



Norman H. Bangerter  
Governor

Dee C. Hansen  
Executive Director

Dianne R. Nielson, Ph.D.  
Division Director

# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

June 7, 1989

TO: Richard V. Smith, Permit Supervisor

FROM: Tom Munson, Reclamation Hydrologist *TM*

RE: Reclamation of the Wilberg/Cottonwood/Des-Bee-Dove Haul Road (Review of April 5, 1989 Submittal), Utah Power and Light Company, Des-Bee-Dove Mine, ACT/015/017, and Wilberg/Cottonwood Mine, ACT/015/019, Folder #2, Emery County, Utah

## Background

See Pamela Grubaugh-Littig's memo to Richard V. Smith dated April 10, 1989 for the history of this permitting action.

## Synopsis

The Division received a submittal on April 5, 1989 addressing reclamation of the Wilberg/Cottonwood/Des-Bee-Dove Haul Road. This memo reviews the adequacy of the submittal.

## Analysis

### Channel Design.

The calculations and plans submitted address the removal of 15 culverts and re-establishment of 15 drainages along the haul road. Design information on proposed channel slope, channel width, channel depth, flow depth, side slope, side distance, riprap depth, filter depth, and riprap size, is included. The documentation regarding design methodology and assumptions was not included and must be.

Page 2  
Memo to R. V. Smith  
ACT/015/017, 015/018, 015/019  
June 7, 1989

Assumptions on riprap and filter blanket gradation must be changed to include the actual gradation values for D100, D85, D50, D20 riprap sizes. Also, the placement of a properly designed filter blanket underneath the riprap is necessary when the particle size of the riprap is much larger than that of the base material. This is the case with Mancos shale. Therefore, the Division requests that the operator provide size distribution determinations for the filter material. An example of this calculation is given on pages 195-198 of "Applied Hydrology and Sedimentology for Disturbed Areas" by Barfield, Warner and Haan.

The rationale for picking the channel slopes as shown on Drawing No. CS1129C for final reclamation was not adequately explained. The actual longitudinal profiles must be included for all channels, defining length of channel and changes in slope due to the range of slopes expected.

There was no design information found in the Division's copy of the Des-Bee-Dove PAP, Volume 6, page 11, for Channel No. 14. Therefore, the operator must supply this information. The operator must also supply a drainage area map which shows the complete drainage area contributing to Channel 14.

### Erosion Control

The current erosion control plan is inadequate and does not provide any evidence that the current means of diverting water from slopes by putting berms at the top of slopes is working.

The Division at this point in time still needs to see evidence that the operator is willing to try different and more creative means of stopping erosion. A variety of soil stabilization methods are available and must be assessed. Test plots need to be set up to demonstrate effectiveness of new methods. The Division is willing to provide any technical expertise it can to help the operator solve the problem of getting something to grow on Mancos shale and stop excessive erosion, but the operator must provide evidence that it can comply with the regulations before the plan can be approved.

Page 3  
Memo to R. V. Smith  
ACT/015/017, 015/018, 015/019  
June 7, 1989

**Recommendations**

1. Provide technical information to support design methodology and assumptions (i.e., computer programs, example calculations, exact page references).
2. Gradation calculations for riprap and filter blankets must be provided.
3. Rational for picking channel slopes as shown on Drawing No. CS1129C and actual longitudinal profiles for reclaimed channels needs to be supplied.
4. All supporting documentation for design calculations on Channel No. 14 must be supplied, including a complete drainage area map. The Division could not find the information in Volume Six in the PAP, as described.
5. A comprehensive plan for erosion control must be developed, including implementation of test plots to demonstrate that compliance with the regulations can be achieved.

djh  
AT5/39-41