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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Norman H. Bangertter
Governor
Dee C. Hansen
Executive Director
Dianne R. Nielson, Ph.D.
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

July 29, 1992

Mr. Richard H. Allison, Jr. P.E.
Project Supervisor
AMAX Coal Company, Belle Ayr Mine
2273 Bishop Road
P. O. Box 3005
Gillette, Wyoming 82717-3005

Dear Mr. Allison:

Re: Adit #1 and Gravel Canyon Area Submittal, AMAX Coal Company, Castle Gate Mine, ACT/007/004-92D, Folder #2, Carbon County, Utah

The Division has completed a review of your Adit #1 and Gravel Canyon plans. There appear to be a number of deficiencies with your plan. Please review the enclosed technical memos which discuss those deficiencies.

Correction of the deficiencies should coincide with your submittal of information for all remaining areas which is scheduled for December 1, 1992.

Please call if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Daron R. Haddock".

Daron R. Haddock
Permit Supervisor

mbm

cc: R. Harden
R. Summers
P. Burton

BT007004.92D



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July 27, 1992

TO: Daron Haddock, Permit Supervisor

FROM: Randy Harden 

RE: Gravel Canyon and Adit #1 Submittal, AMAX Coal Company, Castle Gate Mine, ACT/007/004-92D, Folder #2, Carbon County, Utah

Summary:

In accordance with the Stipulation under Docket 91-001, AMAX Coal Company has submitted revised plans for the Gravel Canyon and the Adit #1 Areas. These plans were received by the Division on June 19, 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 the Adit #1 and the Gravel Canyon areas 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.

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Proposal:

Information submitted for the Adit #1 and the Gravel Canyon areas are specific only to those sections of the plan. A new table of contents for sections 3.5 and 3.6 of the plan has been provided.

Analysis:

With respect to section 3.5 and 3.6, the operator has revised the plan. However, requirements of this section of the Division Order apply to the plan in its entirety.

Deficiencies:

The organization and contents of the plan must be revised to comply with this section of the Division Order. This information should be provided with the information provided for the Remaining areas 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 submittal of this information will be made as part of the ongoing review.

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 Gravel Canyon and Adit #1 areas. The Post Mining Reclamation Treatments Maps, Exhibit 3.5-3 and 3.6-3 show the proposed final contours of the area, cross section locations and watershed areas used for reclamation drainage area calculations.

Exhibit 3.5-1 and 3.6-1 show the location and the extent of the areas previously disturbed by mining (pre-SMCRA) and those portions of the previously disturbed areas which are incorporated into the disturbed area boundary for current mining operations. These exhibits are also used to identify surface facilities within the areas.

Analysis:

Exhibit 3.5-1 shows the areas which were previously affected by mining operations (pre-SMCRA) for the Adit #1 area but does not incorporate the conveyor crossing beneath US Highway 6 & 50. The disturbed area boundary shown for the facilities does not incorporate the transformers and access to them located on the southeastern corner of the site or the conveyor passing beneath the highway. No permit area boundary is provided on the drawing.

Exhibit 3.6-1 shows the areas which were previously affected by mining operations (pre-SMCRA) for the Gravel Canyon Area. Delineation of the previously disturbed areas appear to be adequately marked on the drawing, however, no permit area boundary has been provided.

The information provided on both of the above exhibits could be consolidated onto just one map.

Deficiencies:

1. The operator must resubmit Exhibits 3.5-1 and 3.6-1 with corrected disturbed area boundaries to incorporate all surface mining facilities and show the permit area boundary on these drawings.

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 Adit #1 and Gravel Canyon Submittals.

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:

Reclamation contour maps are provided for Adit #1 and Gravel Canyon on Exhibits 3.5-3 and 3.6-3 respectively.

Reclamation of the Adit #1 area will include removal of all existing structures within the disturbed area boundary except for some stone cut retaining walls and concrete brows over the portal entrances which will be left for historical reference. The concrete box culvert which contains the conveyor under the highway will be left in place and backfilled. Water discharging from the portals will flow through a pipeline through this concrete box culvert. Portals will be sealed in accordance with the provisions shown on Figures 3.1-3 and 3.1-4.

