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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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November 4, 1992

TO: Daron Haddock, Permit Supervisor

FROM: Randy Harden 

RE: Sowbelly Submittal, AMAX Coal Company, Castle Gate Mine,
ACT/007/004-92C, Folder #2, Carbon County, Utah

Summary:

In accordance with Stipulation under Docket 91-001, AMAX Coal Company has submitted revised plans for the Sowbelly Canyon Area. These plans were received by the Division on August 18, 1992. After review by the Division, a second submittal of information was made on October 29, 1992.

The following review in consideration of the outstanding information as a result of the Division Order issued to AMAX and the information incorporated into those proposed changes to the mining and reclamation plan.

Comments and completeness of the information within the text of this review is in regard only to those areas described in Sowbelly Canyon unless noted otherwise in the comments. Determination of completeness of the response to the Division Order and Compliance of those requirements for approval cannot be made until such time that all of the required information has been submitted as required by the Division Order.

Analysis:

Division Order 2)

R614-301-122. Permit Application Format and Contents. The information contained within the permit must be organized to ensure that each Figure, Plate, Diagram, Analysis etc. that is referenced is included within the Permit Application. The language used in the permit application must accurately differentiate existing and proposed facilities, activities, treatments, etc. This information shall be provided on or before June 1, 1991.

Proposal:

Information submitted for the Sowbelly Canyon area is specific only to that section of the plan. A new table of contents for section 3.2 of the plan has been provided.

Analysis:

With respect to section 3.2 of the plan, the operator has revised the plan. However, requirements of this section of the Division Order apply to the plan in its entirety.

The operator has committed to revise the organization and content of this section of the plan in conjunction with the information to be provided for the Remaining areas as part of the Settlement Agreement.

Deficiencies:

None.

Division Order 3)

R614-301-140. Maps and Plans. The PERMITTEE shall submit to the DIVISION, a schedule for providing complete and accurate maps and drawings to depict the current existing conditions for all facilities, and, proposed reclamation treatments. This schedule shall be provided on or before March 1, 1991.

Proposal:

In accordance with the terms and conditions of the Stipulation (Settlement Agreement), the operator has committed to a schedule for the submittal of the information required in this section of the Division Order.

Analysis:

The schedule submitted in conjunction with the Stipulation will be administered, revised and completed under the terms and conditions of the Stipulation.

Deficiencies:

None.

Division Order 4)

R614-301-142. Maps and Plans. The PERMITTEE has not provided maps and plans with the permit application which distinguish among each of the phases during which coal mining and reclamation operations were or will be conducted at any place within the life of operations. At a minimum, distinctions will be clearly shown among those portions of the life of operations in which coal mining and reclamation operations occurred: prior to August 3, 1977; after August 3, 1977, and prior to either May 3, 1978; after May 3, 1978 and prior to the approval of the State Program; and, after the estimated date of issuance of a permit by the Division under the State Program. The PERMITTEE must provide identification as to the date and the use of those areas and facilities within the permit area which have been incorporated into the underground mining activities. Those areas affected by previous mining operations (including cutslopes and outlopes of pads and roads) and used in conjunction with current underground coal mining facilities are to be included in the disturbed areas. This information shall be provided on or before March 1, 1991.

Proposal:

The operator has provided revised drawings for the Sowbelly Canyon Area. The Post Mining Reclamation Treatments Map, Exhibit 3.2-5 shows the proposed final contours of the area, cross section locations and watershed areas used for reclamation drainage area calculations.

Exhibit 3.2-1A has been revised to show the location and the extent of the areas previously disturbed by mining (pre-SMCRA) and those portions of the previously disturbed area which are incorporated into the disturbed area boundary for current mining operations. This exhibit is also used to identify surface facilities within the Sowbelly Canyon Area.

Analysis:

Exhibit 3.2-1A has been modified to delineate the pre-SMCRA areas. The drawing shows the areas which were previously affected by mining operations (pre-SMCRA), and identifies those areas which lay within the disturbed area boundaries which have been used in conjunction with current mining operations. In the text of the mining and reclamation plan, the operator has indicated that essentially all of the disturbed area shown with the exception of drainage controls, occurred prior to 1976. In context with the requirements of this section of the regulations, it can be assumed that these disturbances occurred prior to August 3, 1977, and drawing has been revised to show the pre-SMCRA disturbed areas both within the disturbed and adjacent areas.

