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## MEMORANDUM FOR:

Daniel E. Martin, Section Leader  
Uranium Recovery Projects Section  
Low-Level Waste and Uranium Recovery  
Projects Branch, WM

## FROM:

Mysore S. Nataraja, Section Leader  
Rock Mechanics Section  
Engineering Branch, WM

## SUBJECT:

REVIEW OF SHIPROCK PHASE II DESIGN REVISIONS

## REFERENCES:

1. Letter dated December 10, 1985, from J. Themelis of DOE to L. Higginbotham of NRC, transmitting Shiprock Phase II Design Revisions.
2. Attachment 1, Modifications to Remedial Action Plan and Site Conceptual Design for Stabilization of the Inactive Uranium Mill Tailings Site at Shiprock, New Mexico, UMTRA-DOE-AL-0505040039, October, 1985.
3. Memo dated June 3, 1985, from J. Greeves to L. Higginbotham; Subject: Geotechnical Engineering Technical Evaluation Memorandum (TEM) for Review of Shiprock Remedial Action Plan.
4. Memo dated December 8, 1985, from J. Greeves to L. Higginbotham; Subject: Review of Attachment No. 1 to the Shiprock Remedial Action Plan.

In response to the Technical Assistance Request (TAR WM51123), the revisions to the Shiprock Phase II Design (Reference 1) have been reviewed. A major portion of the design revisions pertains to the details of erosion protection for the slopes of the arroyos near the site and the drainage ditches around the stabilized tailings pile. These revisions are in response to comments by WMGT on the proposed modifications to the Remedial Action Plan (RAP) for the Shiprock site. Ted Johnson, hydrology reviewer from WMGT, has concurred with the design revisions to the erosion protection of the slopes of arroyos, as documented in DWG. No. SHP-PS-10-0021, Revision 1 dated 11-22-85. But, he has some minor concerns on the details of erosion protection for the ditches surrounding the tailings pile. However, the geotechnical stability aspects of the slopes of the arroyos and slope of the stabilized tailings pile were previously reviewed and concurred by the NRC (Reference 3).

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DATE :	1/9/86	:	1/9/86	:	1/10/85	:	

Therefore, WMEG is in agreement with the design revisions to the RAP for the slopes of the arroyos. By this, item No. 2 of the modifications to the RAP (References 2 and 4) may be concurred by the NRC pending formal documentation and request by the DOE.

Concerns on the details of erosion protection for ditches surrounding the tailings pile will not affect the geotechnical slope stability aspects of the stabilized tailings pile and also, the concept of stabilizing the tailings in a single pile. However, NRC staff should keep the option open to review the final proposals for erosion protection of ditches prior to concurring with the proposed modification of stabilizing the tailings in a single pile. Therefore, item No. 1 of modifications to RAP (References 2 and 4), stabilizing tailings in a single pile, is not concurred by WMEG at this time pending a final resolution of the erosion protection for the ditches.

This review was performed by Dr. Banad Jagannath, and he may be contacted on extension x74629.

**ORIGINAL SIGNED BY**

Mysore Nataraja, Section Leader  
Rock Mechanics Section  
Engineering Branch, WM

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