The disturbed area at Adit #1 will be graded to approximate original contour by blending spoil into the surrounding area and creating a landform which resembles the surrounding terrain. Sandstone cliffs currently exist to the north and south sides of the portal area and will remain exposed. No cut slopes are proposed to remain within the disturbed area. Resoiling will consist of amending the existing soil materials and substitute topsoil since no topsoil was salvaged in this pre-law disturbed area.

Phases of reclamation for Adit #1 are discussed in section 3.5-5 of the proposal. Phase I activities include demolition, grading, portal sealing, soil preparation and soil amendments, seeding, and mulching activities. Phase II work includes removal of sediment control structures and Phase III allows for vegetation and water monitoring activity until bond release.

The Gravel Canyon area is located to the west of the coal preparation facilities and across US Highway 6 & 50. The primary use of this area is for storage of resoiling materials for reclamation of other areas within the permit area. The operator has estimated that approximately 109,000 cubic yards of material is available from Gravel Canyon for this purpose. Since the area was previously disturbed, reclamation of the site will be accomplished by utilization and amendment of existing soils within the canyon for reclamation.

The operator proposes to leave no cut slopes or highwalls within the disturbed area boundary for Gravel Canyon. Reclamation will include relocation of the ephemeral drainage to the center of the canyon, and elimination of the access road into the canyon.

Analysis:

Information found in the Adit #1 submittal is found to be inadequate. Structures and disturbed areas currently used in conjunction with surface mining and reclamation activities have not been incorporated into the plans and drawings. The conveyor and associated structures from the Adit #1 area to the preparation plant facilities have not been identified on either the operational or reclamation maps. Transformers and their associated disturbed areas located on the southeastern portion of the site have not been incorporated into the disturbed area boundary. These facilities and the permit and disturbed areas associated with them must be identified on the drawings and characterized in the text of the mining and reclamation plan.

Exhibit 3.5-2 was found to be inadequate. The drawing has not identified and labeled all surface drainage structures such as culverts and ditches. The permit area boundary has not been provided on the drawing. No drawing showing the Adit #1 facilities and the conveyor connected to the preparation plan facilities is provided. Because the Adit #1 drawing and the preparation plan facilities have been provided at the same scale, it appears that it would be more appropriate to provide both operation and reclamation information for Adit #1 on and in conjunction with the information found for the preparation plant facilities. The operator has indicated in section 3.3-4(1) that all existing structures which lie within the disturbed area boundary will be removed and that portals will be sealed according to the plans shown on Figures 3.1-2 and 3.1-4.

The operator has proposed to allow some evidence of the mining history at the Adit #1 mine site which would include some hand cut stone walls and the portion of the concrete portal structure which dates back to 1888. These structures have, to some degree, both aesthetic and historic significance, it is believed by the Division that allowing such remnants to remain will have no detrimental effect on the reclamation plan or the post mining land use.

The text of the plan for Gravel Canyon does not discuss the wall to remain near the highway. A description and justification for allowing this structure to remain should be presented in the plan.

Deficiencies:

1. Drawings and plans must be revised to incorporate the box culvert structure passing beneath the highway, the associated conveyor structure, and substation area and the road to the substation area as part of the operational and reclamation facilities.
2. The operator needs to provide an adequate description of the type and condition of the wall to remain in gravel canyon, and the justification for allowing it to remain as part of the postmining land use.

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 for the Adit #1 area is found in section 3.5-4 of the mining and reclamation plan. Reclamation contour information is shown on Exhibit 3.5-3. The operator has indicated that the area will be regraded to approximate original contour by blending spoil into the surrounding area and creating a landform which resembles the surrounding terrain. Sandstone cliffs exist on both the north and south sides of the portal facilities and will remain exposed.

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. The operator has indicated that no cut slope areas or highwalls are to remain in either canyon.

Analysis:

Backfilling and grading in the Adit #1 area will consist primarily of excavation to reestablish drainage in the canyon. Natural cliffs on either side of the canyon will not be covered as part of the reclamation activity however backfilling will occur at the base of these cliffs. Although the operator has indicated that remnant of some of the concrete and rock wall structures within the canyon will remain for aesthetic reasons, they appear not to interfere with the reestablishment of the surface drainage system.

Excavation of resoiling materials in Gravel Canyon indicates that there is approximately 109,000 yd³ are available. This indicates that there is sufficient cover material for at least 2 feet of cover material over the Schoolhouse Canyon refuse disposal area. Plans for the reclamation of the Schoolhouse Canyon area and associated bonding costs should be revised to incorporate those quantities.

