

October 8, 1986

TO: Technical File

FROM: Dave Cline, Reclamation Hydrologist *DJC*

RE: Submittal of September 23, 1986, Hardscrabble Canyon  
Diversion D-6, Castlegate Coal Company, ACT/007/004, #2 &  
#7, Carbon County, Utah

Summary:

On April 21, 1986 the Division granted conditional approval to the Castlegate Coal Company to construct the proposed drainage control modifications in Hardscrabble Canyon. The major portion of the drainage control modifications consisted of reconstructing Diversion D-6 in order to allow the passage of the 10-year 24-hour precipitation event. The operator reconstructed Diversion D-6 during July of 1986. The reconstructed diversion channel was not constructed in accordance with the approved design. On August 21, 1986 the Division sent a letter to the operator requesting designs and calculations demonstrating that the as-built diversion channel is capable of safely passing the 10-year 24-hour precipitation event, the rip rap used in the channel is capable of withstanding the design velocities, and that the rip rap gradation used in the channel is adequate without a filter blanket. The operator was given a September 19, 1986 deadline to submit complete and adequate information demonstrating the above items. On September 23, 1986 Castlegate submitted information addressing the diversion channel capacity, rip rap sizing requirements, and filter blanket requirements. After review of the September 23, 1986 submittal it has been determined that Castlegate has not supplied complete and adequate information necessary to demonstrate the channel capacity, rip rap sizing, and filter blanket requirements are capable of safely passing the 10-year 24-hour precipitation event.

Body:

1.) Channel Capacity The information supplied by Castlegate to demonstrate the capability of Diversion D-6 to safely pass the 10-year 24-hour precipitation event is not complete and adequate enough to approve. A summary printout table from a HEC-2 Water Surface Profiles computer program was submitted by the operator.

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In order to interpret the results of the output table a copy of the input parameters to the program is required. Specifically, a summary input table including J1, J2, NC, X1, and GR of the HEC-2 program is required. Additionally, an output summary at each cross section is required in order to interpret the results of the program.

The cross sections submitted as Attachement #2 must be certified by a registered professional engineer.

2.) Rip Rap Sizing Requirements Attachement #5 of the September 23, 1986 submittal presents information on rip rap sizing requirements. The information submitted shows that a stone size of D50 = 9 inches is adequate to withstand a design velocity of 10.5 feet per second. However, the design velocity and depth of flow on Attachement #5 conflicts with velocities and depth of flow presented on the HEC-2 summary output. These discrepancies must be clarified. Additionally, documentation (methodology) for the determination of the D50 size is required. The design of the rip rap blanket should be recalculated using the cross sections on Attachement #2 and the results of the HEC-2 computer program.

3.) Filter Blanket Requirements: Attachement #4 of the September 23, 1986 submittal presents information on filter blanket requirements. The information presented cannot be considered complete and adequate until the bank sieve analysis performed by Commercial Testing and the rip rap sieve analysis performed by Lowdermilk Rock Products is submitted to the Division.

Recommendations:

The September 23, 1986 submittal by Castlegate Coal Company is not complete and adequate enough to demonstrate the requirements set forth by the Division in the August 21, 1986 letter to Castlegate. Therefore, the operator should be notified of the deficiencies by a letter from the Division. The need for enforcement action should be decided by the permit supervisor and the inspector assigned to the mine.

cc: Sue Linner  
Wayne hedberg  
Dave Lof  
Dave Darby  
Rick Summers

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