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June 12, 1992

TO: Daron Haddock, Permit Supervisor

FROM: Randy Harden

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

SUMMARY:

In accordance with the Stipulation under Docket 91-001, AMAX Coal Company has submitted revised plans for the Castle Gate Area. These plans were received by the Division on May 1, 1992, with supplemental information received on May 5, 1992. The following review is 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 Castle Gate Area 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 Castle Gate Area is specific only to that section of the plan. A new table of contents for Section 3.4 of the plan has been provided.

Analysis:

With respect to Section 3.4 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 current cross reference to the coal mining rules is not in detail and not sufficiently detailed to locate information which is meant to address specific regulatory requirements. Many of the rules listed within the cross reference are listed as not applicable when they need to be addressed in the plan. This cross reference should be presented in the plan as part of the mid-term permit review process. However, organization of the plan with regard to consistent map numbering, table of contents, and referencing within the text of the plan is considered as part of this Division Order.

Deficiencies:

1. The organization and contents of the plan must be revised to comply with this section of the Division Order. A cross reference from the R645 rules to the Mining and Reclamation Plan must be provided which presents a detailed reference of the rules to the plan. This information should be provided with the information provided for the Remaining areas by December 1, 1992 as part of the Settlement Agreement.

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. Comments regarding the adequacy of the information submitted, as required by this Division Order, are found under other sections of this review as they apply.

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 outslopes 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 Castle Gate Area. The Post Mining Reclamation Treatments Map, Exhibit 3.4-3 shows the proposed final contours of the area.

Plans for the area have been revised and are found in Section 3.4 of the Mining and Reclamation Plan and supporting appendices.

Exhibit 3.4-1 shows 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 Castle Gate Area.

Analysis:

Exhibit 3.4-1 shows the areas which were previously affected by mining operations (pre-SMCRA), and identifies those areas which lay within the disturbed area boundaries which are 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 1977. In context with

the requirements of this section of the regulations, it can be assumed that these disturbances occurred prior to August 3, 1977.

It has been assumed that the boundary marked on the drawings as the permit boundary is synonymous with the disturbed area boundary. If this is the case, the legend on the drawings should indicate that. Disturbed area boundaries (permit boundaries) shown on Exhibits 3.4-1, 3.4-2A and 3.4-3 vary and are not consistent between these drawings. Exhibit 3.4-1 is an orthophoto and would be expected to vary to some extent from the other two exhibits and is at a different scale. However, Exhibits 3.4-2A and 3.4-3 are engineering contour drawings, and should represent boundary and contour information to within map accuracy standards.

Several conflicting areas regarding the disturbed area are found on both the operations map and the reclamation map. Mining and reclamation activities and disturbances are shown outside the disturbed area boundaries for each map, and, the disturbed area boundaries are not consistent between the drawings. These discrepancies regarding the disturbed area boundary include but are not limited to, the western extent of the disturbed area up to and including the gate, undisturbed diversions, cut and fill areas adjacent to roads, pads, and ditches used as part of the current mining operations, and drainages and diversions to be reconstructed as part of the reclamation plan.

Exhibit 3.4-2A and 3.4-3 do not appear to adequately show cutslopes and outslopes of pads, roads and diversions used in conjunction with current underground coal mining facilities. These areas include, but are not limited to the cutslope above diversion CGRD-8 (D-5), the cutslope above portions of the refuse area haul road, the road from the truck scale to the truck dump, and the berms and fill slopes along the existing road immediately to the east and west of the rail loadout area.

Other drawings which are used for engineering and hydrology design should include the disturbed area boundary, and that boundary should be consistent and not vary in geometry between drawings. Such engineered drawings found within the plan include, but are not limited to Exhibits 3.4-2, 3.4-2A, 3.4-3, 3.4-9A, and 3.4-9B.

Exhibit 3.10-1 shows the location of the underground injection and recovery wells associated with the coal preparation plan operations. This information was not incorporated into the information provided for the Castle Gate area. Although the information found in Section 3.10 of the mining and reclamation plan has not been completely reviewed by the Division at this time, it is apparent that the location and extent of the underground workings, which will be affected by underground injection of coal processing waste, should be included in the permit area boundary. This appears to be an oversight by both the Division and the Operator at the time of approval for the injection wells. Regardless, the plan must be changed to incorporate this area into the

permit area boundary and will require changes to the drawings as required by the Division Order.

