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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)

March 23, 1994

TO: Daron Haddock, Permit Supervisor *DQH*

FROM: Paul Baker, Reclamation Biologist *PB*

RE: Alternate Borrow Sites Deficiency Response, U. S. Fuel Company, Hiawatha Mines, ACT/007/011-93B, Folder #2, Carbon County, Utah

## SYNOPSIS AND ANALYSIS

On March 4, 1994, the Division received a response to deficiencies in the alternate topsoil borrow site plan. My October 4, 1994, memorandum did not contain deficiencies but recommended certain procedures.

The first recommendation was that U. S. Fuel use certified noxious weed free straw or hay for mulch. The plan now says on page 57 of Chapter 3 that mulch (either hydromulch, straw or native grass hay, certified to be free of noxious weeds) will be applied at a rate of 1.5 tons per acre. This commitment should result in less likelihood of noxious weeds being introduced to the reclaimed areas. Noxious weeds, particularly musk thistle, are still expected to present some problems, however.

The second recommendation was that, where available, soils with higher rock contents be used for the surfaces of slopes. The comment was based on previous plans to leave some slopes as steep as 3h:1v. The plan now indicates that none of the slopes in the refuse pile/slurry pond areas will be steeper than 5h:1v.

Despite the lower slopes, using soils with higher rock contents would still be beneficial. There is probably not enough soil that contains rock to put it on all of the slopes. The only borrow area where the pedon description mentions the presence of rock is borrow area E. The description for area E says that, from 0 to 0.6 feet, there is up to 10% gravel in zones, and that there is up to 15% gravel from 2.0 to 2.6 feet. My calculations show that there is approximately the right amount of soil in the top 2.6 feet of borrow area E to cover the slopes of refuse pile 1 and slurry pond 1 sixteen inches deep. The rest of the soil to be salvaged from this area could be placed on the relatively flat, upper portion of the pond/refuse pile.

If any rock concentrations are encountered in the other borrow areas, soil from the areas with concentrations should be used on the surfaces of the other refuse pile/pond slopes.



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## **RECOMMENDATIONS**

U. S. Fuel should use soils from the upper 2.6 feet of borrow area E for the slopes of refuse pile 1 and slurry pond 1. This will entail little, if any, additional cost and should decrease the amount of soil erosion that occurs. Any rock concentrations found in other borrow areas should be placed on the surfaces of the other refuse pile and pond slopes.