

# TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

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October 20, 2005

TO: Internal File

THRU: Pam Grubaugh-Littig, Permit Supervisor  
Wayne Western, Team Lead

FROM: Dana Dean, P.E., Senior Reclamation Hydrologist

RE: Phase I Bond Release for Gravel Canyon, Foundation Coal Company, Willow Creek Mine, C/007/0038, Task #2243

## **SUMMARY:**

Foundation Coal Company applied for Phase I bond release for the Gravel Canyon area of the Willow Creek Mine on May 5, 2005. They completed reclamation of the area in the fall of 2004.

This technical memorandum discusses the hydrology related issues pertaining to the application.

The application meets the minimum requirements of the relevant hydrology regulations. The Division should approve it and incorporate it into the MRP.

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**TECHNICAL ANALYSIS:**

## **RECLAMATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

#### **Analysis:**

##### **Hydrologic Reclamation Plan**

The Permittee has met the requirements of R645-301-731. The bond release application includes maps and descriptions, indicating how they met the relevant hydrology requirements. The approved reclamation plan take into accounts site specific hydrologic conditions, and contains the steps the Permittee took during coal mining and reclamation operations, to meet the minimum requirements for Phase I bond release, by:

- Minimizing disturbance to the hydrologic balance within the permit and adjacent areas.
- Preventing material damage outside the permit area.
- Supporting approved post mining land use in accordance with the terms and conditions of the approved permit and performance standards of R645-301-750.
- Complying with the Clean Water Act (33 U.S.C. 1251 et seq.)
- Meeting applicable federal and Utah water quality laws and regulations.

The plan also includes the measures the Permittee took to:

- Avoid acid or toxic drainage.
- Prevent, to the extent possible (using the best technology currently available.) additional contributions of suspended solids to stream flows.
- Provide water treatment facilities when needed.
- Control drainage.

The plan specifically addresses any potential adverse hydrologic consequences identified in the PHC, and includes preventative and remedial measures.

The Division has not required additional preventative, remedial or monitoring measures to assure that material damage to the hydrologic balance outside the permit area is prevented.

The following sections of this technical memo discuss the specific ways in which the Permittee has met the regulations, as they pertain to the application.

### **Diversions: Miscellaneous Flows**

The Permittee has met the requirements of R645-301-742.330 and subsections by designing CGRD-1, a permanent diversion for the ephemeral flow in Gravel Canyon to safely pass the runoff from a 10-year, 6-hour precipitation event. They present all design calculations and other pertinent information in Section 3.6-4(2) AB, and Attachment 1. CGRD-1 is a 4.5-foot wide, 1.7-foot deep rip-rapped channel.

### **Sediment Control Measures**

The Permittee has met the requirements of R645-742 and relevant subsections by using the best technology currently available (BTCA) to prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area, meet the applicable effluent limitations, and minimize erosion to the extent possible.

The sediment control measures the Permittee used include:

- Incorporation of hay and/or straw mulch into the soil.
- Deep gouging.
- Seeding.
- Mulching after seeding.
- Chemically anchoring the final mulch layer.

### **Siltation Structures: Exemptions**

The Gravel Canyon area is exempt from the requirements of R645-301-763.100, under the provisions of R645-301-742.240; since the area is small and the Permittee has provided information in Appendix 3.6C to show that the disturbed area, as reclaimed, will meet effluent limitations. Under 40 CFR 434.82, the effluent limitations are non-numeric and based on the Permittee's sediment control designs, and modeling to demonstrate that sediment loads will not be greater than for the undisturbed condition.

### **Findings:**

The Permittee has met the minimum requirements of the Reclamation Plan: Hydrologic Information section of the Regulations.

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## **MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

### **Analysis:**

#### **Final Surface Configuration Maps**

The Permittee met the requirements of R645-301-542.300 by depicting the as-built final surface configuration (including cross-sections) for the Gravel Canyon area on Exhibit 3.6-5AB. No facilities will remain in the Gravel Canyon area as permanent features.

#### **Reclamation Treatments Maps**

The Permittee met the requirements of R645-301-731.720 by depicting GCRD-1, the only diversion in Gravel Canyon, on Exhibit 3.6-5AB. This is an ephemeral drainage.

#### **Certification Requirements.**

The Permittee met the requirements of R645-301-542.310, R645-301-731.720, and R645-301-512 by having a professional engineer certify Exhibit 3.6-5AB.

### **Findings:**

The Permittee has met the minimum requirements of the Maps, Plans, and Cross-Sections of Reclamation Operations section of the Regulations.

### **RECOMMENDATIONS:**

The application meets the minimum requirements of the relevant hydrology regulations. The Division should approve Phase I bond release.