The disturbed area boundary shown on Exhibit 3.2-1A has been modified to coincide with the disturbed area boundary delineated on the operations contour map or the reclamation contour drawings. Due to distortion of the orthophoto, some distortion of the disturbed area boundary is evident due to scaleability of the drawings. Disturbed area boundaries for all drawings have been made to coincide with each other.

Deficiencies:

None.

Division Order 13)

R614-301-340. Reclamation Plan. The PERMITTEE must provide plans to protect reclaimed areas for a minimum 2-year period. The PERMITTEE will revise the MRP to show 1) seedbed preparation plans (i.e. deep ripping to 18-24 inches), 2) that seed and fertilizer will not be mixed in the hydroseeder, 3) plans for the use of the supplemental planting mix for ephemeral/intermittent drainages, including locations (shown on the reclamation maps) and timing of the planting operations, 4) the final revegetation plans (as identified in the July 1990 correspondence) for the cut and fill slopes associated with the Crandall Canyon access road, 5) Clear plans for the reclamation of Gravel Canyon. This information must be provided on or before March 1, 1991.

Proposal:

This Division Order was not specifically addressed as part of the Sowbelly Canyon area submittal.

Analysis:

The requirements of this section of the Division Order apply to the plan in its entirety.

Deficiencies:

This information should be provided with the information provided for the Remaining Areas as part of the Settlement Agreement.

Division Order 17)

R614-301-550. Reclamation Design Criteria and Plans. The permit application must include site specific plans that incorporate the design criteria for reclamation activities. These design criteria and plans shall include but not be limited to: phased reclamation treatments and designs throughout the permit liability period, designs for temporary and permanent surface features, including diversions, impoundments, sediment control structures, and other facilities which will require construction throughout the reclamation process; specific plans and details for all permanent facilities to remain as part of or in conjunction with post mining land use, including roads, utilities, and structures; and, maps and drawings which clearly show the areal and vertical extent of the existing facility areas and those areas throughout all phases of reclamation. This information shall be provided on or before June 1, 1991.

Proposal:

The operator has indicated in section 3.2-5(1) that all structures have been removed except for the lower substation which will remain for the life of the mine complex. Upon final reclamation of all other mining facilities, the lower substation will be removed and disposed of accordingly.

The operator has stated that grading will be done in order to establish drainage. The operator states that the disturbed areas are to be graded to approximate the original contours by blending into the surrounding area and creating landforms which resemble the surrounding terrain. Cutslope areas which are left, resemble the cliffs in the surrounding topography and were analyzed for slope stability.

Design criteria for slope stability was conducted by EarthFax as found in Appendix 3.2F. Many of the existing cut slopes will be completely backfilled or buttressed at the base of the cuts to allow these areas to bend in with the surrounding area.

Roads inside of the disturbed area boundary will be removed as part of the reclamation plan.

Phases of reclamation are discussed in section 3.2-6 of the proposal. The timing of the reclamation activities calls for reclamation work to occur in Sowbelly Canyon in the fall of 1992.

Discussion of the pre- and post-mining land use has been added to section 3.2-2 and 3.2-5(1) of the plan.

Analysis:

Information found in the plan has been revised to discuss the post mining land use. The operator has stated that the pre-mining land use was undeveloped land and that the intended post-mining land use is wildlife.

The reclamation timetable and the drawings have been revised to indicate that the substation and the access road to the substation will not be reclaimed concurrently with the rest of the Sowbelly Canyon area. The operator has delineated these areas on the drawings and discussed the sequence of these reclamation operations in the plan. The operator has also indicated separate mass balance calculations for the substation area work for bonding purposes.

Deficiencies:

None.

Division Order 18)

R614-301.553. Backfilling and Grading. Backfilling and grading design criteria must be described in the permit application. Disturbed areas must be backfilled and graded to: achieve the approximate original contour, except as provided in R614-301-553.600 through R614-301-553.642; eliminate all highwalls, spoil piles, and depressions, except as provided in R614-301-552.100 (small depressions); R614-301-553.620 (previously mined highwalls); and in R614-301-553.650 (retention of highwalls); achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long-term static safety factor of 1.3 and to prevent slides; minimize erosion and water pollution both on and off the site; and, support the approved postmining land use. Information within the plan does not specifically address the above requirements. This information shall be provided on or before June 1, 1991.