Deficiencies:

1. Operation and reclamation maps showing the location and the extent of the disturbed area and permit area boundaries must be revised to consistently show the same permit and disturbed area boundaries. All maps contained within the mining and reclamation plan which are used to show location, elevation, design, and the extent of surface mining facilities must have clear and consistent boundaries for the disturbed areas. All surface mining activities to be conducted through all phases of the mining and reclamation operations must be included within the permit and the disturbed area boundaries.

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 Castle Gate 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 on June 15, 1992 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:

Existing hydrology information and reclamation operations are shown on Exhibits 3.4-2 and 3.4-2A respectively.

The Operator has stated that grading will we done in order to establish drainage and stabilize highwalls and cutslopes. 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.

The Operator's plan states that during the grading process, berms and temporary diversions will be eliminated, grading will establish surface overland flow drainage where possible, culverts will be removed, sediment ponds will be removed, and paved surfaces will be removed prior to the placement of soil. The Operator will construct permanent stream channels and provide for alternative sediment control practices following reclamation construction.

Phases of reclamation are discussed in Section 3.4-4 of the proposal. Phase I activities include demolition, grading, soil preparation and soil amendments, and sediment control measures. Phase II activity is listed as removal of the sediment ponds, ditches and berms with seeding and mulching activities for these areas. Phase III work includes reclamation monitoring of water and vegetation.

The timing of the reclamation activities is provided in Section 3.4-5.

The Operator has indicated that the post mining land use for the Castle Gate Area is wildlife and grazing.

Analysis:

The Operator has indicated that there are no portals to seal at the Castle Gate. The Operator must incorporate the closure and sealing of the underground injection wells which are used in conjunction with the coal processing facility, and monitoring wells associated with the refuse disposal facility. Further the location, elevation and depth of these holes must be provided on appropriate drawings of the existing facilities. The text of the plan should be revised to incorporate these injection and monitoring holes into the operation and reclamation plans. Exhibit 3.10-1 and Chapter 3.10 provides some of the information required above, but was not incorporated or referenced into the text of Section 3.4.

No discussion of monitoring requirements for the School House Canyon refuse facility is discussed in the Mining and Reclamation Plan except as found in Appendix 3.4A. Because the information presented in Appendix 3.4A is a consultant's report, with recommendations supporting the requirements for monitoring for stability, it is considered only as a proposal by the consultant and is not considered a commitment by the Operator to conduct monitoring of the School House Canyon refuse facility. The operation and reclamation plan must have specific commitments and methodologies for the monitoring of the refuse facilities.

Associated with the recommended monitoring practices as found in Appendix 3.4A, Appendix 3.4C, is a follow-up report on the refuse pile stability by Horrocks and Carollo Engineers. Included with this report is monitoring information collected from 10-21-80 to 3-18-82. No additional monitoring information can be found within the text of the mining and reclamation plan, nor within the annual reports submitted to the Division. No commitment to monitor groundwater or materials placed in the refuse disposal facility is found in the plan. As stated in the consultant's report, this information is considered essential to the plan as part of the ongoing mining operations and assurance that reclamation of the facilities will meet the minimum performance standards as required for the structure. The monitoring plan should also set forth the frequency and timing for monitoring and submittal times for the data collected and any reports associated with the monitoring.

Designs provided in Appendix 3.4C, regarding the stability analysis for the School House Canyon Refuse Facility, indicate that the final configuration for the pile has a maximum elevation of 6550 feet, and the reclamation drawing provided show a maximum elevation of 6600 feet. This change in the geometry of the refuse pile is not adequately documented in the mining and reclamation plan. An increase in the final elevation of the refuse pile by 50 feet could have a significant effect of the factor of safety and the

stability of the refuse pile. Such a change in the final configuration cannot be approved without adequate supporting information demonstrating that the altered geometry of the refuse pile will maintain the minimum factor of safety as required by the regulations.

Contour information and the designs provided in the plan do not adequately depict the surface runoff and drainage from the refuse facilities. The top of the refuse facilities is shown to be flat with no drainage control or methodology to eliminate ponding or standing water on the top of the structure. Contour information and drainage control should be revised to show that an adequate slope will be provided to maintain drainage off of the top of the refuse facility. The slope of the top of the refuse pile should be sufficient to allow for any potential settling which may occur in the refuse material and could affect surface drainage and be moderate enough to promote overland flow with minimum erosion potential.

No drainage design or information was found within the text of the plan or on the drawings regarding the final configuration of the terraces left as part of the refuse disposal facility. Contour information as provided on the drawings does not adequately depict the location, size and shape of the terraces or what drainage designs or controls will be used to divert runoff.

