UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 13, 1996

Mr. Joseph E. Virgona, Project Manager
U.S. Department of Energy
Grand Junction Projects Office
PO Box 2567
Grand Junction, Colorado 81502-2567

SUBJECT: LAKEVIEW, OREGON, ROCK ACCEPTABILITY

Dear Mr. Virgona:

By letters dated May 10 and June 14, 1996, U.S. Nuclear Regulatory Commission staff provided the U.S. Department of Energy (DOE) with preliminary results of the evaluation of rock samples collected from the Lakeview, Oregon, tailings disposal cell. In the letter of June 14, NRC staff committed to provide the final evaluations, including analyses and conclusions, of rock tests conducted on samples collected from the Lakeview site. The enclosed report, "Evaluation of the Shear, Pepperling Good, and Pepperling Fair Rock Samples for the Lakeview, Oregon, UMTRA Site," prepared by NRC's contractor at Colorado State University (CSU), contains the final results and analyses of those rock tests.

Sampling and evaluation of rock from the Lakeview site was initiated when inspections by the NRC staff in 1995 indicated that some of the rock had decomposed or appeared to be of poor quality. At that time, DOE and its contractors considered that rock at the site was sufficient to provide the required protection for the disposal cell for a 200-year period. DOE's conclusion was based on the fact that rock placed at the Lakeview site had been oversized and over-thickened and, therefore, should be sufficient to compensate for any degradation that might occur. It was further concluded that, should additional problems with the rock be identified, repairs could be accommodated through the long-term surveillance of the site.

The findings of the enclosed CSU report indicate that the rock has degraded after approximately 100 freeze-thaw cycles, representing approximately three years of actual cycles in the field. Based on these results, the NRC staff has concerns related to the durability and quality of the rock placed at the Lakeview site.

Because of the above concerns, the staff has determined that DOE's Long-Term Surveillance Plan (LTSP) does not contain sufficiently detailed procedures for monitoring the rock at the site. The staff concludes that DOE should develop procedures for monitoring potential degradation of the rock, and that these procedures should be provided in a revised version of the LTSP. DOE may wish to consider including the following specific items in the procedures:

1. Monitoring of the riprap on the top slopes, side slopes, and diversion channel for degradation, including spalling, fracturing, and general deterioration;

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2. Measures for observing specific rocks or groups of rocks to determine the overall adequacy of the riprap layer, including periodic examination of individual rocks or groups of rocks on the cell;

3. Analyses to determine the point (action level) at which the rock layer will not meet design criteria. [Recognizing that the rock layers may have been initially overdesigned, it may be possible to determine, for example, that there only needs to be a minimum number of rocks of a minimum size to provide adequate protection. This "action level" should be established and should become part of the LTSP. Such an action level will provide inspectors with information and procedures to determine when remedial repairs are necessary.]

Because this effort is unique, the NRC staff would welcome discussions on any draft procedures that are proposed. In addition, the staff requests that it be notified of any site inspections scheduled by DOE related to the examination of rock placed at the site or to the initial development of monitoring procedures.

If you have any questions concerning this letter or the enclosure, please contact the Project Manager for the Lakeview site, Ms. Charlotte Abrams, at (301) 415-5808.

Sincerely,
Original Signed By:]
Daniel M. Gillen, Acting Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc: S. Hamp, DOE Alb
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