



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor  
Ted Stewart  
Executive Director  
James W. Carter  
Division Director

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340  
801-359-3940 (Fax)  
801-538-5319 (TDD)

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TO: Daron Haddock  
From: Tom Munson *Tm*  
RE: Surface Subsidence, NOV# 94-46-4-1B, Bear Canyon Mine, Co-Op Mining Company, ACT/015/025, File folder #2 and #5, Carbon County, Utah

Synopsis

The abatement plans for NOV # 94-46-4-1B was submitted to the Division on December 27, 1994. This memo will review the specifics of this abatement plan in regards to Hydrology and the repair of the drainage affected by subsidence.

Analysis

The plan addresses on page 3N-4 the specifics related to the reconstructed channel. The plan needs to be clarified in regards to showing the existing channel in cross section and the location of the proposed channel and its cross section. The calculations need to be submitted as well and the operator has used the Type B Distribution to calculate flows from the 24 hour storm when it would be more appropriate to the Type II Distribution. There is no reference to the appropriate tables or figures for riprap sizing and depth, as well as, the need for a filter blanket or cloth to be used under the riprap. It is understood that an actual survey can not occur at this time of year but one should be carried out in the spring and the plans based on more specific channel cross sections. The plan refers to a three foot wide channel when the native channel is 15 feet across.

There is also talk of a monitoring plan but it lacks specifics (i.e., about how information will be collected to determine if any fractures re-establish themselves and/or that the channel stays intact as well as specifics about when the surveys will take place (spring and fall)).



Recommendation

The abatement is not complete until the following information is clarified.

1. The designs for the reconstructed channel need to be based on actual cross-sections and information surveyed in the field in the spring. All cross-sections are drawn up and presented with the appropriate design calculations emphasizing the transition between the upstream and downstream cross sections and profiles. A commitment to do this when the snow clears will be considered adequate.
2. Any riprap installed should have an underliner of filter fabric or grouting to prevent piping into old voids. The purpose being that something is needed to help any flows cross the old fractures without significant infiltration. Reference to the installation of a properly graded riprap of a certain rock size distribution is appropriate.
3. The use of the 10 year-24 hour storm for designs is important to get an idea of an appropriate design event but not as important as creating a channel which blends into the surrounding topography and allows flows to pass over the subsided areas without compromising the repair. It was mentioned that a three foot channel would be constructed when the native channel was fifteen feet, raising some obvious questions.

H: COPBEAR