



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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AUG 22 1993

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Mr. Ronald A. Milner, Acting Director
Office of Program Management and Integration
Office of Civilian Radioactive Waste Management
U.S. Department of Energy, RW 30
1000 Independence Avenue
Washington, D.C. 20585

Dear Mr. Milner:

SUBJECT: REVIEW OF THE U.S. DEPARTMENT OF ENERGY (DOE) STUDY PLAN
ON "LABORATORY THERMAL PROPERTIES, REVISION 1" (8.3.1.15.1.1)

On September 7, 1993, DOE transmitted the subject study plan to the Nuclear Regulatory Commission for review and comment. The NRC staff has completed its review of the subject study plan using the "Review Plan for the NRC Staff Review of DOE Study Plans, Revision 2" (dated March 10, 1993). Based on its review of the study plan, the staff considers the material submitted to be generally consistent, to the extent possible, at this time, with the revised NRC-DOE "Level of Detail Agreement and Review Process for Study Plans" (letter from Shelor to Holonich; dated March 22, 1993).

A major purpose of the review is to identify concerns with studies, tests, or analyses that, if started, could cause significant and irreparable adverse effects on the site, the site characterization program, or the eventual usability of the data for licensing. Such concerns would constitute "objections," as that term has been used in earlier NRC staff reviews of DOE documents related to site characterization (e.g., "Consultation Draft Site Characterization Plan" and the "Site Characterization Plan (SCP) for the Yucca Mountain Site"). It does not appear that the conduct of the activities described in this study plan will have adverse impacts on repository performance and the review of this study plan identified no objections with any of the activities proposed.

As part of its study plan review, the NRC staff also determines whether or not detailed comments or questions are warranted. The NRC staff's review of the subject study plan has resulted in the identification of three questions. These questions were also identified during the staff's review of Study Plan 8.3.1.15.1.2 ("Laboratory Thermal Expansion Testing, Revision 1"; dated September 1993) (see Enclosure). They will be tracked by the NRC staff as open items similar to those previously raised by the NRC staff in its 1989 Site Characterization Analysis (SCA).

Additionally, in light of the review of this and other related study plans (e.g., 8.3.1.15.1.5 ("Excavation Investigations") and 8.3.1.15.1.2), the staff is concerned about the continuing need for improved technical integration and coordination of similar information-gathering activities

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Mr. Ronald A. Milner

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of DOE's 1988 SCP. The NRC staff expects DOE to address this concern in future SCP Progress Reports. (The staff's evaluation of DOE's response to this SCA Comment can also be found in its review of Study Plan 8.3.1.15.1.2.)

Finally, the NRC staff wishes to note that in its letter transmitting this study plan, DOE indicated that SCA Comment 55 was addressed; however, DOE did not request closure of this open item. Based on its review of the information contained in the study plan (see Enclosure), the NRC staff considers SCA Comment 55 still open. (The staff's evaluation of DOE's response to SCA Comment 55 can be found in its review of Study Plan 8.3.1.15.1.2.)

If you have any questions concerning this review, please contact Michael P. Lee at 301/415-6677.

Sincerely,

/s/

Joseph J. Holonich, Chief
High-Level Waste and Uranium Recovery
Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc: See Attached List

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**OPEN ITEM QUESTIONS IN STUDY PLAN 8.3.1.15.1.1:
"LABORATORY THERMAL PROPERTIES, REVISION 1"**

Question 1

Will this Study Plan investigate the effects of anisotropy and natural fractures on the thermal expansion characteristics of the samples collected from the ESF Main Access, ESF Main Drifts, and additional sampling locations and the thermal/mechanical units other than TSw2 ?

Question 2

Does the program described in Table 2.2-4 provide enough flexibility to accommodate the DOE's high thermal loading option for the repository design?

Question 3

What is the rationale for applying the confining pressure normal to the fractures?

The bases and the recommendations for these open item questions can be found in the NRC staff review comments on Study Plan 8.3.1.15.1.2, Revision 1.

ENCLOSURE