



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

October 29, 1997

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: ISSUE RESOLUTION STATUS REPORT.  
KEY TECHNICAL ISSUE: REPOSITORY DESIGN AND  
THERMAL-MECHANICAL EFFECTS

Dear Dr. Brocoum:

As you know, the staff of the U.S. Nuclear Regulatory Commission has developed a process for early resolution of technical issues at the staff level, which involves the preparation of Issue Resolution Status Reports (IRSRs) for the 10 key technical issues (KTIs) most important to performance. An example of the process for early resolution can be found in our release, on June 30, 1997, of a pilot IRSR on climate change and associated effects. The enclosed IRSR relates to the Repository Design and Thermal-Mechanical Effects (RDTME) Key Technical Issue (KTI).

The main issue of the RDTME KTI has been broken into four subissues dealing respectively with: (1) design control process; (2) seismic design; (3) thermal effects; and (4) repository seals. Because of a lack of funding for contractor support and limited staff resources available to this KTI during fiscal year (FY) 1997, this IRSR focuses on one component of the first subissue, namely, design control process for the exploratory studies facility (ESF), and one component of the second subissue, namely, preclosure seismic design methodology for the geologic repository operations area (GROA). These are important components of subissues that impact the performance of a proposed repository at Yucca Mountain.

The staff concludes that the design control process being implemented by the U.S. Department of Energy (DOE) in designing, constructing, and operating the ESF is acceptable in that DOE has responded satisfactorily to all previous objections, comments, and questions raised by the staff related to this topic. The staff will continue to monitor DOE's design control process that will be implemented in the design of the GROA. The staff also concludes, as a preliminary matter, that the preclosure seismic design methodology proposed by DOE in its Topical Report (TR) (Ref. 29 of the enclosed IRSR) is acceptable to the staff in that all the comments made by the staff on the previous drafts of the TR have been satisfactorily addressed by DOE. However, it should be noted that a final statement regarding the acceptability of DOE's seismic design methodology for the GROA can be made only after reviewing DOE's third and final TR on this topic scheduled for preparation by DOE in FY 1998. This IRSR traces the history of the important interactions that have taken place between the staff and

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DOE and documents the results of various reviews that led to the above conclusions. This IRSR also identifies a number of open items under this KTI that are resolved at the staff level and, thus, can be considered closed.

Consistent with 10 CFR Part 60 requirements and a 1992 agreement with DOE, staff-level issue resolution can be achieved during the preclicensing consultation period. However, such resolution at the staff level would not preclude the issue being raised and considered during the licensing proceedings. Issue resolution at the staff level during preclicensing is achieved when the staff has no further questions or comments (i.e., open items) at a point in time, regarding how the DOE program is addressing an issue. There may be some cases where resolution at the staff level may be limited to documenting a common understanding regarding differences in the U.S. Nuclear Regulatory Commission and DOE points of view. Pertinent additional information could raise new questions or comments regarding a previously resolved issue.

Finally, the enclosure should be viewed as a status report that provides the staff's most current views on the RDTME KTI. The report may be updated or revised in the future as additional information becomes available. We welcome a dialogue on this subject with DOE, the U.S. Nuclear Waste Technical Review Board, State of Nevada, and other interested parties. If you have any questions about this letter, please contact Dr. Mysore Nataraja of my staff at (301) 415-6695, or via Internet mail service (msn1@nrc.gov).

Sincerely,

ORIG SIGNED BY:

N. King Stablein, Acting Chief  
 Engineering and Geosciences Branch  
 Division of Waste Management  
 Office of Nuclear Material Safety  
 and Safeguards

Enclosure: As stated

*on NW shelf IN JACKET  
 9711060031 971029*

cc: See attached list

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DATE	10/01/97		10/02/97		10/28/97		10/22/97	10/29/97

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Finally, the enclosure should be viewed as a status report that provides the staff's most current views on the RDTME KTI. The report may be updated or revised in the future as additional information becomes available. We welcome a dialogue on this subject with DOE, the U.S. Nuclear Waste Technical Review Board, the NRC Advisory Committee on Nuclear Waste, State of Nevada, and other interested parties. If you have any questions about this letter, please contact Dr. Mysore Nataraja of my staff at (301) 415-6695, or via Internet mail service (msn1@nrc.gov).

Sincerely,

Newton K. Stablein, Acting Chief  
Engineering and Geosciences Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Enclosure: As stated

cc: See attached list

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C. Henkel, NEI

From: C. W. (Bill) Reamer  
To: TWD2.TWP7(NKS)  
Date: 10/22/97 11:08am  
Subject: irsr on design -Reply -Reply

no problem.

here are my comments on attachment to letter:

\* -- §1.0, 2d paragraph, add "10 CFR Part 60 requirements and" after "Consistent with"

-- §3.2.2, consider adding following footnote: "Consistent with the Energy Policy Act of 1992, the Environmental Protection Agency (EPA) is developing site-specific environmental radiation protection standards for a potential repository at Yucca Mountain, Nevada. The Act specifies that, after promulgation of the EPA standards, the NRC must modify its regulations to be consistent with the EPA standards. Although the primary focus of the EPA standards will likely be the postclosure period of repository performance, the NRC will ensure that the preclosure performance objectives in part 60 are consistent with applicable EPA standards."

-- §4.0, 2d sentence, revise as follows: "The first subsection. . .in evaluating DOE's submittal on the particular subissue." suggest we avoid using words of the present draft that imply we are evaluating and therefore are making judgments about "compliance" since such judgments should await a license application. OK

-- §4.1.4.5, revise last sentence: "The ORs reports are also used as bases for staff conclusions on DOE's design control process." the present draft's "Such documentary evidence" is ambiguous. Raj's comment to me indicates that he intends to refer to the ORs written reports.

with foregoing, and yesterday's email, OGC sees NLO.

Need to resolve  
this.

Something like this  
belongs in a boilerplate  
Introduction. I prefer  
not to put this foot note.  
(It is not a mandatory  
comment.)

From: C. W. (Bill) Reamer  
To: TWD2.TWP7.NKS  
Date: 10/21/97 8:02pm  
Subject: irsr on design

king, on the cover letter:

-- delete "version of the" from <sup>2nd</sup> 1st sentence of 2d ¶.

-- add "as a preliminary matter" after "concludes" in 3d sentence of 3d ¶.

-- add "10 CFR Part 60 requirements and" after "with" in 1st sentence of 4th ¶. (i believe this was in earlier climate irsr because of 60.18(1).)

-- at the end of 4th ¶, add sentence that "Pertinent additional information could raise new questions or comments regarding a previously resolved issue."

i'm starting to look at the attachment.

CC: TWD2.TWP7.MSN1

Mike ??

**ENCLOSURE**