

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

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 Adit No. 1, Castle Gate Holding Company, Castle Gate Mine, C/007/0004, Task #2244

SUMMARY:

Foundation Coal Company applied for phase I bond release for the Adit No. 1 area of the Castle Gate Mine on May 5, 2005. They completed reclamation of the area in the fall of 2002.

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

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 by demonstrating with maps and descriptions, how they meet the relevant hydrology requirements for Phase I Bond release. Their plan is specific to the local hydrologic conditions, and contains the steps the Permittee took during coal mining and reclamation operations, through bond release, to:

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

The plan also includes the measures the Permittee will take 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.

Gravity Discharges From Underground Mines

A spring located approximately 200 feet into the mine at Adit No. 1 discharges approximately 3 gallons of water per minute. This discharge is carried beneath the backfill and out of the mine by a pipe, then through a diversion to the Price River.

The Permittee has met the requirements of R645-301-731.521 because the flow from Adit No. 1 pre-dates SMCRA (Section 3.5-3(1)). The Division allows the discharge since the Permittee has demonstrated that the untreated discharge complies with the performance standards of R645-301 and R645-302 (Figure 3.5-2, point BM-30 in the Division's Water Quality Database). The Utah Division of Water Quality (DWQ) does not require a UPDES permit for this discharge (Figure 3.5-1).

Diversions: Miscellaneous Flows

The Permittee has met the requirements of R645-301-742.330 and subsections by designing all permanent diversions for the ephemeral flows in the Adit No. 1 area to safely pass the runoff from a 10-year, 6-hour precipitation event. They present all design calculations and other pertinent information in Section 3.5-4(2)AB, Table 3.5-5AB, and Attachment 1.

The diversions to remain in the Adit No. 1 area are:

Name	Diversion Type	Description	Collects flow from:	Flows to:
ARD-1A	channel	3.5-ft. wide 1-ft. deep erosion mat	AWS2	ARD-1B
ARD-2	channel	2.5-ft. wide 1.25-ft. deep erosion mat	AWS1	ARD-1B
ARD-1B	channel	3.5-ft. wide 1-ft. deep erosion mat	portal discharge AWS3 ARD-1A ARD-2	ARC-1
ARC-1	culvert	24-in. diameter	ARD-1B	ARBC-1
ARBC-1	box culvert	8-ft by 10-ft. box	ARC-1	ARD-3
ARD-3	channel	5-ft. wide 1-ft. deep rip-rap	ARBC-1	Price River

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Sediment Control Measures

The Permittee 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 Adit No.1 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 3.5-D 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 sections of the Regulations.

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 for the Adit No. 1 area on Exhibit 3.5-5AB, and cross-sections of the final

surface on Exhibit 3.5-7AB. No facilities will remain in the Gravel Canyon area as permanent features.

Reclamation Treatments Maps

The Permittee has met the requirements of R645-301-731.720 by depicting the diversions and culverts in the Adit No. 1 area, on Exhibit 3.5-6AB. They also depicted each watershed that reports to a diversion or culvert. These are ephemeral drainages.

Certification Requirements.

The Permittee has met the requirements of R645-301-542.310, R645-301-731.720, and R645-301-512 by having a professional engineer certify Exhibits 3.5-5AB, 3.5-6AB, and 3.5-7AB.

Findings:

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

RECOMMENDATIONS:

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