Details of the unit train loadout are found on Exhibit 3.8-5, Unit Train Loadout, Elevation and Drainage Controls. This map was not incorporated by reference into the text of Chapter 3.4 of the plan and was not referenced as an exhibit associated with the Castle Gate Area. A detailed discussion of the unit train loadout facilities is discussed in Chapter 3.8 of the mining and reclamation plan. However, the maps and drawings related to the operations and the reclamation of this area are an integral part of the information provided in Chapter 3.4. The Operator may wish to integrate the information found in Chapter 3.8 into Chapter 3.4. At this time no detailed review by the Division of the information contained within Chapter 3.8 has been made. In the event that the information within Chapter 3.8 is not incorporated into Chapter 3.4, this information will be reviewed in conjunction with the review for the remaining areas as mentioned in the schedule for the Settlement.

Some structures are proposed to remain as part of the final reclamation configuration. These primarily include culverts which will remain to protect utility water lines within and adjacent to the disturbed area boundary, and culverts to remain to pass water beneath the adjacent railroad right-of-way. Additionally, the Operator has identified a utility corridor within the disturbed area boundary, which is adjacent to the railroad right-of-way. The culvert structures and the utility corridor associated with the buried waterlines in the property are not considered as an alternate post mining land use, but rather as reasonable structures to protect adjacent and existing facilities and utilities.

Deficiencies:

1. The Operator needs to locate all injection and monitoring wells associated with the Castle Gate Area on the surface facilities map for the Castle Gate area.

2. The Operator needs to provide updated text, detailed designs and drawings for the refuse disposal facilities to adequately address the measure used to maintain and monitor stability and surface drainage and runoff control.

3. Designs, maps and plans related to the Castle Gate area need to be incorporated into the text of that chapter and drawings and exhibits need to be adequately referenced, as appropriate, to identify, locate and describe all operational mining activities and proposed reclamation facilities associated with the Castle Gate area.

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 3.4-4 of the mining and reclamation plan. The Operator has indicated that backfilling and grading will be done in order to establish overland flow drainage and approximate original contour. The Operator indicates that AOC is achieved by blending the spoil into the surrounding area and creating landforms which resemble the surrounding topography.

The cutslope areas to be retained are as analyzed by EarthFax in Appendix 3.4K and are as shown on Exhibit 3.4-3. In the conclusions of the slope stability analysis by EarthFax, a determination was made that based on the five "worst case" slopes

encountered in the Castle Gate area, that all five slopes are stable and that all exceed the required minimum factor of safety of 1.3. No buttressing of any of the cut or fill slopes is necessary for the purpose of slope stability. Slopes at cross sections A and C will require fill to develop adequate drainage. The lack of fill material in the general vicinity of cut slope area precludes the option of backfilling that slope to the top of the exposed cut.

Section 3.4-4 of the plan further states that the reclamation of the Castle Gate Plant area will take place over the area which was the old town site of Castle Gate. Old utilities, foundations and debris may be uncovered during the grading operation. This may result in the alteration of the contours shown on Map 3.4-3 by as many as two contour intervals [4 feet] in order to keep from uncovering the old town site.

Analysis:

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 Castle Gate Area have been proposed to be left in some areas and are included in the stability analysis previously described.

In accordance with R645-301-553.130, disturbed ares must be graded and backfilled to 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. Backfilled portions of the area are in general, graded to the most moderate slope possible. The steepest backfilled slopes are designed to be no greater than 2h:1v (26.6° slope angle).

Cut slope areas are not clearly defined on the drawings and cross sections provided in the mining and reclamation plan. Only two small areas shown on Exhibit 3.4-3 have been identified as cut slope areas to remain. Several areas within the disturbed area boundary are found to be at slopes greater than 2h:1v, but are not identified as cut slopes to remain. These slopes, if they are backfilled, would exceed the angle of repose and the maximum backfilled slope as proposed by the Operator as 2h:1v.

It is also apparent from the orthophoto and from site visits that there are areas within the disturbed area boundary which have not been substantially disturbed by current or previous mining activities. These natural slopes within the disturbed area

boundary appear, in some areas, to be steeper than the 2h:1v maximum backfill slopes as proposed by the Operator. If the Operator were to carefully locate and delineate those areas on the reclamation maps, some of the areas greater than 2h:1v could be accounted for as natural slopes. Additionally, the reclamation treatments for these areas could also differ substantially from those required for regraded areas. Documentation of these natural areas within the disturbed area boundaries could greatly influence the reclamation treatments proposed by the Operator and could potentially reduce reclamation costs.

