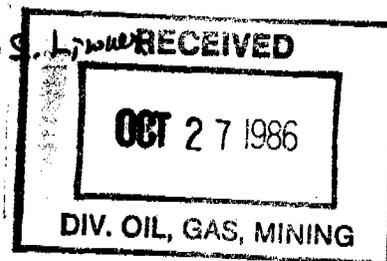




Letter - Mine File
copy letter w/ Enclosures: S. L. ...

ACT/007/004



October 22, 1986

FILE COPY

Mr. Lowell Braxton, Administrator
Division of Oil, Gas and Mining
Three Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Re: Drainage Control Diversion D-6

Hardscrabble Canyon

Dear Mr. Braxton:

The attached additional information is being submitted to you pursuant to your letter dated 15 October 1986.

- (1) Channel Capacity: Attachment No. 1 is the original HEC-2 computer output for the as built cross-section. Attachment No. 2 is a certified copy of cross-sections of the existing as-built channel as requested.
- (2) Clarify Rip-Rap Sizing Requirements: The riprap design was sized using the 10.5 feet per second velocity in the original submittal. However, the as-built HEC-2 computed model shows a lower peak velocity of 8.91 feet per second at section 7&00. Intuitively, if a riprap design will withstand 10.5 feet per second, then it will withstand the 8.91 feet per second velocity at station 7&00. Attachment No. 3 recalculates the riprap design based on as-built worst case at station 7&00 of the cross sections.
- (3) Filter Blanket Requirements: Attachments No. 4 and No. 5 are the sieve analyses done by Lowdermilk Rock Products and Commercial Testing.

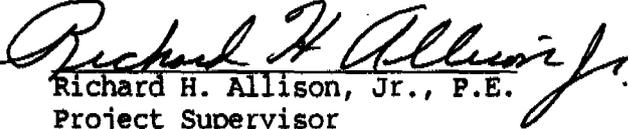
This design was originally submitted in December of 1985. The Division has questioned many design and field judgements made by the professional engineering staff at Castle Gate Coal Company in regard to diversion D-6 hydraulic, riprap and bedding design. Numerical methods for hydraulic design should be tempered by judgements of qualified engineers. All hydraulic programs, riprap sizing, etc., have large factors of safety and do not consider such aspects in the field such as infiltration or show how well riprap is compacted into the bedding. The proof of any design is how well the system performs.

cc4.1103

Mr. Lowell Braxton
October 22, 1986
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On September 23th and 24th, Hardscrabble Canyon received a storm event of 1.9" in 24 hours. In 36 hours, 2.2 inches of rain fell in the Canyon. This amount of precipitation is in excess of the 10 year/24 hour design storm for diversion D-6. During the peak of this storm, no more than 1" of water could be detected in the D-6 diversion. In fact, in most areas of the diversion the water was flowing in between the riprap. The conclusion which should be drawn from this actual field test of the D-6 system is that the diversion is over-designed and can handle precipitation events many times in excess of theoretical design.

Sincerely,


Richard H. Allison, Jr., P.E.
Project Supervisor

RHA:sk

cc: David Miller
Chrono
Project File

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