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December 9, 1991

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Ken Wyatt, Reclamation Hydrologist KW

RE: Emergency Spillway Plans, Division Order #DO-91A, Mountain Coal Company, C.V. Spur Mine, ACT\007\022, Folder #3, Carbon County, Utah

SYNOPSIS

On November 15, 1991, the Division received a response to Division Order DO-91A from Mountain Coal Company (MCC). The Division Order requested the following:

Certification
The operator must have certified as-built drawings of all impoundments.

Spillways
The operator must submit plans to rebuild pond #5 and #6 to meet the requirements of the rules. The operator will have to prove pond #6 has an open channel spillway of nonerodible construction or provide plans to meet the requirements of the rules.

The following is a review of the information submitted.

ANALYSIS

The operator submitted as-built drawings for ponds #1-4, #5 and #6. Additionally, the operator submitted proposals for reconstructing emergency spillways in ponds #5 and #6. The calculations submitted originally used Manning's equation. The operator was requested to resubmitted these calculations using the Broad Crested Weir formula ($Q = 3.087bH^{3/2}$). Solving this equation for H results in: $H = ((Q/3.087b)^2)^{1/3}$. The bottom width of the channel is b. The calculated depths based on the information submitted on December 9, 1991 are as follows.

Pond #	Discharge (Q) CFS	Bottom Width (b)	Height (H)	Spillway Depth
5	9.71	4 feet	0.85 ft.	2 ft.
6	19.93	6 feet	1.05 ft.	1.5 ft.

These numbers generated flow depths in ponds 5 and 6 as .85 feet and 1.05 feet respectively. According to the drawings submitted the channel depths are such that with the design flow there will still be a freeboard of 1.15 and .45 feet in pond 5 and 6 respectively.

RECOMMENDATION

Based on the calculations above, I recommend that these emergency spillway designs be approved. The operator faxed me the calculations for the broad crested weir flow on December 9, 1991. These are attached to this memo and the operator should follow up with three copies of the appropriate pages of calculations, the pond as-builts and spillway design plates to be included in the PAP.

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