



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

February 11, 1999

Dr. Stephan Brocoum
Assistant Manager for Licensing
U.S. Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 30307
North Las Vegas, Nevada 89036-0307

**SUBJECT: SUBMITTAL OF U.S. DEPARTMENT OF ENERGY TOPICAL REPORT ON
DISPOSAL CRITICALITY ANALYSIS METHODOLOGY**

Dear Dr. Brocoum:

By letter dated January 7, 1999, the U.S. Department of Energy (DOE) submitted the "Disposal Criticality Analysis Methodology Topical Report" for the staff's review. DOE had previously submitted an annotated outline for the subject report (letter dated August 18, 1995, from R. Milner, DOE, to J. Holonich, NRC) and the staff provided comments on the outline for DOE's consideration in the development of the topical report (letter dated October 5, 1995, from J. Holonich, NRC, to R. Milner, DOE). Additional staff comments on the development of the topical report were provided in various meetings between our staffs.

In your letter, you requested the staff's review and comment on DOE's disposal criticality analysis methodology and the planned approach to validating the methodology. Ultimately, if the methodology is determined to be acceptable, DOE would utilize the methodology in the planned license application for post-closure criticality analyses, demonstrating that the methodology is valid for use under the specific waste form and waste package designs and repository conditions at Yucca Mountain. As such, the focus of the staff's review will be to determine if the topical report, and its contained methodology, are acceptable for referencing in the license application.

The staff has completed its acceptance review of the topical report using the criteria described in the Topical Report Review Plan previously provided to DOE (letter dated February 28, 1994, from J. Holonich, NRC, to D. Shelor, DOE). The staff believes that its prior comments on the annotated outline for the report have been adequately addressed in the report and in its cited references. The staff also concludes that the subject topical report satisfies the qualification criteria for a topical report and is sufficiently complete for the staff to initiate its technical review. Specifically, the staff considers that disposal criticality is an important-to-waste-isolation issue that requires a safety assessment by the staff, which can be evaluated independent of the license application. The disposal criticality analysis methodology has been the subject of discussions between our staffs during the pre-licensing phase of the high-level waste program and the methodology, when approved by the NRC staff, could be referenced in DOE's planned license application. The topical report contains complete and detailed information on the subject of disposal criticality analysis methodology. Lastly, NRC's acceptance of the topical report will result in increased efficiency of the review process for the license application.

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With the initiation of the detailed technical review, the staff anticipates that additional information or clarifications may be needed for the staff to complete its safety evaluation. The staff will make such a request, as necessary.

We look forward to working with your staff during the course of the topical report review. In this regard, we recommend an early meeting between our staffs to develop an appropriate review schedule for the topical report. If you have any questions regarding the letter or the staff's review, please contact me at (301) 415-6537 or Meraj Rahimi at (301) 415-6616.

Sincerely,

(Orig. Signed By:)

C. William Reamer, Acting Branch Chief
Engineering and Geosciences Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

cc: See attached list

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Letter to S. Brocoum from C.W. Reamer dated: February 11, 1999

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