40-3453

FEB 08 1980

MEMORANDUM FOR: John Linehan, Leader
Uranium Recovery Licensing Branch

THRU: L. G. Hulman, Chief
Hydrology-Meteorology Branch, DSE

FROM: William S. Bivins, Leader
Hydrologic Engineering Section, HMB, DSE

SUBJECT: ATLAS URANIUM MILL - TECHNICAL ASSISTANCE REQUEST FOR REVIEW OF RIPRAP DESIGN

In response to your request of January 11, 1980, we have reviewed the December 3, 1979 submittal of Atlas Minerals, regarding design of erosion protection for the existing mill tailings dam. Based on this review, we conclude that the proposed design does not acceptably satisfy license conditions in that it will not afford the protection required to prevent erosion of the dam slopes. Our principal concerns, riprap protection and toe protection, are addressed in detail in the enclosed hydrologic engineering questions. Responses to these questions will be neeessary in order to complete our review. This review was performed by T. L. Johnson.

Original Signed by
L. G. Hulman

William S. Bivins, Leader
Hydrologic Engineering Section
Hydrology-Meteorology Branch
Division of Site Safety and
Environmental Analysis

Enclosure:
As Stated

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D. Muller
W. Kreger
L. Hulman
T. Johnson
P. Garcia
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OFFICE	DSE:HMB	DSE:HMB	DSE:HMB			
SURNAME	TLJohnson:km	WSBivins	LGHulman			
DATE	02/08/80	02/8/80	02/8/80			

HYDROLOGIC ENGINEERING QUESTIONS
ATLAS MINERALS MOAB URANIUM MILL
DOCKET NO. 40-3453

1. Provide cross-sections showing pertinent details of the erosion protection at Sections C and E.

2. The gradation curves presented are not clear with respect to rock sizes and weights. Please provide gradation curves for the riprap to be used on both the upstream end and downstream end, and also for the existing riprap. The curves should show the sizes and weights for each rock gradation to be used.

3. Competent engineering practice requires the installation of a "toe" at the lower boundary of a riprap layer. The purpose of this toe is to provide additional resistance to erosion and to provide a stockpile of material which would drop into any undercut areas. It is our position that some form of toe treatment must be provided to ensure the stability of the riprap revetment. Your proposed design does not provide toe protection at any location; this would subject the rock to undermining and subsequent failure from floods much less severe than the design flood.

   Accordingly, the riprap should be redesigned to provide for adequate toe protection. Acceptable methods were discussed in the December 1978 meeting; these and other methods may be found in EM1110-2-1601, Hydraulic Design of Flood Control Channels, U. S. Army Corps of Engineers, 1970.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

Atlas Minerals, Moab