Portions of the refuse haul road and the adjoining diversion ditch along the road are shown to be outside of the permit area boundary. Additionally, the cut slope of the haul road is not accurately depicted for the haul road. The main access road from the truck scale to the truck dump does not incorporate the cut slopes associated with the construction of that road. The reclamation drawing for those same areas does not depict the same disturbed area boundary and based on the appearance of the drawing, does not incorporate all of the cut slope areas into the disturbed area boundaries.

Several areas, based solely on the information indicated on the operation and reclamation exhibits, show discrepancies in the permit (disturbed) area boundary and in the adjoining areas in which cut and fill slopes are associated with the current facilities. Examples include, but are not limited to the following:

1. The reconstructed Pond 12 shows disturbance and construction of the pond embankment during reclamation outside of the permit and disturbed area boundary. In comparison with the operations drawings, it also appears that the construction of the pond embankment would encroach on the adjacent railroad tracks.

2. The geometry of the disturbed area at the unit train loadout is dissimilar between the operations map and the reclamation map.

3. The permit area and disturbed area shown on the operations map extends significantly further than the area shown on the reclamation drawing for the areas extending to the southeast of the raw water pond.

4. Disturbed areas associated with diversions have not been identified as disturbed areas, and in some cases reclamation contours indicate that the diversions have been left unreclaimed. In particular, these diversions include D-1 and D-6 as shown on Exhibit 3.4-2.

The operation and reclamation plan is not clear and specific regarding the backfilling and grading operations. In Appendix 3.4K, part 4.7, it has been indicated that a maximum slope for fill materials is 2h:1v based on a range of the angle of repose for various materials which may be encountered during reclamation. Numerous areas on Exhibit 3.4-3 are found to be in excess of this maximum slope of 2h:1v. These areas are not identified as cut slopes which are proposed to remain as part of the post mining configuration.

Information regarding the cut slopes must also be expanded in the plan to incorporate other reclamation treatments that are proposed in the plan. To date the current plan discusses the soiling, vegetation, and sediment control treatments for the backfilled areas. More precise information needs to be incorporated into the plan regarding these activities for the cut slope areas. Additionally, the Operator needs to discuss how these cut slope areas will be addressed for vegetative cover and diversity in regard to bond release. 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.

The plan lacks specificity on the methods and treatments used during backfilling and grading to achieve the proposed reclamation contours. The Operator has indicated that no topsoil materials will be placed over the Castle Gate Area with the exception of the refuse pile. No description of the placement of fill material to ensure proper compaction or placement is found as part of the plan. No description of cultivation or preparation of the surface of the regraded areas is found within the plan which adequately describes how such backfilling and grading will be accomplished. In those areas where the slopes exceed 2h:1v, the Operator has proposed no suitable method for the cultivation of the surface of the area as preparation for revegetation. In such areas, loosening or ripping the surface would limit the slope to less than 2h:1v based on the constraints of the angle of repose for such materials. Surface preparation, by loosening or cultivating both cut and fill areas within the disturbed area, must be considered by the Operator and incorporated into the text of the plan. Those areas in which no cultivation, ripping or surface preparation will be accomplished, and where no substitute material will be used for or as topsoil placement

Cut slopes associated with the mine facilities from the thickener overflow ponds to the truck dump need to be backfilled to meet the general requirements for backfilling and grading and to meet AOC requirements. No constraints such as the amount of backfill material available within the site or geometric constrains which would limit or exclude these cut areas from being completely backfilled. These areas need to be

backfilled at a 2h:1v slope or more moderate slope to achieve AOC and eliminate these cut slopes.

Although the Operator has indicated that remnant of the old town of Castle Gate and old mining facilities underlie portions of the areas to be graded and that contours may vary as a result of allowing some of these buried facilities to remain covered, it is not considered conclusive that there is insufficient material to allow for complete elimination of cut slopes in many of the areas associated with the existing Castle Gate area. The area identified by section C would be considered as typical of a cut slope area that could be completely mitigated to blend in with the surrounding area. Although the stability analysis indicates that this area is stable, this stability can mostly be attributed to the sandstone member at the base of the cut slope. The upper two thirds of this slope appears to be colluvial materials. Reduction of the cut slope by backfilling of this slope appears to be reasonable and conforms with the requirements for backfilling and grading to meet AOC requirements.

