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Norman H. Bangertter

Governor

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Executive Director

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Division Director

# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

355 West North Temple

3 Triad Center, Suite 350

Salt Lake City, Utah 84180-1203

801-538-5340

January 18, 1989

Mr. Richard Denning  
Permit Coordinator  
Consolidation Coal Company  
12755 Olive Boulevard  
St. Louis, Missouri 63141

Dear Mr. Denning:

Re: Deficiency Review, Amendment, Underground Waste Disposal Plan,  
Consolidation Coal Company, Emery Deep Mine, ACT/015/015-88G,  
Folder #2, Emery County, Utah

The Division has completed review of your company's submittal received November 29, 1988. The plans were reviewed by the Division's technical staff. Please resolve the following deficiencies as outlined in the attached memos by March 3, 1989. As discussed with Tom Plate over the phone, we would like to review these deficiencies with your staff when we meet on January 31.

If you have any questions, please call Lynn Kunzler, Reclamation Biologist or me.

Sincerely,

A handwritten signature in cursive script that reads "Susan C. Linner".

Susan C. Linner  
Reclamation Biologist/  
Permit Supervisor

#### Attachments

c1

cc: R. Thompson, Emery Deep Mine

J. Helfrich

B. Team

BT45/154



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December 5, 1988

TO: Susan Linner, Permit Supervisor

FROM: Lynn Kunzler, Reclamation Biologist *LK*

RE: Review of Underground Waste Disposal Site Plans,  
Consolidation Coal Company, Emery Deep Mine, ACT/015/015-88G,  
Folder #2, Emery County, Utah

## Summary:

The above referenced plan received by the Division on November 29, 1988 has been reviewed for completeness and adequacy in meeting the requirements of UMC 783.19, 783.20, 783.22, 784.13, 784.15, 784.21, 817.97, 817.100, 817.111-117 and 817.133. The submittal was found to be complete and adequate for permitting of this site.

## Analysis:

Since the site is previously disturbed and within the permitted disturbed area, land use information and plans, vegetation information, and wildlife information and plans provided in the approved MRP are applicable to the proposed waste disposal site.

Section 3.5.1 has been revised to provide plans for temporary stabilization of the waste disposal site and reference appropriate final revegetation plans in the approved MRP.

## Recommendations:

The plan is approvable with regards to the above referenced regulations.

cc: B-Team  
1414R/68



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December 20, 1988

TO: Susan C. Linner, Permit Supervisor

FROM: James Leatherwood, Reclamation Soils Specialist *JL*

RE: Underground Development Waste Disposal Site,  
Consolidation Coal Company, Emery Deep Mine,  
ACT/015/015-88G, Folder #2, Emery County, Utah

The proposed Mining and Reclamation Plan Amendment for an Underground Waste Disposal Site, received November 29, 1988, has been reviewed. The plan cannot be considered technically adequate at this time. The following concerns must be addressed before final approval is recommended.

UMC 817.23(e) Topsoil: Removal - JSL

The proposal must include the results of chemical and physical analysis of the proposed substitute topsoil material. The analysis must include the determination of: pH; CaCO<sub>3</sub> percentage; available phosphorus; potassium; texture; saturation percentage; alkalinity; electrical conductivity; SAR; total nitrogen; and percent rock fragments. The proposed substitute materials must be quantified as being equal to or more suitable for sustaining vegetation than the available topsoil.

UMC 817.48 Hydrologic Balance: Acid-Forming and Toxic-Forming Materials - JSL

The volume of waste materials represented by the individual analysis should be quantified. Over 46 percent of the samples indicate an acid-forming potential, however, the remaining material is reported as having a high neutralization potential. The overall acid-base balance will be dependent upon the percentage of the potential acid producing waste to that of the potential neutralizing waste.

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The plan must include a commitment to treat or otherwise bury all the potential acid- or toxic-forming underground development waste within 30 days after it is first exposed on the mine site.

An impermeable material must line the floor of the disposal pit prior to the placement and burial of the waste material.

cc: R. Harden  
L. Kunzler  
BT51/39-40



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January 12, 1989

TO: Susan Linner, Permit Supervisor

FROM: Mike DeWeese, Reclamation Hydrologist *MD*

RE: Underground Waste Disposal Site, Consolidation Coal Company, Emery Deep Mine, ACT/015/015-88G, Folder #2, Emery County, Utah

## SYNOPSIS:

The operator's proposal to construct a permanent underground development waste disposal site received Nov. 29, 1988 has been reviewed by the Division. This site is to be used for disposal of waste material currently stored at the coal stockpile area and future development waste. The operator's submittal is technically inadequate based on the following analysis.

