 lbs/acre).

The 1995 woody plant density meets the requirements of the permit and the regulations. Woody species densities were greater on the lower area (1940 plants/acre) and the upper area (2552 plants/acre) than in the associated reference area. The reclaimed riparian area (2352 plants/acre) had greater woody plant density than the riparian reference area (1481 plants/acre).

The permit states:

Species diversity will be judged adequate when the relative cover and percent distribution of biomass for the major life form groups approximates that which occurs in the reference areas. That is, if the relative cover by perennial grasses is 50 percent in the reference areas, then the relative cover by perennial grasses on the reclaimed area should also be approximately 50 percent.

The 1995 data shows that the lower area had six species with a relative cover of greater than 5 percent (4 grass, 1 shrub, 1 forb). Based on relative cover the grasses comprised 46 percent, forbs 38 percent and shrubs 13 percent of the relative cover. The 1995 data for the upper area also showed six species with relative cover of greater than five percent (4 grass, 1 shrub, 1 forb). Based on relative cover for the upper area grasses comprised 45 percent, forbs 36 percent and shrubs 19 percent of the relative cover. The reference area had two species with a relative cover of greater than 5 percent (1 grass, 1 tree). The data shows that grass comprised 78 percent and trees comprised 21 percent and forbs 2 percent of the relative cover. The reclaimed riparian area had 7 species with relative cover greater than 5 percent (4 grass, 2 forb, 1 shrub). The data show that grasses comprised 44 percent, forbs 23 percent and shrubs 32 percent of the relative cover. The riparian reference area had 4 species with relative cover greater than 5 percent (2 grass, 1 forb, 1 shrub). The data shows that grass comprised 39 percent, forbs 42 percent, shrubs 15 percent and trees 7 percent of the relative cover.

	Grass (relative cover)	Forb (relative cover)	Shrub (relative cover)
Lower Area	46%	38%	13%
Upper Area	45%	36%	19%
Reference Area	78%	2%	21%
Riparian Area	44%	23%	32%
Riparian Reference Area	39%	42%	22%

The 1995 bond release application discusses diversity and makes a good argument that the reclaimed areas are diverse using cover data and diversity indices. However, the application

does not discuss diversity using cover data as applied to life forms as required by the permit. As presented above, diversity using cover data by life forms the reclaimed area is mostly not similar to the associated reference areas.

A site inspection was conducted by the Division on June 27, 1996 to assess the site for the Phase III bond release. The site appeared to be meeting the post mining land use of grazing and wildlife. While most of the site had been fenced to exclude cattle, elk use had been heavy especially on the upper area. Cattle had not been excluded from the reclaimed riparian area and the site appears in good condition.

The sediment pond had been removed in the summer of 1995 and the area seeded. At the time of the June 27, 1996 site inspection seedling density appeared good. The reseeded area of sediment pond removal does not have to meet the 10 year liability period, however, it does need to meet other standards of being diverse, effective and permanent. In other words the area should look like the rest of the site prior to release. The reclaimed pond area did not look like the surrounding area, seedlings were not considered established. Therefore, bond may not be released. Another inspection will be conducted in September 1996 to assess vegetation establishment in this area.

Finding:

The vegetation on the reclaimed sediment pond area does not appear to be established and therefore the bond may not be released.

The permittee must provide the following information in the Application for Phase III Bond Release and the permit, prior to approval, in accordance with the requirements of:

R645-301-356, the application must contain the minimum sample size using the minimum sample size formula as identified in the Division's Vegetation Information Guidelines.

The minimum sample sizes must be met prior to approval.

R645-301-357, the application must contain vegetation information for the last two years of the responsibility period.

R645-301-880.330, the production data does not meet the reclamation requirements of the permit. The permit may be changed to meet the requirements of the Act.

R645-301-880.330, species diversity does not meet the reclamation requirements of the permit. The permit may be changed to meet the requirements of the Act.