



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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## DIVISION OF OIL GAS & MINING TECHNICAL FIELD VISIT

**Date:** July 28, 2000

**Time:** 2:30 P.M. to 3:30 P.M.

**DOG M Staff:** Robert Davidson, Paul Baker, Wayne Western, & Joe Helfrich

**Other Attendees:** Johnny Pappas, Cyprus Plateau Mining Corp.

**Re:** Coal Mine Waste Rock at School House Canyon Refuse Pile, Plateau Mining Corp., Willow Creek Mine, ACT/007/038, Internal File

### PURPOSE:

Visual observation of coal mine waste rock which has been screened to be greater than 1.5 inches. This 1.5" plus screen-reject material is the source of road base aggregate.

### BACKGROUND:

On April 21, 2000, the Division received amendment ACT/007/038-AM00D entitled the Willow Creek Mine Coal Mine Waste Rock Amendment. The review team consisted of Robert Davidson, Pete Hess and Wayne Western. The amendment proposed using coal mine waste rock fines from the School House Waste Rock pile as a "BTU resource" material for blending back with washed coal to help raise the coal ash content to around ten percent ash. Cyprus proposed using the larger, coarser coal mine waste rock as a source of road base aggregate for graveling surface and underground mine roads. The review team approved the use of the material for underground road base but not for surface road base. Cyprus informally responded by suggesting that the coarse coal waste rock fragment be further processed by crushing and screening to meet UDOT and/or County requirements for road base aggregate.

Preliminary test results on the sandstone fraction of the coal waste rock showed that it met the LA Abrasion test as follows:

Los Angeles Abrasion (ASTM C-131)

Material Description - large gravels, dark grey to black

Source - Plateau Mining, School House Canyon Refuse Pile

Grading - A

Number of Revolutions - 500

Percent Wear - 29%

UDOT specifications state that material wear will not exceed 50%.

The sandstone fraction was also sampled and tested according to DOGM guidelines for topsoil and overburden and was found deficient according to SAR requirements with an SAR value of 65. The Division Guidelines determines material unacceptable for reclamation use if

SAR values exceed 15 for coarse textured soils. However, the total salt content was measured at 2 mmhos/cm which fits the good category. In addition, since the rock sample had to be ground to pass a 2 mm sieve, what salt is present is locked in the rock matrix and is not readily leached until the rock is either weathered or eroded to smaller fractions.

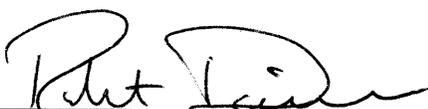
**OBSERVATIONS:**

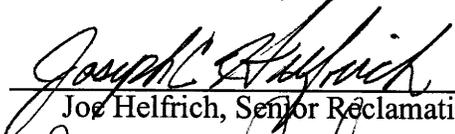
A screening process plant has been erected on School House refuse pile and is currently processing the coal waste rock to either pass or be rejected by a 1.5 inch screen. Without any crushing, the coal waste rock is screened through a 1.5 inch screen. The 1.5 inch minus fraction is being stockpiled and used for blending with the coal to help bring the ash content up to 10 percent ash. Figures 1 through 4 show the screening plant and the BTU resource.

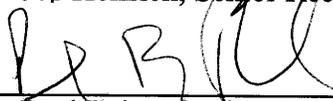
The 1.5 inch reject fraction is currently being set aside for further processing to recovery the sandstone rock. Figures 5 through 7 show samples of the coarse fragment of the reject material which is principally composed coal, shale and sandstone.

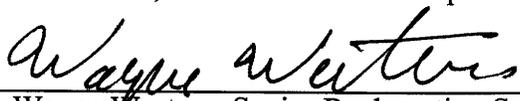
**RECOMMENDATIONS/CONCLUSIONS:**

Cyprus Plateau Mining will further pilot the coal waste rock project for producing road aggregate from the sandstone fraction. The idea is that further crushing will pulverize the softer materials, which will be screened away from the coarser, harder sandstones. They plan of a small pilot project by trucking several loads of the 1.5 inch reject coarse material to a local sand and gravel operation for crushing and screening. The 3/4 inch road base aggregate that is produced will be sampled and tested accordingly using the Division Guidelines and the LA Abrasion test.

Signature:  on August 9, 2000  
Robert Davidson, Senior Reclamation Specialist

Signature:  on August 9, 2000  
Joe Helfrich, Senior Reclamation Specialist

Signature:  on August 9, 2000  
Paul Baker, Senior Reclamation Specialist

Signature:  on August 9, 2000  
Wayne Western, Senior Reclamation Specialist

( PHOTOGRAPHS )



**Figure 1.** Coal refuse and waste rock screening plant. The right, conical pile is 1.5" minus and will be used as "BTU resource."



**Figure 2.** 1.5" plus screened material - sample of coal.



**Figure 3.** Coal refuse and waste rock from the Willow Creek coal washing plant being delivered to the School House refuse pile.



**Figure 4.** BTU resource will be used to blend back with washed coal to raise the coal ash content to 10%.



**Figure 5.** BTU resource material stockpile contains 1.5" minus aggregate and fines.



**Figure 6.** 1.5" plus screened material - sample of shale.



**Figure 7.** 1.5" plus screened material - sample of sandstone that Cyprus Coal proposes to be used as source of road-base aggregate.