

**PLATEAU MINING COMPANY**

A Subsidiary of Cyprus Coal Company
P.O. Drawer PMC Price, Utah 84501
Telephone (801) 637-2875

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**DIVISION OF
OIL, GAS & MINING**

September 10, 1986

Mr. Tom Munson
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Re: Ditch 7E Modification - Additional Information

Dear Mr. Munson:

Attached you will find a copy of the additional information requested by the Division regarding modification to Ditch 7E submitted back in 1985.

Please let me know if this is enough detail as we are needing to reroute the ditch to expand the refuse pile.

Respectfully,

Ben Grimes
Sr. Environmental Engineer

BG:sd

Attachment

File: ENV 2-5-2-16-2
Chrono: BG 869002

FILE COPY

FILE ENV 2-5-2-16-2

December 19, 1985

CONSULTANTS / ENGINEERS
**VAUGHN
HANSEN
ASSOCIATES**

WATERBURY PLAZA - SUITE A
5620 SOUTH 1475 EAST
SALT LAKE CITY, UTAH 84121
(801) 272-5263

Mr. Ben Grimes
Plateau Mining Company
P. O. Drawer PMC
Price, UT 84501

Dear Ben:

As you requested we are submitting to you a separate letter detailing our recommendations regarding Ditch No. 7E which enters the sedimentation pond below the coal refuse pile. Our recommendations are discussed below.

Because of the high cost of installing riprap throughout the entire length of ditch 7E, an alternate design was considered as discussed by phone. Available topographic contour mapping shows that the overall intermediate length of the ditch has an approximate slope of one percent. A one percent slope will result in a flow velocity of about four feet per second which is less than the usual maximum velocity of five fps allowed by the Division of Oil, Gas, and Mining. It should be noted that because portions of the ditch traverse through refuse material placed at the toe of the pile, some erosion is expected to occur even at a velocity of four fps. Channel erosion will require 1) more frequent cleaning of the sediment pond, and 2) periodic repairs to the ditches and may require the installation of riprap in critical erosion areas when identified in the field.

The construction of Ditch No. 7E will require a field fit to modify existing grades so that a maximum recommended grade of one percent is not exceeded. Two areas of erosion were found in Ditch No. 7E which will require special consideration. The first area is immediately below the upper culvert and the second immediately above the lower culvert just before the ditch enters the sedimentation pond.

The upper channel reach has a slope of approximately 3.5% and will allow the installation of the 4 to 5 inch grouted riprap you desire to use. However the slope must not exceed a maximum of 3.5 percent. The lower area on the other hand has a slope of approximately 15% which requires that a mean grouted riprap size of one foot be used. Channel details for grouted riprap sections in the upper and lower sections of Ditch No. 7E are outlined in the following table.

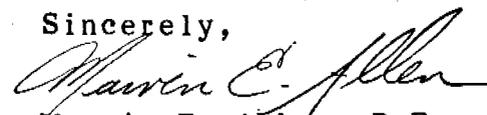
	UPPER 3.5% SECTION	LOWER 15% SECTION
WIDTH (ft)	4.0	4.0
RIPRAP D ₅₀ (in)	4 - 5	1.0
SIDE SLOPE (m:1)	2.0	2.0
CHANNEL DEPTH (ft)	1.5	1.5*

* The grouted channel depth must be increased at the lower end to match the crown of the culvert as well as create a smooth transition inlet to the culvert.

As an alternative to using the large riprap at the lower end of the ditch, we recommend that the existing 30 inch culvert be extended upstream the required distance to intercept the milder channel gradient of 1 percent. The exact length of pipe required would have to be determined in the field but should be approximately 30 feet.

We hope that this information will help you obtain viable and economic solutions to your problems.

Sincerely,


 Marvin E. Allen, P.E.
 Executive Vice President

MEA/lv

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December 19, 1985

Mr. Ben Grimes
Plateau Mining Company
P. O. Drawer PMC
Price, UT 84501

Dear Ben:

Information regarding needed work on the "Slope Toe Ditch" has been separated from the general letter prepared for you regarding the coal refuse pile verification. Recommendations regarding the ditch are outlined herein.

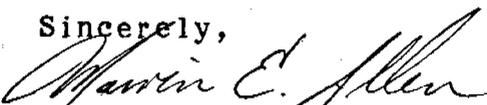
The Slope Toe Ditch along the southern edge of the refuse pile also needs riprap protection for all slopes greater than 2.4 percent. Of particular concern is the 20 percent slope section immediately upstream of the Pond No. 5 inlet culvert. If riprap is used for this section, the type II granular filter bedding previously designed must be increased from four inches to six inches and the riprap gradation changed as follows:

Dmax = 1.75 ft
D50 = 1.25 ft
D10-20 = 0.50 ft
Thickness = 1.75 ft

The alternative to using riprap in this section would be to extend the 24 inch culvert upstream throughout the 20 percent grade section. Again, the precise length of pipe required would have to be field verified, but should approximate 100 feet.

If you have any questions regarding the information presented herein, please call.

Sincerely,


Marvin E. Allen, P.E.
Executive Vice President

MEA/lv