## ANALYSIS:

UMC 817.41 Hydrologic Balance: General Requirements - MMD

UMC 817.71 Disposal of Excess Spoil and Underground Development Waste: General Requirements - MMD

UMC 817.48 Hydrologic Balance: Acid and Toxic Forming Materials - MMD

Surface topography dictates that runoff from the disposal site will report to existing sedimentation ponds. However road drainage patterns above the site are not clear from the submitted exhibits. The operator must provide plans to ensure that surface drainage from the water tank access road will be diverted away from the disposal site. This should address the temporary road drainage during site construction as well as any final road drainage.

Potential impacts to the groundwater regime have not been sufficiently addressed. The operator's assumption that no impacts will occur because no springs or seeps have been observed is not adequate. Section 7.1.3.2 of the MRP identifies Quarternary pediment deposits in the mine area as an aquifer. Delineation of these deposits in Figure 7-2 are not clear as to the local of the disposal site. The disposal site appears to be located on this formation based on area descriptions provided in the submittal. Details of the geologic sequence in this area are not specific. The submittal states that site construction will remove the subsoil gravel layer down to the underlying sandstone formation. This formation should be identified. The operator must include information regarding ground water in the area including but not limited to the following:

1. A geologic cross section of the disposal site identifying the sandstone formation immediately below the disposal pit and underlying formations.
2. The depth and extent of any ground water below the site. Specifically, this shall address the existence of any shallow ground water reserves in the formations below the disposal pit and potential groundwater impacts.
3. A soil moisture budget of the disposal area identifying periods of deficits, surplus, recharge and discharge. This should be conducted as part of a comprehensive soil analysis to determine the potential effects of leaching of the waste material.

RECOMMENDATIONS:

The operator has not submitted adequate information regarding the groundwater regime in the immediate vicinity of the disposal site to make an accurate determination of potential impacts. Therefore the Division recommends that approval of the underground waste disposal facilities be denied at this time.



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January 4, 1989

TO: Sue Linner, Permit Supervisor

FROM: Randy Harden, Reclamation Engineer 

RE: Underground Waste Disposal Site, Emery Mine, Consolidation Coal Company, ACT/015/015-88G, Folder #2, Emery County, Utah

## SUMMARY:

Proposal for the construction of an underground waste disposal site was received by the Division on November 29, 1988. The following comments are made in regard to the technical completeness of the proposal:

## ANALYSIS:

### UMC 784.19 Underground Development Waste - JRH

Plates 13-1 and 13-27 provide details in plan and cross section for the proposed underground waste disposal facilities. Text found in the MRP regarding the facility is found in sections 3.2.3.40A, 3.4.9, and, 3.5.1.

The operator needs to provide a more detailed description of the facilities, including but not limited to the following:

1. A geotechnical description and characterization of the bedrock material sufficient to indicate the suitability of the location as a waste disposal site. The investigation shall include as a minimum, a determination as to the depth and quality of the groundwater lying immediately below proposed fill area.
2. The operator has indicated that the materials to be removed from the site in conjunction with disposal of underground development waste are sand and gravel. In accordance with requirements for the use and mining of sands and gravels in the state of Utah, the operator shall be required to provide evidence of the right to excavate or mine these sands and gravels, and, evidence of mineral rights or lease rights on this material. In other words, the operator must prove that the legal right to remove or utilize these sands and gravels exists within the permit area.

3. The operator provides a brief description of the intended construction and use of the waste disposal facility but does not provide sufficient detail in order to determine this section complete. The operator must provide: the location and size of storage and stockpiles for cover materials excavated from the site; mass balance calculations for excavation, waste fill material, cover material and excess material borrowed from the excavation; methodology including sequence of operation for the facility; a reclamation cost estimate based on worst-case situation for reclamation of the waste disposal facility; engineering characteristics of the fill and cover material including, bulk and compacted densities, methodology and testing parameters for compaction, equipment used for compaction and maximum allowable lift. Maps and cross sections need to include the final proposed contours for reclamation.
4. A survey of the potential effects of subsidence of the subsurface strata due to past and future mining operations must be provided.
5. A stability analysis including, but not limited to, strength parameters, pore pressures and long-term seepage conditions. These data shall be accompanied by a description of all engineering design assumptions and calculations and the alternatives considered in selecting the specific design specifications and methods.
6. Rocktoe buttresses or key-way cuts are not required for the proposed structure. Part (c) of this section is not considered to be applicable to the operator's proposal.

