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STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

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Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
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November 2, 1984

CERTIFIED RETURN RECEIPT REQUESTED
(P402 457 060)

Mr. Dan W. Guy, Manager
Permitting and Compliance
Beaver Creek Coal Company
P. O. Box 1378
Price, Utah 84501

Dear ~~Mr. Guy~~ Dan:

RE: Additional Deficiencies for Special Condition Number 1 and 2, Beaver Creek Coal Company, Gordon Creek #2 Mine, ACT/007/016, #2 and #4, Carbon County, Utah

The Division and the Office of Surface Mining have reviewed Beaver Creek Coal Company's response to Special Condition Numbers 1, 2 and 8 of the Gordon Creek #2 Mine Plan Approval, submitted on September 27, 1984.

The response to Special Condition Number 8 was found to be satisfactory; however, additional deficiencies remain with Special Condition Numbers 1 and 2. The deficiencies are enclosed.

As outlined in Attachment A of the Mining Plan Decision Document, the permittee must submit revised plans for both Special Condition Numbers 1 and 2 within 30 days of receipt of this letter.

If you have any questions, please contact the Division.

Sincerely,

Mary M. Boucek

Mary M. Boucek
Permit Supervisor/
Reclamation Biologist

SC/btb
Enclosures
cc: Allen Klein
Mark Humphrey
Ron Daniels
Steve Cox
John Whitehead
89740-22 & 23

RESPONSE TO STIPULATIONS

Beaver Creek Coal Company
Gordon Creek #2 Mine
ACT/007/016, Carbon County, Utah

November 2, 1984

Condition #1 (817.43-.44-JW)

Beaver Creek Coal Company (BCCC) responded to Condition #1 of the Gordon Creek #2 (permit UT-0010, 8/84) in a submittal dated September 25, 1984. Diversion DU-3 is considered in three stretches by BCCC. The following comments are directed to each stretch?

Observations and Analysis - Stretch #1

Field checking of channel sizing specifications for Stretch #1 of DU-3, which comprises 175 feet of Diversion DU-3 starting at the sediment pond outlet structure, indicated several inconsistencies. The design specifications presented by BCCC on page 3-24C of the September 25, 1984 submittal are compared below to observations made on-site October 11, 1984 by Division hydrologists.

	BCCC	DOGM
Bottom Width	6 ft	3 ft
Side Slope	2:1	1:1 or 1.5:1 at best
Channel Slope	0.25	Approximately 0.14

The procedure referenced on page 3-24C of the BCCC submittal notes that Figure 7-19 of EPA 1976 produces a median riprap diameter of 1.2 inches. Using the procedures in the EPA 1976 reference and Figure 1-19 (Figure 7-19 could not be located and was assumed to be a typographical error) and the channel design specifications noted by DOGM above, a D_{50} or median riprap diameter of eight inches was calculated.

It was also noted that installation of the brattice liner in Stretch #1 appeared to be subject to problems in the near future given the rough bottom conditions of the channel and the method of anchoring the liner to the side slopes.

Conclusions - Stretch #1

Given that Stretch #1 of DU-3 is lined (albeit somewhat poorly) and that the actual D_{50} stone size currently in the channel is approximately 8-10 inches, there is no immediate on-the-ground erosion hazard.

In order to completely and adequately address Stipulation #1 for Stretch #1, BCCC must submit corrected design specifications and riprap sizing for this stretch.

Additionally, it should be noted that failure, i.e., ripping of the liner is likely in the near future. When this occurs, care should be taken by BCCC to excavate and smooth the ditch carefully. Installation of the new liner with continuous pieces of 2' x 4' lumber rolled into each edge and use of roof bolts installed through the 2' x 4' should assure a much longer life span for the liner.

Observations and Analysis - Stretch #2

The next 90 feet of Diversion DU-3, noted as Stretch #2 in BCCC's submittal of September 25, 1984, is lined with brattice material and has an average stone size of around six inches. Using a channel bottom width of 1.5 feet and channel side slope of 1.5:1 which appeared to be more realistic assessments of these parameters than the three foot bottom width and the 2:1 side slopes in BCCC's submittal, a D_{50} riprap size of five inches was calculated (EPA 1976 Figure 1-19).

Conclusions - Stretch #2

Given that Stretch #2 of DU-3 is lined and that the existing D_{50} stone size is approximately six inches, there is no danger of erosion occurring in this stretch.

