

INTERIM SUMMARY OF
U.S. NUCLEAR REGULATORY COMMISSION/U.S. DEPARTMENT OF ENERGY
TECHNICAL EXCHANGE AND MANAGEMENT MEETING ON
TOTAL SYSTEM PERFORMANCE ASSESSMENT
October 24-25, 2006
Las Vegas, Nevada

INTRODUCTION

On October 24 and 25, 2006, U.S. Nuclear Regulatory Commission (NRC) and Department of Energy (DOE) met in Las Vegas, Nevada, to discuss "DOE's Total System Performance Assessment (TSPA)." The meeting was held at the NRC Las Vegas Hearing Facility, and was open to the public. The meeting agenda is provided in Enclosure 1.

To support staff and stakeholder interactions, the meeting included video connection to NRC offices in Rockville, Maryland, and the Center for Nuclear Waste Regulatory Analyses in San Antonio, Texas. Teleconference connections were also available to interested stakeholders.

Participants included representatives of the NRC, DOE, State of Nevada, Affected Units of Local Government, Nuclear Energy Institute, other industry representatives, and members of the public. Enclosure 2 contains the list of attendees who were present at the above locations.

PURPOSE OF THE MEETING AND TOPICS OF DISCUSSION

The purpose of this meeting was to discuss the DOE's performance assessment for a potential geologic high-level waste repository at Yucca Mountain, NV, and for the NRC to present some perspectives on the regulatory information that it will consider in its review of a potential license application. Performance assessment is the systematic analysis of features, events, and processes that may affect the performance of a repository, including a quantitative estimate of possible dose due to release of waste.

NRC presented its perspective on the use of risk information and on total system issues. NRC staff discussed how risk information obtained from both the DOE demonstration of barrier capability and the NRC risk insights would be used in a licensing review process. Staff also highlighted a number of topics for DOE to consider while developing and documenting their performance assessment, including the demonstration of barrier capability, scenario analysis, treatment of uncertainty, quality assurance and model support, and design and use of TSPA analyses.

DOE provided an overview of their efforts in developing the Total System Performance Assessment for a license application (TSPA-LA). The presentations covered both completed work that has been documented in publically available reports and potential work that may be implemented prior to completion of the TSPA-LA. DOE presentations covered the schedule, process, and procedures for developing the TSPA-LA, as well as the basic structure of and information flow between the computational models supporting the TSPA-LA. DOE then provided presentations to address several of the key topics identified by the NRC, including the demonstration of barrier capability, the treatment of uncertainty and variability, and the design and use of TSPA analyses.

DOE then described the status of their TSPA, with presentations on nominal and disruptive scenario classes and on the individual abstractions comprising the TSPA. The presentations on scenario classes described the nominal scenario class and two disruptive (seismic and igneous) scenario classes. These presentations on individual component abstractions provided information on what was included in the abstraction and how it would be linked to other abstractions; major assumptions; a brief description of the technical basis and supporting information for the abstraction; primary references documenting the abstraction, and potential changes that either have been made since the TSPA for site recommendation or that may be made prior to submittal of a license application. DOE also discussed the impact that use of a transport, aging, and disposal (TAD) canister may have on the TSPA.

The technical exchange and management meeting closed with remarks from both the NRC and DOE. NRC acknowledged the level of effort that had been put into preparation for the technical exchange, and indicated that they had gained a better understanding of the plans for and status of the DOE TSPA. Recognizing that the presentations for this meeting were necessarily at a relatively high level, NRC emphasized the benefit to all parties of continued interactions at a more detailed level, and requested a schedule for completion of individual DOE products so that future interactions can be efficiently conducted. DOE thanked the lead lab (Sandia National Laboratory) for their efforts and reminded all participants that information on planned changes to the TSPA should be considered preliminary and subject to change. DOE acknowledged the usefulness of the key messages letter sent prior to the meeting and the comments provided by NRC during the meeting. DOE also noted that as a result of the aggressive schedule for completing the license application, it would have to consider appropriate timing for additional meetings between the DOE and NRC. Finally, DOE indicated that it is working on developing a schedule for deliverables and that they would discuss that schedule with NRC once it has been completed.

The presentations by NRC and DOE are provided in Enclosure 3.

Enclosures:

1. Agenda
2. Attendees
3. Presentations