

October 9, 1986

**FILE COPY**

TO: Technical File

FROM: Dave Cline, Reclamation Hydrologist <sup>DJC</sup>RE: Submittal of September 17, 1986, Conditional Approval of  
Drainage Control Modifications in Hardscrabble Canyon,  
Castlegate Coal Company, ACT/007/004, #3 & #4, Carbon  
County, UtahSummary:

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 condition required that Castlegate Coal submit plans for an energy dissipator at the outlet of diversion-3A at least 15 days prior to commencement of construction of the drainage control modifications. In July of 1986, the operator constructed the drainage control modifications without the submittal of the required stipulation response. On September 9, 1986 the Division sent a letter to Castlegate Coal informing them that the designs must be submitted to the Division immediately. On September 17, 1986 Castlegate Coal submitted a response to the condition. After review of the response submitted by Castlegate Coal it has been determined that the information provided by the operator is not sufficient to satisfy the condition.

Body:

The response submitted by the operator contains information from Table 3.3-5(d) of the original submittal. Table 3.3-5(d) is a rating of diversion-3A and includes a velocity of approximately five feet per second at the design flow. However, diversion-3A, as approved, enters into culvert C-3 before discharging into diversion D-5. The energy dissipator designs must be calculated for the exit velocity from the culvert. In order to calculate the exit velocity from the culvert the discharge, size of the culvert, roughness coefficient, slope of the culvert, and the depth of flow during the design event must be known. The operator must submit all of the above input information along with the subsequent calculations in order to determine the exit velocity from the culvert and the design for an energy dissipator.

Page 2  
Technical Memo  
ACT/007/004  
October 9, 1986

Recommendations:

The September 17, submittal by the operator is not sufficient to satisfy the condition required by the Division. Castlegate Coal should be sent a letter stating the deficiencies and be given a deadline to respond to the deficiency letter. A copy of the methodology for calculating the exit velocity from a culvert has been attached to this memo and should be included in the deficiency letter for the operator's use.

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

7000R-36