A steep cut slope area along the south side of gravel canyon is shown to remain and is not considered to meet AOC requirements. This area extends from near the highway up to the old gravel pit area. Designs and contour maps of this area should be resubmitted.

Deficiencies:

1. Backfilling and grading plans for Gravel Canyon must be revised to backfill the cut slope along the south side of the area to meet AOC requirements.
2. Backfilling and grading plans must be revised for incorporation of a minimum of 2 feet of cover for the Schoolhouse Canyon refuse disposal facilities based on the amount of material that has been found to be available in Gravel Canyon.

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:

Gravel Canyon is a source for resoiling materials to be used to cover the refuse materials. The area was disturbed prior to coal mining and reclamation activities by utilization of the canyon as a source of materials for road construction. Castle Gate claims valid existing rights to mine within 100 feet of US Highway 6 & 50 since the property was acquired to conduct coal mining activities prior to the enactment of SMCRA. The pre-mining disturbances for the Gravel Canyon area are shown on Exhibit 3.6-1.

The Adit #1 area was first opened and mined in 1888 and essentially all of the area within the disturbed area boundary was previously affected by pre-law mining operations. As shown on Exhibit 3.5-1, the previously disturbed area is shown to encompass the entire disturbed area and also extends primarily to the south of the area shown on that drawing.

Analysis:

Technically the disturbances within Gravel Canyon prior to SMCRA were not caused by coal mining activities prior to SMCRA, but were affected by gravel operations within the area. However, the operator has not prepared the reclamation design that would require application of "previously mined areas" to this portion of the plan. Accordingly, no request for any variance in regard to backfilling and grading or to highwalls has been made in this section of the plan. Based on the information presented in the plan, Gravel Canyon meets AOC requirements in accordance with the general backfilling and grading requirements.

The Adit #1 area was previously disturbed by coal mining operations. The operator has not requested nor does the reclamation plan indicate any request for highwall retention or from a variance from AOC requirements.

The operator is considered to be in compliance with the requirement of this division order, with the exception of the disturbed and permit area boundaries as previously discussed.

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 is not found in the Adit #1 or Gravel Canyon area sections.

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Analysis:

It is anticipated that the bonding information previously provided for these areas 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:

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

RECOMMENDATIONS:

Deficiencies found within the review of the Adit #1 and Gravel Canyon areas are considered minor in respect to the total reclamation plan 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 Stipulation.



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355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
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July 21, 1992

TO: Daron Haddock, Permit Supervisor

FROM: Rick P. Summers, Hydrologist *SF for RRS.*

RE: Review Adit # 1 Area and Gravel Canyon Area Reclamation Plan (received June 19, 1992), Castle Gate Mine, AMAX Coal Company, ACT/007/004-92D, Carbon County, Utah

SUMMARY

In accordance with Stipulation under Docket 91-001, AMAX Coal Company has submitted revised plans for the Adit #1 and Gravel Canyon areas of the Castle Gate Mine. These plans were received by the Division on June 19, 1992.

Comments and completeness of the information within the text of this review is in regard only to those areas described in the Castle Gate Area. 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.

This review is specific to the Division Order #3 and #17, relative to the Adit #1 area and Gravel Canyon area reclamation designs and operational hydrology concerns. Hydrology issues involved in Division Order 21, regarding water monitoring, are not addressed in this review. As per agreement with R. Allison (3/16/92, Division Offices), this issue will be addressed for the entire permit area upon completion of the response to the Division Order. Additionally, potential changes to the existing MRP material not related to reclamation plans and designs were not reviewed and cannot be considered to be approved amendments to the MRP.

Proposal:

Analysis:

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.

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.

SUMMARY

The following review comments were itemized to facilitate operator response to the Division's review. The comments are not identified as to the specific Division Order, but the content should make the intent obvious. The level of deficiencies in this submittal precluded a thorough technical analysis of the material. That analysis will be conducted following the operator response to this review. The operator is encouraged to contact me if additional clarification on these line items deficiencies is needed.

