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March 24, 1992

TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Susan M. White, Reclamation Biologist

RE: Erosion Control Plan, Western States Minerals, J.B. King Mine, ACT/015/002, Folder #2, Emery County, Utah

Synopsis and Analysis

Briefly, the actions proposed in the J.B. King Erosion Control Plan are as follows:

1) Monitor erosion rates by use of a reference area;

2) Rework the drainage ditches;

3) Remove silt fences and allow a rill and gully pattern to develop; and

4) Monitor Dog Valley Wash for sediment.

The drainage would be reworked this summer. The erosion reference area and monitoring scheme would be developed and in place by this fall.

I have attached pages 18 and 19 of the plan if a more detailed summary is desired. Read section 4.0 through 4.4 for actions proposed to be taken by the operator.

jbe
attachment
015002.ECP

6. Downgradient effects in Dog Valley Wash may be increased erosion due to lack of sediment load occurring on site during control period on the reclaimed site. This would allow more downgradient erosion because of the artificially high sediment carrying capacity.

Recommendations for future erosion control based on the considerations listed above:

1. Alter erosion control procedures to allow adjustments to approximate natural conditions in the area for erosion and drainage patterns that must eventually be reestablished.
2. Establish the rates of erosion and landform conditions under natural conditions by monitoring on and off site by establishing an erosion reference area.
3. Evaluate the downgradient drainage in the Dog Valley Wash below the site for previous and present conditions and possible effects from sedimentation from the J.B. King site.
4. Reconstruct the upper portions of the drainage through the site for handling flows from off site.

## 4.0 PROPOSED EROSION CONTROL ACTIONS

The following proposed actions are presented as being applicable to the J.B. King reclaimed site based on site specific factors and the history of the site. All or some of the proposed control actions may be applicable, and the details of these actions will need further development. The following erosion control actions are proposed:

### 4.1 Set Up Erosion Control Plot as a Reference Area.

The local rates of erosion need to be determined for the J.B. King Mine site, little to no information on erosion rates exist in the literature and extrapolating this information would be inadequate. The erosion control reference plot would be the equivalent of the revegetation monitoring plots and would be set up to statistically sample erosion rates on a reference site located in a geomorphic and landform area similar to the site. This erosion control reference area will located be in the next drainage to the north along the western face of the escarpment in the vicinity of the revegetation reference control areas. Equivalent sample replicable gauges would be installed on the erosion reference area and on the site. The placement and number of measurements would be tested for statistical significance using appropriate procedures.

### 4.2 Reconstruct the Upper Parts of the Feeder Ditches.

The proposed actions are to reconstruct the upper parts of the feeder ditches and replace them with an

excavated plunge pool or other energy dissipator. A conceptual plan with several cross section is provided as Attachment A. A channel armored with boulders and riprap would be constructed from the plunge pool to connect with the present channel, and the capacity and gradient of this channel would be adequate to handle the design flows. This construction would require the use of some heavy equipment. The disturbed surfaces would be kept to a minimum, then these surfaces would be hand seeded and mulched for revegetation.

### 4.3 Remove the Temporary Silt Control Structures.

The silt fences used to control sediment would be removed, and not replaced. Surfaces on the refuse pile and surrounding slopes would be allowed to develop a natural rill and gully erosion pattern, and develop natural armoring of rocks and competent soil crusts. The surfaces would be monitored for a period of years to follow the natural surface and erosion processes to insure that no hazards develop. Deep gullies in the refuse pile may be fixed, on an as needed basis, if determined to be eroding at an unacceptable rate, or exposing excessive amounts of coal refuse.

### 4.4 Monitor and Determine Sediment Conditions in Drainages On and Below the Site

Conditions of sediment rate and transport would be monitored in the drainages on the site including the main drainage and settling basin. The lower Dog Valley Wash where the drainage from the site joins the main area wide drainages would be evaluated for sensitive habitats such as wetlands or breeding habitats which may be impacted should sediment from the site reach these drainages. In the Dog Valley Wash, we would evaluate the present condition of soil and erosion surfaces, alluviation, and sediment for content of natural occurring coal or other soil parameters to establish some baseline conditions.

## 5.0 IMPLEMENTATION AND SCHEDULE

The above proposals for future actions could be implemented by WSMC during the summer and fall of 1992 with the concurrence of UDOGM. Details of the procedures and design would be completed during early summer, and the upper drainage ditches would be reconstructed during the summer followed by reseeding during fall. The erosion reference area and monitoring scheme would be developed and also in place by the fall of 1992.