To completely and adequately address Stipulation #1 for stretch #2, BCCC must submit corrected design specifications using revised side slope and channel bottom width dimensions.

Observations and Analysis - Stretch #3

The next 145 feet of DU-3 are identified as Stretch #3 in BCCC's submittal of September 25, 1984. The design specifications given by BCCC were verified for the upper portion of Stretch #3. The lower section of Stretch #3 as it intersects the small pad area just down canyon from the topsoil storage pile changes markedly. The channel dimensions of the upper portion of Stretch #3 are compared with the appproximate channel dimensions of the lower stretch.

Approximate Channel Dimensions of Lower Portion of Stretch #3
- Channel Bottom Width - 0.5 ft
- Channel Depth - .5 ft
- Channel Total Width - 3 ft
- Channel Slope (on pad) approximately - 0.10 ft

Channel Dimensions for Upper Portion of Stretch #3
Channel Bottom Width - 6 ft
Channel Depth - .7 ft
Total Channel Width - 7.4 ft
Channel Slope - 0.38

As DU-3 goes beyond the small pad area, there is no defined channel. BCCC's submittal notes this section was lined with riprap (D_{50} = 9 inches), but that in May of 1984 the diversion was impacted by mudslides and partially filled with debris. A straw bale dike at the mudslide toe has been installed and the slide area mulched and seeded. The proposal requests to maintain the straw bale dike and take corrective as needed.

Additionally, the D_{50} riprap size calculated by BCCCC for this stretch (see page 3-24e) was 1.5 inches. The Division's calculated D_{50} size using the same methodology was 12 inches.

Conclusions - Stretch #3

The upper portion of Stretch #3 is in an acceptable configuration, with one exception. The placement of the liner and riprap appears to lie slightly to one side of the ditch leaving the inside portion next to the topsoil pile potentially unprotected. This area should not be physically changed, but watched carefully during the next runoff season to determine if in fact this is the case.

The lower portion of Stretch #3 of DU-3 as it intersects and traverses over and past the small pad area down canyon from the topsoil stockpile is not in an acceptable configuration. There is either an undersized or nonexistent channel. Further, no riprap protection exists to prevent additional contribution of sediment to stream flow per UMC 817.45(i).

To meet the requirements of the approved plan, a channel must be established before spring snowmelt either by machine or hand methods. The proposal to wait and see what happens during next spring runoff is unacceptable.

To adequately address the requirements of this stipulation, correct riprap sizing and filter or liner blanket specifications must be submitted for the lower portion of Stretch #3 of DU-3 until it intersects the natural channel. The section of Stretch #3 of DU-3 which is presently lined and riprapped is acceptable and need not be addressed further except to correct the riprap sizing calculation used on page 3-24e.

Condition #2 (817.47-JW)

BCCC's response to this condition is contained in the September 25, 1984 submittal on pages 7-63a-c.

The information provided for that section of the diversions adjacent to the old coal stockpile which drops several feet over a span of four or five feet is complete and acceptable.

The information provided for that section of the undisturbed diversion where the ditch empties back into the natural channel is not acceptable for the following reasons.

1. The methodology used to arrive at a D_{50} size of riprap is inappropriate for a steep slope section. A methodology which incorporates velocity as well as the inherent stability problems associated with the gravitational component evident on steep slopes must be used. Recommended methods are the tractive force method shown in Applied Hydrology and Sedimentology for Disturbed Areas by Barfield, Warner and Haan, page 185 and following; or the steep channel riprap design method on page 5.14 of OSM's Surface Mining Water Diversion Design Manual (OSM/TR-82/2).

2. The depth of placement of riprap is not given in definitive terms, but "approximately" is used. This is not enforceable and should be changed to a definite commitment.

3. No calculations are offered for a filter blanket or liner as required by the stipulation. The justification offered on page 7-63b for leaving the existing riprap is not accpetable. Further, if BCCC feels that a liner or filter blanket would be difficult to install, then other protection measures should be formally proposed.

4. The current six inch rounded drain rock which was put in this section of the channel poses a problem in that the rounded nature of the rock lends itself to easy mobility. Further, any material placed on top of the rock will be unstable due to the ease of movement of the six inch rounded rock beneath. The proposal for protecting this stretch of the diversion must address this problem.

5. No installation measures or drawings showing configuration of measures to be installed were included with the submittal as required in the stipulation.

The above five items must be addressed by BCCC to adequately satisfy the requirements of this stipulation.