

January 17, 2003

TO: Internal File

FROM: Priscilla Burton, Sr. Reclamation Specialist/Soils and Team Lead

RE: Phase II Bond Release Sowbelly, Castle Gate Holding Company, Castle Gate Mine, C/007/004-BR02A

SUMMARY:

Castle Gate Holding Company applied for Phase II bond release for the Sowbelly Canyon area of the Castle Gate Mine, 18.2 acres of 21 acres disturbed. Phase II bond release may be approved after successful revegetation is completed and erosion is controlled to prevent suspended solids to streamflow and prohibit runoff outside of the permit area (R645-301-880.320).

Earthwork at the Sowbelly site was completed during the years 1993, 1994 and 1995. During 1995, 18.2 acres of the 21 total disturbed were gouged. Phase I bond release was approved for the site on January 30, 1997.

This submittal, received May 10, 2002 with supplemental information arriving on November 15, 2002, contains vegetation and sediment yield information and a copy of the public notice.



TECHNICAL MEMO

TECHNICAL ANALYSIS:

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

 **redistribution**

Information concerning the redistribution of topsoil and subsoil was reviewed in the Division's Phase I Decision Document dated November 29, 1996. Areas of concern were noted at soil test pit locations SB-2, SB-3, SB-4, SB-5 SBG-1, SBG-2. According to the technical review, coal debris, coal refuse and sodic material exposed or excavated during reclamation was covered with between two to six feet of cover.

Findings:

The information provided meets the requirements for bond release.

STABILIZATION OF SURFACE  MEAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

The Division conducted an inspection of the site on August 22, 2002. During that inspection, the Division noted that the regrading and gouging performed in 1995 is controlling erosion. There were no rills or gullies noted on the site. The site was photographed and can be seen in the images folder for the mine, dated 08222002.

Appendix 2 of the Application for Phase II Bond Release provides a comparison of the sediment yield in tons/acre/year for the reclaimed slopes under existing conditions to the reclaimed slope assuming reference area cover. The comparison was run using the Revised Universal Soil Loss Equation by EarthFax Engineering, Inc.

The following assumptions are built into the model:

- The soil erodibility factor (K) for both the control and reclaimed land was based upon the average texture composite samples taken in 1996 from trenches prior to reclamation in 1996 (Appendix 3.2B).
- The very fine sand fraction is assumed to be 5%.
- The reclaimed soils were also assumed to medium or coarse granular structure and slow to moderate permeability based upon the sampling results in Appendix 3.2B.
- The soils were assumed to have 0% organic matter, since the measurement of 1.6%OM noted in Appendix 3.2B was probably related to coal content.
- Average slope was assumed to be 20% (5 h : 1 v) for both the control and reclaimed conditions, based on the topography of the entire area.

EarthFax found that sediment yield from the reclaimed site varied from 0.56 tons/ac/yr down to 0.23 tons/ac/yr depending upon the extent of gouging. EarthFax arrived at an average of 5.42 tons/yr sediment from the 18.2 acre reclaimed site as compared to a projected 9.65 tons/yr for the control which is described as the same site with no gouging and a vegetation cover equivalent to that of the reference area.

Whether this model demonstrates erosion control depends upon the acceptable soil loss tolerance value for the soils of the site. The Natural Resources Conservation Service (formerly the Soil Conservation Service) identified the soil loss tolerance value for the Pathead and Curecanti soils as 1 ton/acre/year in Table 12 of the 1988 Soil Survey of Carbon Area. The consultant's prediction of 0.56 tons/acre/year in ungouged areas falls below this soil loss tolerance value.

Findings:

The Permittee has adequately applied best management practices to control erosion and prevent sediments from leaving the site.

RECOMMENDATIONS:

The site is ready for Phase II bond release.