UMC 817.71 Disposal of Excess Spoil and Underground Development  
Waste: General Requirements - JRH

Justification, design and calculations required for the underground waste disposal facility are not found within the text of the MRP. In addition to those deficiencies as noted in UMC 784.19, the following information should also be provided:

1. A determination must be made in the MRP that leachate and surface runoff from the fill will not degrade surface or ground waters or exceed the effluent limitations of Section UMC 817.42.

2. Stability of the fill should be determined by the operator. In the case of this fill, it is evident that the operator intends on minimizing the slopes of the structure to maintain stability. In the event that the slopes of the structure are maintained at less than 2h:1v, no detailed geotechnical investigation will be required by the Division. However, the general characteristics of the material, including density, shear strength and cohesion of the materials should be included in the proposal. The operator should also provide a commitment in conjunction with the justification for the stability analysis to monitor the facility for any evidence of structural weakness, fire, or other potential hazards as they may occur.
3. The fill shall be designed using recognized professional standards, certified by a registered professional engineer, and approved by the Division. Drawings and designs submitted for approval and incorporated into the MRP must bear the mark of a registered professional engineer. Currently, the drawings and the designs provided do not have such certification.
4. Cross sections provided by the operator on plate 13-27 indicate that the foundation does not exceed the slope criteria for this section, part (e). Accordingly, this detailed stability analysis will not be required by the operator. This section is considered to be adequate.
5. The operator needs to more precisely describe the design, construction, operation and final reclamation of the fill. The fill material shall be hauled or conveyed and placed in horizontal lifts in a controlled manner, concurrently compacted as necessary to ensure mass stability and prevent mass movement and covered as necessary to meet revegetation and stability requirements, and graded to allow surface and subsurface drainage to be compatible with natural surroundings and ensure a long-term static safety factor of 1.5.
6. The final configuration of the fill must be suitable for postmining land uses approved in accordance with Section UMC 817.133, except that no depressions or impoundments shall be allowed on the completed fill. Without providing the final configuration of the facility, this determination cannot be properly made.

7. The final configuration for the underground waste disposal facilities is not depicted on the drawings. The operator has provided the existing contours and sections as well as the cut sections for the excavation of the structure. The operator must provide final anticipated configuration of the fill in order to indicate whether or not it is suitable for post mining land use, that no depressions or impoundments are left on the completed fill, and, to provide sufficient detail for reclamation and bonding cost estimates.
8. The operator has not provided a plan or a commitment for the inspection or certification of the underground waste disposal facility in accordance with the requirements of this section. The following information should be incorporated into the text of the proposal. The fill must be inspected for stability by a registered engineer or other qualified professional specialist experienced in the construction of earth and rockfill embankments at least quarterly throughout construction, and during the following critical construction periods: (1) removal of all organic material and topsoil, (2) placement of underdrainage systems, (3) installation of surface drainage systems, (4) placement and compaction of fill materials, and (5) revegetation. The registered engineer or other qualified professional specialist shall provide to the Division a certified report within two weeks after each inspection that the fill has been constructed as specified in the design approved by the Division. A copy of the report shall be retained at the mine site.
9. If the disposal area contains springs, natural, or manmade watercourses, or wet weather seeps, an underdrain system consisting of durable rock shall be constructed from the wet areas in a manner that prevents infiltration of the water into the spoil material. The underdrain system shall be protected by an adequate filter and shall be designed and constructed using standard geotechnical engineering methods. The operator has indicated in the proposal that no seeps or springs exist within the planned area for disposal. This commitment is found in part 3.2.3.40 of the MRP. The operator should provide sufficient information such that the elevation of groundwater can be reasonably determined beneath the fill. Justification should be provided in the proposal that indicates that the use of filters or underdrains is not required in this location.

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10. The foundation and abutments of the fill shall be stable under all conditions of construction and operation. Sufficient foundation investigations and laboratory testing of foundation materials shall be performed in order to determine the design requirements for stability of the foundation. Analyses of foundation conditions shall include the effect of underground mine workings, if any, upon the stability of the structure. This information has not been provided in conjunction with the proposal.

cc: B Team  
BT17/5-9