

0025



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Norman H. Bangertter

Governor

Dee C. Hansen

Executive Director

Dianne R. Nielson, Ph.D.

Division Director

355 West North Temple

3 Triad Center, Suite 350

Salt Lake City, Utah 84180-1203

801-538-5340

September 29, 1988

TO: John Whitehead, Permit Supervisor

FROM: James Leatherwood, Reclamation Soils Specialist 

Re: Mid-Term Stipulation 817.71-.74 Response, Acid- and Toxic-  
Forming Materials, Cyprus-Plateau Mining Corporation,  
Starpoint Mine, ACT/007/006, Folder #2, Carbon County, Utah

## Summary

The response to the Divisions February 5, 1988 letter, stipulation UMC 817.71-.74, received August 15, 1988, has been reviewed. The applicants response adequately responds to Items 2 and 3, but does not adequately respond to Items 1 and 3a-d.

## Analysis

### Item 1

Map 39, sheet No. 6, Disturbed Area Soils Map, revision date November 1986, P.E. stamp date April 1, 1987, does not identify the location of the refuse pile samples taken in February and May of 1987. Please submit the revised Map 39, sheet No. 6 that accurately documents all of the refuse pile sample locations.

### Item 3a-d

The operator states that the proposed monitoring program will be conducted at the time of final reclamation. The Division stated that this program must be conducted prior to final reclamation.

The potential contaminated medium must be sampled concurrently with the vegetation sampling for selenium. The potential contaminant medium includes the soil in the adjacent undisturbed areas and the refuse from the straight refuse plots and 10 inch subsoil plots. The potential contaminant medium must be sampled during the baseline sampling program and at the time of final reclamation.

The applicants reference to the study by Harvey and Dollhopf (1984) does not justify or provide specific technical information pertaining to the coal waste at Plateau. As stated by the applicant, these authors reported that 19.4% of the organic-sulfur was oxidized in one instance and 89.4 % in another, therefore supporting the Divisions stance that Organic-Sulfur is highly variable. As the applicant has pointed out, the coal age versus organic-sulfur data indicates that organic-sulfur may not be significantly impacting the potential acid generation of the refuse material. However, the potential of organic-sulfur oxidizing from an acid form resulting in a more stable weak base molecule as a end product may also be occurring. This and other speculative hypothesis could be generated without sufficient data and analysis.

The Division has correlated the Acid Base Potential (ABP) based on the percent pyritic-sulfur and the ABP based on organic-sulfur and pyritic-sulfur against the given saturated paste pH values. The correlation coefficient between ABP(percent pyritic-sulfur) and pH was  $r^2 = 0.33$ . The correlation co-efficient between the ABP(pyritic-sulfur and organic-sulfur) and pH was  $r^2 = 0.12$ . The correlation is very poor for each analysis (various considerations such as time, etc. was not accounted for) however, it is apparent that there is a better fit for comparing pH to ABP based only on pyritic-sulfur. Therefore, the Division currently agrees with the applicants decision to utilize pyritic-sulfur for the ABP determinations. However, the applicant must continue to monitor the organic-sulfur along with the pyritic-sulfur.

### Recommendations

Revised Map 39, sheet No. 6, that accurately documents all of the refuse pile sample locations must be submitted.

The operator must commit to conduct the proposed monitoring program just prior to final reclamation.

The potential contaminant medium must be sampled for Selenium during the baseline vegetation sampling program and at the time of final reclamation.

The operator must continue to monitor the organic-sulfur along with the pyritic-sulfur analysis.

cc: S.Linner  
R. Smith

WPOB71/1-2