The proposal needs to make the following minor changes to the text to complete the response:

1. Page 3.5-15, Section 3.5 and page 3.6-11, Section 3.6 states that sediment material trapped in the silt fence/straw bale control measures, that is not used onsite for erosional repair work, will be disposed off site. This sentence should be changed to retain the material within the Castle Gate permit area.
2. The narrative discussing the use of mulch, page 3.5-13, Section 3.5, and page 3.6-9, Section 3.6 proposes the use of woodchips as a mulch. The literature suggests that long fiber mulches are more successful in reducing erosion. The application should be revised to utilize this preferred best technology.

3. The MRP needs to depict the no. 3 beltline area and structures on Plates 3.5.2 and 3.5.3, or reference an applicable map that does depict the area.
4. The belt line area needs to be addressed relative to the ASCA and treatment measures during the operational phase.
5. The application needs to present operational drainage designs for the road in gravel canyon.
6. Page 3.5-5 discusses pond inflow to Pond #10. The application states that the flow is erosive and no erosion protection will be provided. The application must address these flows and demonstrate that the diversion will be stable in accordance with 742.312.1. The application needs to address a drainage plan to route the disturbed area flows to Pond #10. It is suggested that a diversion at the top of the slope west of the sediment pond be considered to divert the flows from this outslope.
7. Page 3.5-5 discusses a 12 inch culvert used to divert "flows around the pond embankment". This culvert is not depicted on Plate 3.5-2. The operational area ASCA should be given an identification label on that same plate. The operational and reclamation channels should be labelled on the appropriate plates.
8. The permit discussion needs to demonstrate that the reclaimed channels will have equal capacity to the unmodified channels directly upstream of the disturbed area. The current discussion states that the natural channel sections were measured in the field and approximated with a trapezoidal cross-section, yet no calculations were presented or discussion stating the capacity of the undisturbed channel. This comment applies to both the Adit #1 plan, Section 3.5 and the Gravel Canyon plan, Section 3.6.
9. The reclamation timetables on pages 3.5-15 and 3.6-11 and 12 needs to be modified to commit to retaining the sediment control measures until the disturbed area has been stabilized and revegetated.
10. Appendices 3.5B and 3.6A presents designs for the operational diversions. The map that depicts the watersheds for the operational design should be referenced in the text and in these Appendices to eliminate confusion with Plate 3.4-8.
11. The design reaches presented in the calculations for CGRD-10A through D should be depicted on Plate 3.5.3 or an equivalent plate as cited.

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12. Drainage diversions need to be labelled on all maps. For example, Appendix 3.6A presents designs for diversions CGD-15 and 16, yet these are not depicted on Plate 3.6-2.
13. Plate 3.5-2 depicts an existing diversion upslope from the Adit #1 area. It is not clear if designs for the diversion are presented in the application. All diversions should be labeled on this map and a corresponding design presented for each diversion.

cc: R. Harden
D. Haddock
B. Richards
S. Falvey

ADITIGRV.RS



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355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
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July 27, 1992

TO: Daron Haddock, Permit Supervisor

FROM:  Priscilla Burton, Reclamation Soils Specialist

RE: Technical Deficiency Review of Utah Fuel Adit #1 and Gravel Canyon Reclamation Plans. Castle Gate. AMAX Coal Co. ACT/007/004-DO92D. Folder #2. Carbon Co. Utah.

SUMMARY:

Reclamation of each site will entail direct seeding onto regraded spoil. Each plan calls for deep ripping on slopes less than or equal to 10%. No plans are detailed for roughening the surface of steeper grades. Successful reclamation may depend on such details of surface preparation.

ANALYSIS:

R645-301-242. Soil Redistribution.

Proposal:

The plans call for deep ripping to 24 inches slopes which are 10% or less (pages 3.5-13 and 3.6-9).

Analysis:

Preparation of the surface of the regraded spoil on slopes steeper than 10% must be addressed within the plan. The Division suggests creating a roughened surface utilizing the tines of a trackhoe or creating basins with the bucket of the trackhoe.

Deficiency:

1. A discussion of the surface preparation (prior to seeding) of regraded spoil slopes which are steeper than 10% must be provided within the plan.

CONCLUSION:

The Adit#1 and Gravel Canyon plans specify ripping on a 10% or less slope. Surface preparation on steeper slopes may be key to the success of reclamation and must be addressed as per R645-301-242.120, 242.130 and 242.200.