The cutslope area at section C and the thickener ponds would also appear to be a likely candidate for the permanent disposal of spoils which are found not be suitable as growth materials for the site. Additionally, this area could be used as a landfill area to accumulate non-coal waste materials encountered during demolition as well as from facilities uncovered during grading operations of the old preparation plant and town site.

Deficiencies:

1. Drawings of the Castle Gate Area need to be revised to show the disturbed area boundaries so that the location and extent of cut slopes remaining as part of the regrading plan can be evaluated. Cut slope areas and undisturbed areas within the disturbed area boundary to remain as part of the final surface configuration must be identified in order to determine whether or not these cut slopes will meet AOC requirements. Principally, this can be show by delineating those areas which are to be regraded within the disturbed area boundary and discussing reclamation treatments for those areas. Secondarily the location and the descriptions of the cut slope areas and the natural areas found within the disturbed area boundary would also be discussed in the plan and identified on the drawings.

2. Drawings of the Castle Gate area need to be revised to reduce fill areas to the maximum design slope of 2h:1v. Cut slope areas need to be backfilled to moderate slopes in those areas where the configuration of the area allows in order to meet AOC requirements.

3. Detailed information needs to be presented in the plan for any additional reclamation treatments for cut slope areas to remain on final reclamation. This information must address methods for monitoring and evaluating vegetation cover and diversity for the entire disturbed area, including the cut slopes. Additionally, slopes found within the disturbed area which are natural slopes need to be identified and specific treatments for those areas should be described in the plan. Further, many slopes and areas within the disturbed area boundary have been previously disturbed but have to some extent been naturally revegetated. The Operator should discuss in the text of the plan methodologies used to evaluate these areas and proposed reclamation treatments where required. (This information has been proposed to be submitted in conjunction with the vegetation and soils section of the mining and reclamation plan.)

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 remining operation and any other reasonably available spoil shall be used to backfill the area. Reasonably available spoil in the immediate vicinity of the remining 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:

Discussion of previously mined areas is found in Section 3.4-2 of the plan and is indicated on Exhibit 3.4-1. Within the permit area, two mines, the old preparation plant facilities, and the historic town of Castle Gate.

Analysis:

While much of the mining activity within and adjacent to the permit area is historic, essentially all of the mining operations as they exist, with the exception of the unit train loadout facilities, are part of an ongoing mining operation which was active prior to, and continued operation through, the implementation of SMCRA. The unit train loadout area was added to the permit as a minor permit modification.

No "highwalls" exist within the Castle Gate area. Mining operations within this area consist of coal preparation and loadout facilities. No underground mining operations are proposed within this area.

There are however, cutslopes found within the Castle Gate area. The Division has determined that, in some cases, cut slope areas can remain when they are found to be stable, compatible with the post mining land use and meet AOC requirements. Refer to comments under Division Order #18.

Exhibit 3.4-1 does not conform closely to the disturbed area boundaries shown on other drawings within the mining and reclamation plan. However the general location and the extent of the disturbed areas and those areas which have been previously disturbed within the permit area are considered to be sufficient to meet the requirements of the regulations.

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 3.4 has been eliminated from the plan.

Analysis:

It is anticipated that the bonding information previously provided for the Castle Gate Area 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. Mass balance calculations, especially in regard to Gravel Canyon, cannot be completed until all topsoil distribution requirements are determined for the entire permit area.

Deficiencies:

1. The Operator will need to provide revised bonding calculations in conjunction with the Remaining Areas.

RECOMMENDATIONS:

Several of the deficiencies described within this review have already been discussed with the Operator and the Operator's consultant. Prior to completion of this review meetings were held with EarthFax, on June 3, 1992, with Richard Allison of AMAX and Bill Hendricks of EarthFax, on June 8, 1992, and a field visit to the site on June 9, 1992 to discuss and evaluate the proposed plans and drawings.

In general, resolution of most of the issues discussed in this review have been resolved and will be incorporated into the resubmittal for the Castle Gate area by September 9, 1992 as agreed in the schedule for Settlement Agreement.

Deficiencies found within the review of the Castle Gate Area are considered minor in respect to the total reclamation plan concept submitted for the area. Overall, the revised proposal by the Operator is a considerable improvement over the information previously found in the mining and reclamation plan. Deficiencies found within the scope of this review should be submitted by the Operator as early as possible, but, no later than the deadline for the completion of all the information required under the Settlement Agreement.

cc: BTEAM

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