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

July 26, 2007

The Honorable Shelley Berkley
United States House of Representatives
Washington, D.C. 20515

Dear Congresswoman Berkley:

This is to acknowledge receipt of your letter dated July 25, 2007, regarding NRC's review of the U.S. Department of Energy's (DOE's) proposed license application for Yucca Mountain.

Please be assured that we are working on a response and a reply will be forwarded to you as soon as possible.

Sincerely,

Rebecca Schmidt

Rebecca L. Schmidt, Director
Office of Congressional Affairs

Congress of the United States
Washington, DC 20510

July 25, 2007

Honorable Dale Klein, Chairman
Honorable Edward McGaffigan, Jr.
Honorable Gregory Jaczko
Honorable Peter Lyons
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: **NRC's Abdication of Review Responsibilities and Oversight Over DOE's Key Performance Assessment Model for Yucca Mountain**

Dear Chairman Klein and Commissioners:

We have recently become aware of a disturbing development in relation to the Nuclear Regulatory Commission's (NRC) planned technical review of the Department of Energy's (DOE) proposed license application for a nuclear waste repository at Yucca Mountain. As you know, DOE has announced that it will file an application for repository construction authorization with NRC no later than June 30, 2008. Because the safety of the repository can only be projected using computer simulations and models that are designed to predict performance over hundreds of thousands of years, the key part of DOE's long-term performance assessment for Yucca is its so-called Total System Performance Assessment, or "TSPA."

In 2001, both NRC and DOE changed their rules to rely exclusively on the results of the TSPA in assessing the safety of disposal at the repository, departing from the long-standing nuclear safety principle that multiple independent barriers to the release of radioactive materials, including the site's natural barriers and an engineered barrier system, should each contribute a defined measure of safety to provide for defense-in-depth. Now, if the TSPA model performance simulation results show that repository releases will be within Environmental Protection Agency radiation dose limits, no further demonstration of safety will be required. In short, the TSPA *is*, in effect, the Yucca Mountain license. Nothing in DOE's repository safety analysis comes close to the TSPA in gauging safety importance. The government's reliance on the TSPA as the sole measure of repository performance was sustained in 2004 by the Court of Appeals for the D.C. Circuit, which gave deference to NRC's representations that technical advances in computer modeling had made TSPA a better approach for evaluating overall repository performance, obviating the need to demonstrate the safety of individual natural barriers and engineered barrier systems.

Given the overwhelming and critical importance of the TSPA to DOE's application for construction authorization, one would think that TSPA would be made fully and publicly

available in a timely fashion, that the public would be afforded meaningful access to it, and that it would be sufficiently transparent to follow the results of DOE's calculations and to double-check those calculations using alternative assumptions and scenarios for repository performance and failure. And indeed, NRC and DOE have made clear proclamations and admonitions to that effect in rule preambles, guidance documents, testimony before the Nuclear Waste Technical Review Board, and in Congressional testimony.

For example, in September 2000, NRC observed: "Without transparency and traceability, DOE's TSPA may be difficult to understand to even a well-trained technical expert, and appear as no more than a 'black box' from which estimates of repository performance are produced.... For DOE's TSPA to be sufficiently transparent and traceable for reproducibility, the assumptions, uncertainties, rationale, and data used in the TSPA must all be visible." In promulgating its TSPA approach, DOE confirmed that "[t]ransparency is achieved when a reader can understand what was done in the analyses, what the outcome was, and why."

But Nevada has recently learned that the specific computer arrangements proposed by DOE for performing TSPA calculations require an immense cluster of computers and processors that no participant could reasonably expect to duplicate, including up to 30 Windows Master Servers and 752 processors of various Windows vintages all strung together. Moreover, the one-of-a-kind cluster requires custom-made computer codes that are not used elsewhere.

Most astonishing, Nevada learned that NRC Staff, which is charged by the Commission to do the detailed review of the TSPA, has *no plans* to examine the actual TSPA computer codes and system hardware, or to verify DOE's calculations by using the same TSPA codes and hardware to perform its own TSPA calculations using different models and assumptions. Indeed, NRC Staff has informed Nevada that "the capability of a third party [including NRC] to execute the TSPA computer code independently is not a prerequisite for developing an adequate understanding of the DOE performance assessment." Thus, NRC Staff believes DOE's TSPA may be accepted without NRC or any other party being able to verify that its various input parameters and calculations are correct. As far as NRC Staff is concerned, the Yucca Mountain TSPA will indeed be a "black box," the very fear even its backers expressed when the TSPA concept was introduced.

We understand that NRC Staff has developed its own highly simplified computer model (the "TPA") in order to help Staff understand the issues as they review the license application. However, the Staff is not the applicant, and its TPA model cannot form the basis for license approval. The application must stand or fall on the validity of DOE's TSPA model and results. That model must be transparent, accessible, and the results capable of being verified, not just by NRC, but by participants like Nevada. After all, the TSPA now constitutes the *sole instrument* by which compliance with the key regulatory criteria for Yucca Mountain will be evaluated. If the model is faulty or its results are erroneous, the repository should not be licensed. For that reason, a major aspect of NRC's review of DOE's application should be its review of the TSPA and its underlying assumptions. It would be unconscionable for NRC to abdicate this review responsibility and, worse, to suggest that the agency will not demand that all interested participants in the proceeding have full access to this model so as to permit reproducibility, traceability, data verification, and accuracy. Even if NRC intends to abdicate its review function, it should be doing everything within its legal authority to facilitate such examination by others.

We expect NRC to do everything within the limits of its resources and the authority of law to scrutinize DOE's TSPA for Yucca Mountain. We also expect NRC to facilitate similar scrutiny by parties to the repository licensing by taking immediate measures to ensure the timely accessibility and review of DOE's TSPA by all interested parties, including NRC and the State of Nevada.

In addition, we request that you provide us with the following:

(1) A detailed response in writing explaining how NRC plans to scrutinize DOE's TSPA for Yucca Mountain, and how the Commission will facilitate similar scrutiny by parties to the repository licensing proceeding; or
(2) If NRC does not plan to scrutinize the TSPA itself and/or facilitate such scrutiny by interested parties by ensuring their access to the TSPA, a detailed explanation of why NRC will not do so.

Should you have any questions, please contact Dayle Cristinzio (Senator Reid, 202-224-6586), Pam Thiessen (Senator Ensign, 202-224-6244), David Cherry (Congresswoman Berkley, 202-225-5965), Shannon Meade (Congressman Porter, 202-225-3252), or Greg Facchiano (Congressman Heller, 202-225-6155). We appreciate the Commission's close attention to this matter and look forward to a speedy response to our request.

Sincerely,

Harry Reid
United States Senator

John Ensign
United States Senator

Shelley Berkley
United States Representative

Jon Porter
United States Representative

Dean Heller
United States Representative

U.S. Senator Harry Reid

Senator for Nevada, Democratic Leader

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COMMENTS:

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