October 28, 2003

TO: Internal File

THROUGH: Daron R. Haddock, Permit Supervisor

FROM: Priscilla W. Burton, Environmental Scientist III/Soils

RE: Technical Field Visit, Crandall Canyon Reclamation, Plateau Mining, Willow Creek Mine, C/007/038

Other Attendees: Johnny Pappas, Sr. Environmental Engineer

Date & Time: October 22, 2003; 9:30 am – 1:00 pm

PURPOSE: To observe the progress of reclamation at the Crandall Canyon site.

OBSERVATIONS:

At the east portion of the site, a trackhoe was gouging the topsoiled area. A second hoe was spreading the topsoil over the main channel embankments. A front-end loader was moving hale bales. At the upper, west portion of the site, a trackhoe with a pneumatic drill was breaking rock. A trackhoe and 10 yd dump truck were moving rock. A trackhoe was digging the channel bed. A dozer was moving soil in the upper channel area.

The topsoil has been spread along the slopes north of the main channel at the east end of the site. Substitute topsoil has been spread to a depth of approximately 2 feet over **the entire south side** of the channel (not as shown on Exhibit 3.7-7B). (Volumes of topsoil and subsoil applied to date were not available. Approximately ½ of the topsoil from the larger topsoil pile has been used.) Soil had been scattered and compacted into the main drainage channel. Hay bales were spaced 1/200 sq ft, ready for spreading and gouging into the surface. The site has been gouged from the east end to the entrance of the access road. The gouging is closely spaced, random and of good depth (18 – 20 inches).

In the process of being hauled from the topsoil site, the topsoil has lost all aggregation. The soil is very powdery. Gouging the powdery soil created clouds of dust. (Photos P0005064, P0005086, P0005091). The soil along the road cut to the topsoil site and the topsoil stockpile require wetting to keep down dust and retain some aggregate stability in the topsoil.

The channel is constructed of a one-foot deep layer of cobbles (bedding) covered with a two-foot layer of angular rock (D_{50} = 12 inches). The bedding and riprap extend up on the sides of the channel.

Reclamation culvert CCR2 shown on Exhibit 3.7-7F was replaced with a swale. Reclamation culvert CCR1 will likely be replaced with a swale. There is a side channel (photo P0005066) that is in its final configuration. This looks to be a sizeable channel, but it will not receive any armoring. However there is another side drainage at the lower end of the site that has been armored (photo P0005083). Mr. Pappas indicated that this armoring was designed, but that there may be additional armoring of sites where recent experience dictates placement.

Cut slopes in the side canyon and along the north side of the channel were evaluated and compared to those shown on Ex. 3.7-7B. In many instances, the cut slopes are of less height than indicated on the exhibit. The north facing slope in the main canyon in the vicinity of the cobble and riprap stockpiles should receive topsoil covering, as the soils in this location are evidently high in salts (white precipitate on the exposed surface).

RECOMMENDATIONS/CONCLUSIONS:

The hydrologist assigned to the mine should review the reclamation plans for the side channel that will not receive armoring.

Topsoil should be applied to the north facing slopes of the main drainage in the vicinity of the cobble and riprap stockpiles.

The access road to the topsoil storage site as well as the topsoil storage site should be watered regularly so that the topsoil does not get pulverized. There needs to be some experimentation with how much water to apply to bring the topsoil to a friable condition without making it too wet. It needs to be saturated and allowed to drain to field capacity before being handled. Mr. Pappas indicated that the crew works the topsoil pile every other day, so the pile could be watered on the off days. This method should allow the topsoil to be more easily maneuvered and create less dust.

cc: All Attendees
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