



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Norman H. Bangerter  
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

November 2, 1989

Ms. Jody Belviso  
Blackhawk Coal Company  
P. O. Box 700  
Lancaster, Ohio 43130

Dear Ms. Belviso:

Re: Determination of Completeness, Final Closure and Reclamation Plan, Willow Creek Site, ACT/007/002, Folder #2, Carbon County, Utah

The Division has reviewed the information received November 1, 1989, in response to deficiencies identified regarding baseline soils information at the Willow Creek Site. The information has been found to be adequate to determine the Final Closure and Reclamation Plan apparently complete. A technical review has been initiated. The attached review memos document technical deficiencies identified. In order that permit renewal may be completed by December 24, 1989, please submit all required information no later than November 24, 1989.

At this time the applicant should publish a Notice of Complete Permit Application as required by UMC 786.11(a). A copy of the publication notice should be sent to the Division as soon as it is available. The Division will notify all other interested agencies and allow for their comment prior to making a final decision to approve or disapprove the renewal application.

Please feel free to contact me or Dave Darby if you have questions.

Sincerely,

Susan C. Linner  
Reclamation Biologist/  
Permit Supervisor

Attachments  
cc: C. Parrish, ACZ  
D. Darby  
BT244/13



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October 26, 1989

TO: Susan Linner, Permit Supervisor  
FROM: Henry Sauer, Reclamation Soils Specialist *HS*  
RE: Initial Completeness Review and Technical Deficiency  
Review, Willow Creek Site, Blackhawk Coal Company,  
ACT/007/002, Folder #2, Carbon County, Utah

**UMC 817.22 Topsoil: Removal-(HS)**

The applicant must provide analyses and sample location identifications of the material proposed as a cover for "coally material". Laboratory analyses must follow the constituents and lab methodologies outlined in the Division's Guidelines for Management of Topsoil and Overburden, Table 6.

djh  
AT97/28



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October 6, 1989

TO: File

FROM: David W. Darby 

RE: Initial Completeness Review, Willow Creek Mine, INA/007/002,  
Blackhawk Coal Company, Carbon County, Utah

## Summary

A completeness review was conducted on the geologic and ground water portions of the Willow Creek Site Mining and Reclamation Plan. An Updated Reclamation Plan (MRP) was submitted on September 18, 1989 and October 17, 1989. This MRP was designed to provide complete information on behalf of Blackhawk Coal Company to accomplish final reclamation, closure and transfer of leases and reserves of the Willow Creek Site.

No underground mining has occurred within the leases currently held by the Blackhawk Coal Company/ Price River Coal Company since the passage of the Surface Mining Control and Reclamation Act of 1977 (SMCRA). Surface disturbance requiring reclamation exists at the Willow Creek pad site which has been in use as a storage facility until recently.

Subsidence issues are mute since no underground mining took place after passage of SMCRA. All of the disturbance outside the Willow Creek pad site is grandfathered from reclamation since it occurred prior to August 1979. Future plans do not call for mining.

## Analysis

The geology of the Willow Creek Site and adjacent area is discussed in Volume 1 page 5-30. Map 12 shows the geologic features.

Ground water is discussed in Volume 1 beginning on page 5-22.

The applicant states that no future mining is planned for the site by their company and therefore subsidence will not be an issue.

## Conclusion

The geologic and ground water information presented by the applicant is complete and comprehensive. To ensure that no confusion occurs under the subsidence section the applicant should indicate that all subsidence is grandfathered since mining took place prior to SMCRA.

dwd

cc. B-team



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October 20, 1989

TO: Susan Linner, Permit Supervisor

FROM: Lynn Kunzler, Reclamation Biologist *LK*

RE: Review of Final Reclamation Plan, AEP, Blackhawk Coal Company, Willow Creek Mine, ACT/007/002, Folder #2, Carbon County, Utah.

## Summary:

The above referenced plan has been reviewed for landuse and revegetation concerns. Several deficiencies were noted as described below.

## Analysis:

### UMC 783.19 Vegetation Information - LK

The vegetation map submitted to the Division on October 19, 1989 would be acceptable given the proposed industrial postmining land use. However, the text needs to be corrected to identify the 1" = 1000' scale of this map (page 5-21 identifies a 1" = 400' scale map).

### UMC 784.13 Reclamation Plan: General Requirements - LK

Page 3-3 identifies that seed and mulch will be applied together. This is not acceptable. Seed and mulch must be applied in two separate applications.