Proposal:

Information regarding backfilling and grading is found in section 3.2-5 of the mining and reclamation plan. The operator has indicated that backfilling and grading will be done in order to establish drainage and stabilize highwalls and cutslopes. The postmining topography is found on Exhibits 3.2-4, 3.2-5 and 3.2-9.

The operator has indicated that the disturbed areas will be graded to approximate the original contours by blending spoil into the surrounding area and creating landforms which resemble the surrounding terrain. Cutslope areas which are left, resemble the

cliffs in the surrounding topography. The retained cutslopes were analyzed by EarthFax Consulting Engineers for slope stability. This information is found in Appendix 3.2F of the plan.

The reclamation plan calls for a maximum grade of 2h:1v. In general, the fill material used at 2h:1v(26.6°) is less than the internal angle of friction for the materials to be used for backfilling which range from 30° to 45°.

The operator has further revised the plans to locate and identify the highwalls within the sowbelly Canyon area. Information regarding highwalls is found in section 3.2-2 and are located on Exhibit 3.2-3.

Analysis:

Areas shown on the Post Mining Reclamation Treatment Map, Exhibit 3.2-5, have been revised in the second submittal to more clearly depict all cut slope areas to remain within the disturbed area boundaries. The plan calls for the complete elimination of portal highwalls within the Sowbelly Canyon area by backfilling over the area to a slope of 2h:1v.

The Reclamation Grading Cut/Fill Grid and mass balance calculations have been modified as shown on Exhibit 3.2-9 to indicate that these highwall areas will be eliminated.

The operator has not requested a variance for any structures or facilities to be left upon completion of reclamation or as part of an alternative postmining land use. In order to demonstrate compliance with AOC requirements the operator has conducted stability analysis of the slopes to be left for final reclamation, and, has found those slopes to be designed to have a static factor of safety of 1.3 or greater. Cutslopes associated with roads and pads within the Sowbelly Canyon area have been proposed to be left in some areas and are included in the stability analysis previously described.

The highwall area is included in the stability analysis and can be seen in Picture #1 of Appendix 3.2F-A and a part of the highwall is depicted in Section A-A'. Although the area was found stable by analysis, elimination of the highwall area by backfilling is proposed. No portal highwalls within the Sowbelly Canyon area is proposed by the operator and consequently, no variance for the retention of highwalls is required.

The operator has provided maps and drawings for backfilling and grading of the area. Mass balance calculations indicate that there is a small excess of cut material which could be available to further reduce cut slopes in some of the areas, but not a sufficient amount to be utilized to eliminate all highwalls and cut slopes within the

disturbed area. None of the areas analyzed for stability indicated a factor of safety of less than 1.3 even prior to the addition of backfill materials at the toe of the cuts. The operator has provided additional materials at the base of these slopes to buttress the hillsides which would further increase the factors of safety shown in the geotechnical analysis. Information shown on map 3.2-5 indicate that much of the area will be returned to approximate original contour, except that cut slopes found within portions of the site will not be completely reduced or eliminated and are delineated on the drawing. Constraints which limit these areas are primarily the lack of excess materials which can effectively be used to eliminate these cuts, and, in some cases, fill required to eliminate such cut slopes would not be considered stable. All cut slopes areas within the facilities will be backfilled or eliminated except for those areas as shown on Exhibit 3.2-5.

Information regarding the cut slopes has been expanded in the plan to incorporate other reclamation treatments that are proposed. The operator has committed to revise and rewrite Chapter IX, Revegetation, to add reclamation treatments, methods of monitoring, and evaluation of the cut slope areas in conjunction with the midterm permit review. Discussion of these cut slope areas needs to be provided in the plan in conjunction with vegetation monitoring and the criteria used to measure the disturbed area for density and diversity prior to any final determination for AOC adequacy.

Deficiencies:

None.

