



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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February 6, 1995

Mr. Stephan J. Brocoun, Assistant Manager
 for Suitability and Licensing
 U.S. Department of Energy
 Yucca Mountain Project Office
 P.O. Box 98606
 101 Convention Center Drive
 Las Vegas, Nevada 89101

SUBJECT: REVIEW OF U.S. DEPARTMENT OF ENERGY STUDY PLAN "TECTONIC
 MODELS AND SYNTHESIS," REVISION 0

Dear Mr. Brocoun:

On December 19, 1994, the Department of Energy (DOE) transmitted Revision 0 of the study plan "Tectonic Models and Synthesis" (Study Plan 8.3.1.17.4.12) to the U.S. Nuclear Regulatory Commission for review and comment. NRC has completed a preliminary review of this document using the Review Plan for NRC Staff Review of DOE Study Plans, Revision 2 (March 10, 1993). While the study plan, in general, appears to be well written, the plan is not considered consistent with the revised DOE/NRC "Level of Detail Agreement and Review Process for Study Plans" (Shelor to Holonich, March 22, 1993).

As the name of the study plan suggests, this plan is to describe modeling and synthesis of tectonic features and processes in the Yucca Mountain Region. As is stated in Site Characterization Progress Report Number 10 (SCPR 10), 2 and 3-dimensional models and computer codes are being used to accomplish this purpose. However, the requirements for analysis, synthesis and modeling, specified in the Level of Detail Agreement, have not been met. For example, while SCPR 10 specifically discusses computer modeling, the topic is not addressed within the study plan. There is no discussion of the software, the sensitivity of the models to input and calculational methods, testing of the model against other models, or of how the model will be updated to incorporate new data, as required by Attachment 1 of the Level of Detail Agreement. An additional concern is that this study plan was written in 1993 prior to the recent modifications to the DOE program, and these changes may not be reflected in the study plan. Therefore, this study plan could require significant modification, especially in scheduling of deliverables.

This plan has received a preliminary review in the area of quality assurance (QA). The study plan addresses QA only with the statement: "Quality Assurance (QA) requirements for this activity will be specified in a Yucca Mountain Project QA Grading Report, which will be issued as a separate controlled document. All procedures applicable to this activity will be identified on the basis of the findings in the Grading Report and will be

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prepared in accordance with applicable QA requirements." While this is acceptable, a copy of the Grading Report was not included within the study plan or included with the letter transmitting the study plan. In order for the NRC to perform a meaningful review of the study plan in the area of Quality Assurance, this Grading Report is necessary.

We would suggest that this study plan be revised to be consistent with both the NRC/DOE Level of Detail Agreement and the current program plans. At that time, it should be resubmitted to the NRC for review, along with the applicable Grading Report. The work that has been conducted under this plan should be considered to be "at risk", as it does not appear to have been conducted under approved procedures. (NRC may conduct a QA audit [infield verification] of the work that is being conducted under this study plan and report of the acceptability of the technical work, as well as the QA procedures.)

We note, also that the letter transmitting this study plan lists five site characterization analyses open items which this study plan addresses. Two of these "open items" were resolved in December of 1993 and are no longer considered open by the NRC. (See letter from Reamer/NRC to Shelor/DOE, dated December 30, 1993.)

If there are any questions regarding this letter, please contact John S. Trapp of my staff at (301) 415-8063.

Sincerely,

JS
Michael J. Bell, Chief
Engineering and Geosciences Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

cc: Attached DOE List

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