The seed mixes (Table 3-2) contain several introduced species that do not meet the criteria of UMC 817.112. Also, the rates of some species are excessive while others are extremely low. Attached is a revised seed mix that could be used in place of the one proposed. Seed mix two could also be used on other areas that require seeding (i.e. the "coaly" area).

ACT/007/002  
October 20, 1989  
Page 2

UMC 784.15 Postmining Land Use - LK

The operator intends to leave existing facilities for a proposed land use change to industrial. While a copy of a lease agreement has been provided, a 5-year lease does not demonstrate long-term use. Also, from the apparent use, facilities such as the substation would not be needed and should therefore be reclaimed. The operator will need to provide a map of adequate scale which identifies those areas that would be used, the existing facilities that are required for the proposed land use and a documentation for long-term use.

Recommendations:

The above comments need to be adequately addressed before the reclamation plan can be approved.

Attachment  
cc: D. Darby  
BT3013/61-62

Proposed seed mix #1  
 Willow Creek Mine  
 INA/007/002  
 (Oct. 20, 1989)

<u>Species</u>	<u>Pounds PLS/Acre</u>
<u>Agropyron dasystachyum</u> Thickspike wheatgrass	2.0
<u>Agropyron smithii</u> Western wheatgrass	2.0
<u>Agropyron trachycaulum</u> Slender wheatgrass	1.5
<u>Bromus inermis</u> Smooth brome - southern variety	2.0
<u>Dactylis glomerata</u> 'Paiute' orchardgrass	0.25
<u>Elymus cinereus</u> Basin wildrye	2.0
<u>Oryzopsis hymenoides</u> Indian ricegrass	2.0
<u>Aster glaucodes</u> Blueleaf aster	0.5
<u>Kochia prostrata</u> 'Immigrant' forage kochia	1.0
<u>Linum lewisii</u> Lewis flax	1.0
<u>Medicago sativa</u> 'ladak' alfalfa	2.0
<u>Melilotus officinalis</u> Yellow sweetclover	1.0
<u>Penstemon palmeri</u> Palmer penstemon	0.5
<u>Sanguisorba minor</u> 'Delar' small burnett	2.0
<u>Artemisia tridentata tridentata</u> Basin big sagebrush	0.25
<u>Artemisia tridentata vaseyana</u> Mountain big sagebrush	0.25
<u>Artemisia tridentata wyomingensis</u> Wyoming big sagebrush	0.25
<u>Atriplex canescens</u> 'Rincon' four-wing saltbush	3.0
<u>Ceratoides lanata</u> Winterfat	2.0
<u>Chrysomthamnus nauseosus albicaulis</u> Whitestem rubber rabbitbrush	0.5

Proposed seed mix #2  
 Willow Creek Mine  
 INA/007/002  
 (Oct. 20, 1989)

<u>Species</u>	<u>Pounds PLS/Acre</u>
<u>Agropyron riparium</u> Streambank wheatgrass	3.0
<u>Agropyron smithii</u> Western wheatgrass	1.0
<u>Agropyron trachycaulum</u> Slender wheatgrass	2.0
<u>Bromus inermis</u> Smooth brome - southern variety	2.0
<u>Dactylis glomerata</u> 'Paiute' orchardgrass	0.25
<u>Elymus cinereus</u> Basin wildrye	2.0
<u>Phalaris arundinacea</u> Reed canarygrass	0.25
<u>Poa pratensis</u> Kentucky bluegrass	0.1
<u>Astragalus cicer</u> Cicer milkvetch	1.0
<u>Linum lewisii</u> Lewis flax	1.0
<u>Medicago sativa</u> 'ladak' alfalfa	1.5
<u>Melilotus officinalis</u> Yellow sweetclover	1.0
<u>Sanguisorba minor</u> 'Delar' small burnett	1.0
<u>Onobrychis viciaefolia</u> Sainfoin	1.0
<u>Chrysomthamnus nauseosus albicaulis</u> Whitestem rubber rabbitbrush	0.5
<u>Sambucus cerulea</u> Blue elderberry	3.0

Rate indicated is for broadcast or hydroseeding.



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801-538-5340

November 1, 1989

TO: Susan Linner, Permit Supervisor

FROM: Mike DeWeese, Reclamation Hydrologist *MJD*

RE: Initial Completeness Review/Draft Technical Analysis,  
Willow Creek Reclamation Plan, BlackHawk Coal Company,  
ACT/007/002, Folder #2, Carbon County, Utah

SUMMARY:

The operator's proposed Reclamation Plan for the Willow Creek site has been reviewed by the Division and found to be complete. However the plan is not presently technically adequate. This draft technical analysis addresses deficiencies within the current submittal.