Division Order 19)

R614-301-553.500. Previously Mined Areas. The PERMITTEE shall demonstrate in writing, that the volume of all reasonably available spoil material is insufficient to completely backfill the reaffected or enlarged highwalls to be retained throughout the mine facilities. The PERMITTEE must also demonstrate that the remaining highwalls shall be eliminated to the maximum extent technically practical in accordance with the following criteria: (1) All spoil generated by the remaining operation and any other reasonably available spoil shall be used to backfill the area. Reasonably available spoil in the immediate vicinity of the remaining operation shall be included within the permit area. (2) The backfill will be graded to a slope which is compatible with the approved postmining land use and which provides adequate drainage and long term stability. (3) Any highwall remnant shall be stable and not pose a hazard to the public health and safety or to the environment. The PERMITTEE shall demonstrate, to the satisfaction of the regulatory authority (DIVISION), that the highwall remnant is stable. (4) Spoil placed on the outslope during previous mining operations shall not be disturbed if such disturbances will cause instability of the remaining spoil or otherwise increase the hazard to the public

health and safety or to the environment. This information shall be provided on or before June 1, 1991.

Proposal:

In the Slope Stability Analysis, Appendix 3.2F, part 3.5, the operator has incorporated discussion and analysis of the highwalls in Sowbelly Canyon. The operator has proposed complete elimination of these portal highwalls.

Analysis:

The operator has identified the highwalls associated with the No. 5 Mine fan portal and adjacent portal located to the southeast of the main No. 5 Mine portal access. The operator has incorporated these highwall areas into the text of the mining and reclamation plan and discusses the elimination of these highwall as part of the reclamation activities.

Based on the current information found in the plan regarding backfilling and grading of the Sowbelly Canyon area, the Division considers that these highwall can be completely eliminated by backfilling of the area and that no request for a highwall variance is necessary.

Reclamation contours and the backfilling and grading plans have been revised to allow for the elimination of the highwall by backfilling. Present contour information shows sufficient backfilling of the area for elimination of the highwalls.

Deficiencies:

None.

Division Order 21)

R614-301-731. Operation Plan. General Requirements. The operational plan must be specific to the local hydrologic conditions and will contain steps to be taken during coal mining and reclamation operation through bond release. The PERMITTEE needs to correct the MRP to include monitoring plans specific to ground water and surface water during reclamation through bond release. These monitoring plans should reflect the requirements of R614-301-731.200, and must reflect the language of R614-301-731.212, R614-301-731.233, R614-301-731.214, and R614-301-731-224. The PERMITTEE shall submit a reclamation plan for all phases of reclamation indicating how the relevant requirements for R614-301-730. through R614-301-760. will be met. This shall be required on or before June 1, 1991.

Proposal:

No comments regarding the above division order are part of this review.

Division Order 25)

R614-301-800. Bonding and Insurance. The PERMITTEE shall provide to the DIVISION, the Certificate of Liability Insurance Form which is incorporated into the Reclamation Agreement. Bonding calculations do not include the following information: a map specifying each area of land for which bond will be posted; mass balance calculations presented in sufficient detail to show backfilling and grading requirements for distribution and disposal of excess spoil and mine development waste, backfilling to meet AOC requirements, subsoil, topsoil and substitute topsoil distribution and quantities for each sub area of the permit; calculations for determination of quantities, equipment selection and productivity used in determining the bond amount which reflect the quantities determined in the mass balance calculations; determination of Phase I and Phase II reclamation activities including a map showing those facilities to be constructed and/or removed during each phase of reclamation. This information shall be required on or before June 1, 1991.

Proposal:

Bonding information previously found in section 3.2 has been eliminated.

Analysis:

It is anticipated that the bonding information previously provided for Sowbelly Canyon will be incorporated into the final plan and that calculations will be provided on or before the due date for the submittal of all remaining areas in June 15, 1992. Mass

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balance calculations, especially in regard to Gravel Canyon cannot be completed until all topsoil distribution requirements are determined for the entire permit area.

Reclamation costs associated with the reclamation planned for the Sowbelly Canyon area must be factored into the bond amount until such time as Phase I bond release is accomplished and approved by the Division. Until such time, the reclamation costs associated for the work planned must be incorporated into the bond amount. Bond cannot be reduced and adjusted by reclamation work accomplished without following bond release criteria. Costs associated with each phase of reclamation should be segregated and identifiable to ease in the implementation of phased bond release for each separate area.

The operator has committed to provide revised bonding calculations in conjunction with the submittal of information for the remaining areas as required in the Settlement Agreement.

Deficiencies:

None.

RECOMMENDATIONS:

No outstanding deficiencies within this review remain with the exception of those items in which the operator has committed to provide the information in conjunction with future revisions to the plan in accordance with the Settlement Agreement.