September 28, 2007

The Honorable Jon Porter
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Porter:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letter of July 25, 2007, regarding the NRC staff's review of the U.S. Department of Energy's (DOE's) anticipated license application for a geologic repository at Yucca Mountain, Nevada. Specifically, you expressed the view that DOE's total system performance assessment (TSPA) and its underlying assumptions, including the computer modeling which supports the results of DOE's calculations, should be a major aspect of NRC's review and you are concerned that NRC may be planning to "abdicate this review responsibility." You also expressed a belief that all interested participants in the potential licensing proceeding should have full access to DOE's TSPA model and results so as to permit reproducibility, traceability, data verification, and accuracy.

I want to assure you that, if DOE submits a license application, the NRC has no intention of abdicating its review responsibility. The NRC staff will carry out a comprehensive, independent safety review of DOE's TSPA and will document the results of its review in a public Safety Evaluation Report. The staff's Yucca Mountain Review Plan describes the staff's approaches for conducting its comprehensive review, including evaluation of the capabilities of the barriers important to waste isolation and the thorough review and testing of the parameters and conceptual models in DOE's TSPA. With regard to examination of the computer modeling and assumptions, which form the basis for the results of DOE's calculations, NRC staff intends to review the TSPA to confirm that appropriate scenarios were evaluated in the TSPA, that the models and data credibly represent repository performance, and that the resulting dose estimates are statistically stable and consistent. The enclosure to this letter provides additional detail on NRC staff's plans to review DOE's TSPA and the availability of NRC staff's review information for examination by stakeholders. Conducting the literally hundreds of computer runs necessary to support the license application in a timely manner and being able to save intermediate data for NRC's licensing review requires the massive computer system being utilized by DOE. It is DOE's responsibility, as an applicant for an NRC license, to run these simulations on TSPA. It is NRC's responsibility to confirm the validity of these simulations.

During the execution of the TSPA, the results of the calculations are saved in computer files containing both the results of overall performance (e.g., estimates of dose) as well as intermediate results (e.g., infiltration rates, degradation rates of waste packages, timing and release rate of radionuclides from the waste package, timing and release rate of radionuclides from the saturated zone). The computer program and files of DOE's TSPA allow NRC to review and confirm the many calculations within the TSPA and to examine the parameters,

models and assumptions. This information is expected to be in the license application, which will be available to all stakeholders. Additionally, the Commission intends to ensure that the public, at a minimum, will have access to any TSPA codes and data that are accessible to the NRC staff or that impact safety determinations providing the data does not involve appropriately protected information.

The Commission is confident the NRC staff is prepared to review DOE's TSPA in support of the license application. This review process will be open to the public. In addition, your staff has been invited to a briefing on this topic as well as other issues in early October. If they are unable to attend, another briefing can be arranged at a time that is convenient for your staff. If you have further questions, please contact me.

Sincerely,

/RA/

Dale E. Klein

Enclosure:
Key Elements of Staff Review of DOE's
TSPA Computer Program and Files

Identical letter sent to:

The Honorable Jon Porter
United States House of Representatives
Washington, D.C. 20515

The Honorable Dean Heller
United States House of Representatives
Washington, D.C. 20515