ANALYSIS:

The operator has addressed the necessary regulations regarding hydrologic concerns in the submitted Reclamation Plan. Therefore the submittal is considered to be complete at this time. However technical deficiencies exist within the plan which are discussed in the following technical analysis.

817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations - MMD

EXISTING ENVIRONMENT AND OPERATOR'S PROPOSAL

All disturbed area surface runoff will be passed through a sedimentation pond (Pond 018) or treatment facility (Sediment Trap 017) before leaving the disturbed area. These structures are to remain permanently as part of the proposed industrial post-mining land use. Based on this land use, no revegetation will occur within the disturbed area. Therefore subsection (a)(2) of this regulation is not applicable.

Sediment Trap 017 is proposed as runoff treatment for a small portion of the disturbed area adjacent to the access road. The Division may approve this measure only if the operator demonstrates that the requirements of subsection (a)(3) will be met. The submitted RP contains no provisions addressing this issue. The operator must incorporate this structure into the water quality monitoring plan as a demonstrative measure to ensure compliance with effluent limitations.

UMC 817.43 Hydrologic Balance: Diversions and Conveyance of Overland Flow, Shallow Ground Water Flow, and Ephemeral Streams - MMD

EXISTING ENVIRONMENT AND OPERATOR'S PROPOSAL

Proposed diversion designs throughout the site employ the 100 year 24 hour design storm. Division calculations produce higher peak flow values than the submitted design calculations for virtually all diversions. This difference is due primarily to the curve number utilized. The operator based all undisturbed drainage designs on a curve of 65 which was used in the original permit. However this value is based on erroneous assumptions and applications of the curve number technique. Based on cover and soils information contained in the submitted Reclamation Plan, the Division calculated a curve number of 77 for undisturbed drainages.

The operator states on page 3-7 that 0.5 feet of freeboard exists in all diversions. The Division could not locate any specifications on channel depths. Therefore freeboard values cannot be determined for any of the proposed channels. Total channel depth must be included in the submitted diversion design specifications.

Channel velocities were calculated by the operator using average channel slopes and a manning's n value of 0.04 for all channels. Division calculations determined the manning's n value to be a maximum of 0.03 for the area soil type. As a result, Division calculations produced higher design flow velocities in general. Flow velocities in Ditch No. 1 were determined to be marginally non-erosive. However erosive velocities were produced in a steep reach of Ditch No. 2 extending approximately 150 feet from Culvert A to the edge of the pad area. A design for protective channel lining must be submitted for this reach.

The operator has submitted design peak flow calculations for the 100 year 24 event in Jap Canyon. These calculations were based on the same assumptions as the undisturbed diversions ( $n=0.04$ ,  $CN=65$ ). The Division specified during an on-site meeting with the operator May 18, 1989 that calculations would be required for the Jap Canyon diversion reach extending adjacent to the disturbed area from the channel bend downstream. The submitted calculations address only the natural channel upstream of the channel bend in Jap Canyon. Design calculations must be submitted demonstrating that the Jap Canyon diversion is adequate to safely convey the 100 year design storm.

Site inspections have determined that drainage below Pond 018 is collected by a berm around the perimeter of the pad and diverted to the road system. Below the pad no defined drainage system exists to convey disturbed area runoff to Trap 017. The operator must design the road grade such that all road drainage is directed to Ditch No. 2. A ditch or other conveyance structure must be designed and constructed to convey disturbed area drainage from the lower pad area and road corridor to Sediment Trap 017.

UMC 817.45 Hydrologic Balance: Sediment Control Measures - MMD

EXISTING ENVIRONMENT AND OPERATOR'S PROPOSAL

Sediment Pond 017 is proposed to be reconstructed to function as a sediment trap. The total drainage area reporting to this structure is approximately 0.5 acres. Division calculations demonstrate that this structure contains capacity for approximately 5 years of sediment at the bankfull stage. No provisions are submitted for maintenance of this structure. The operator must commit to cleaning sediment from the trap when the sediment volume has reached half the structural capacity for the duration of the bond period. The proposed spillway is designed to convey the 100 year storm with one foot of freeboard as a conservative design. The operator proposes to place a silt fence across the spillway crest as an additional sediment control measure. Silt fences are considered temporary measures and not appropriate in this situation. Therefore silt fences must be removed from the proposed design. A suitable alternative would be a rock filter dam across the spillway with a keyway to allow passage of the annual flow.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds - MMD

EXISTING ENVIRONMENT AND OPERATOR'S PROPOSAL

The operator has proposed to convert Pond 018 to a sediment trap. This structure will actually increase in capacity from the original design. Therefore it will be classified as an impoundment and consequently will remain classified as a sedimentation pond subject to the requirements of this regulation.

