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

January 28, 2000

Dr. Stephan J. 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: TOTAL SYSTEM PERFORMANCE ASSESSMENT AND INTEGRATION), REV. 2

Dear Dr. Brocoum:

The overall goal of the Total System Performance Assessment and Integration (TSPAI) Key Technical Issue (KTI) Issue Resolution Status Report (IRSR) is to document the U.S. Nuclear Regulatory Commission (NRC) staff's systematic approach for reviewing the U.S. Department of Energy (DOE) information on repository performance against an overall system performance objective. Revision 0 of the TSPAI IRSR addressed model abstraction. Revision 1 considered: (1) acceptance criteria and review methods for the subissue of scenario analysis; (2) current staff views of Key Elements of Subsystem Abstraction (now Integrated Subissues); and (3) changes to the DOE's reference design and performance assessment models. Revision 2, the enclosed document, contains: (1) revision of the model abstraction section; (2) addition of a section on transparency and traceability; (3) rebaselining of the open items; and (4) addition of a section presenting an initial partitioning of features, events, and processes to integrated subissues. The revision of the model abstraction section, supported by other KTIs, facilitates the review of supporting data and models in the context of total system performance assessment.

The TSPAI IRSR is composed of four subissues pertaining to the DOE's performance assessment: (1) demonstration of the overall performance objective and multiple barriers; (2) model abstraction; (3) scenario analysis; and (4) transparency and traceability. The NRC staff acceptance criteria and review methods for the transparency and traceability subissue have been added in this revision of the IRSR.

Concurrent with the development of this IRSR, the NRC has initiated development of implementing regulations for the Yucca Mountain (YM) site with the expectation that, in the future, the U.S. Environmental Protection Agency will issue final standards for the YM site. Any changes that result from the rulemaking activity will be addressed in succeeding versions of the IRSR. Similarly, in this version of the IRSR, the staff has used information on the DOE's program that was available at the time this IRSR was written. Changes in the DOE's approach not documented in this version will be addressed in later IRSR revisions.

Consistent with the NRC regulations on prelicensing consultations and a 1993 agreement with the DOE, staff-level issue resolution can be achieved during the prelicensing consultation period. The NRC's strategic planning assumptions call for the early identification and resolution

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of potential licensing issues in an open manner; this approach attempts to reduce the number of and better define issues that may be in dispute during the NRC review of a license application, by obtaining input and striving for consensus from the technical community, interested parties, and other groups on such issues. 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 prelicensing is achieved at a point in time when the staff has no further questions or comments (i.e., open items) regarding how the DOE's program is addressing an issue. There may be cases where resolution at the staff level is limited to documenting a common understanding regarding differences in the NRC and the DOE points of view. Pertinent additional information could raise new questions or comments regarding a previously resolved issue.

In this IRSR, the NRC has made an effort to identify those open items relevant to the DOE performance assessment. The status of open items related to model abstraction and scenario analysis also are provided in Section 5 of the IRSR. The next revision of the IRSR will focus on the status of resolution of open items and technical basis for the acceptance criteria and review methods.

If you have any questions about this letter and enclosure, please contact David Esh of the NRC staff at (301) 415-6705, or via Internet mail service (dwe@nrc.gov).

Sincerely,

[Original signed by N.King Stablein for:]

C. William Reamer, Chief
High-Level Waste and Performance
Assessment Integration Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: IRSR (KTI: TSPAI), Rev. 2

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Sincerely,

Keith Stablein
for

C. William Reamer, Chief
High-Level Waste and Performance
Assessment Integration Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: IRSR (KTI: TSPAI), Rev. 2

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Letter to Dr. S. Brocoum from C. W. Reamer dated: January 28, 2000

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