



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

APR 25 1986

MEMORANDUM FOR: Malcolm R. Knapp, Acting Chief  
WMLU

FROM: Philip S. Justus, Acting Chief  
WMGT

SUBJECT: REVIEW OF SHIPROCK RIPRAP SPECIFICATIONS AND GRADATIONS

In accordance with your recent request (WM-86360), we have reviewed the subject report, which DOE submitted by letter dated April 11, 1986. In general, we conclude that the information provided in this report is not sufficient to demonstrate that the Type B and Type B1 rock gradations are acceptable.

Our examination of the riprap test data provided indicates that the single test performed to determine the gradation of Type B riprap may not be representative of the rock that will actually be placed. This conclusion is based on the following:

1. The sample tested contained only 16 individual rocks and had a weight of only 154 pounds; such a sample is probably too small to be meaningful.
2. The sample tested contained two rocks which weighed about 25 pounds each and two rocks which weighed about 17 pounds each. The NRC staff is not aware of the widespread availability of such large rocks in the immediate site area. Additionally, the presence of these four large rocks may have distorted the gradation curve significantly.

The NRC staff recommends that additional gradation testing be performed to conclusively document the rock gradations that are currently available at the site. Two additional tests should be performed for each representative Type B and Type B1 riprap (total of four tests). If the representative rock is found once again to be significantly larger than required by the specifications, the NRC staff suggests that one or both of the following be adopted:

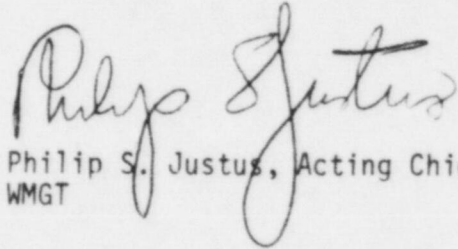
1. the rock gradation specifications should be modified to allow the placement of this larger rock which is truly representative of locally available material; and/or
2. additional modifications should be made to the design in order to possibly effect significant reductions in rock quantities.

It is our understanding that an NRC construction site visit has been planned for the week of May 5, 1986. This would be an ideal time for the tests to be

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conducted, since NRC staff would be available to verify the representativeness of the rock samples tested.

If you have any questions, please contact Ted Johnson, who may be reached at ext. 74490.

A handwritten signature in cursive script, reading "Philip S. Justus". The signature is written in dark ink and is positioned above the printed name and title.

Philip S. Justus, Acting Chief  
WMGT