Division calculations have determined that the proposed structure will contain adequate capacity to totally contain the 100 year 24 hour design storm runoff in addition to more than 10 years of sediment volume. This structure is totally incised and is constructed of material having high infiltration rates. The operator has included provisions for an open channel emergency spillway designed to convey the 100 year design event.

The operator must submit design plans addressing all the requirements of UMC 817.46 and UMC 817.49.

UMC 817.52 Hydrologic Balance: Surface and Groundwater  
Monitoring - MMD

EXISTING ENVIRONMENT AND OPERATOR'S PROPOSAL

Page 3-8 discusses the proposed water quality monitoring program, in which samples will be analyzed for constituents enumerated in Table 3-3. Two sample sites are identified on Map 5 above and below the permit area in Willow Creek. Samples are to be collected biannually on June 10 and Sept. 30. The plan does not address the duration of the proposed program.

The operator must revise the sampling schedule to include quarterly sampling until two years after reclamation activities have ceased, as per Division guidelines (see attachment). At this time sampling may be reduced to two samples per year to be collected on the proposed sample dates for the duration of the bond period.

UMC 817.162 Roads: Class II: Design and Construction - MMD

EXISTING ENVIRONMENT AND OPERATOR'S PROPOSAL

The operator has not provided information requested by the Division during the on-site meeting with the operator on May 18, 1989. Specifically, stability analyses and cross sections of the critical section of the access road extending from Culvert A approximately 150 feet to the northeast were requested as part of the submittal. Site inspections have determined this section of road to be constructed with excessive slopes and marginal stability.

The operator must submit two as-built cross sections, one at Culvert A and one 100 feet to the northeast, extending from the road invert to the mid-point of the stream channel. A geotechnical analysis adequate to demonstrate long term stability of this road section must be included in the submittal.

817.163 Roads: Class II: Drainage - MMD

EXISTING ENVIRONMENT AND OPERATOR'S PROPOSAL

Culvert A is the only structure to remain permanently as a road drainage crossing. This culvert has been demonstrated to safely convey the 100 year 24 hour storm under open channel conditions. Page 5-22 states that a flexible culvert will be connected at the outlet of the CMP section to provide protection against erosion.

Regulations require that all culverts be covered by compacted fill to a minimum depth of one foot. The operator must commit to meeting this cover requirement in the final road design.

ARMORED CHANNEL DESIGN RECOMMENDATIONS

The armored channel reach of Channel A is outside the permit area designated under the jurisdiction of the Title V program. However because this design is relevant to the stability of the pad area the following design recommendations are made.

Page 6  
Initial Completeness Review  
Willow Creek Reclamation Plan  
Blackhawk Coal Company  
ACT/007/002

The proposed designs are based on a peak flow of 32 cfs, while the Division determined this value to be 56 cfs. As a result, flow depths determined by the operator are lower than Division values. The operator should revise the structural specifications based on the higher flow value. Gabions should be installed on the channel banks to a minimum height of the freeboard elevation.

The operator has proposed a stepped weir gabion structure for the steep channel reach extending from the stream channel to the edge of the pad. Gabions baskets will be employed as a protective channel lining and installed in a stairstep fashion. The operator should revise the proposed design to include inclined steps at a 10% adverse slope or, as an alternative, pooled steps with counterweirs.

No design was submitted for an energy dissipator at the outlet of this structure. The submitted design should be revised to include an energy dissipation pool at the outlet or increase the bottom width such that the resulting unit discharge is much smaller.

Three vertical weirs are proposed for the moderately sloping reach of Channel A above the stepped weir structure. These structures should be keyed into the channel bottom and sides a minimum of three feet.

The proposed design utilizes riprap covered by wire mesh below the weirs. No design calculations for these aprons were submitted. The operator should submit design calculations for stilling pools below the weirs demonstrating non-erosive velocities below the structures.

cc: C. Rohrer  
M. Mesch  
B Team  
BT98/101-106