

July 17, 2003

Dr. George M. Hornberger, Chairman
Advisory Committee on Nuclear Waste
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: RESPONSE TO THE ADVISORY COMMITTEE ON NUCLEAR WASTE LETTER
DATED JUNE 12, 2003, ON THE TOTAL SYSTEM PERFORMANCE
ASSESSMENT WORKING GROUP SESSION, HELD MARCH 25-26, 2003

Dear Dr. Hornberger:

I am replying to your letter, dated June 12, 2003, that provided the Advisory Committee on Nuclear Waste's (ACNW's) comments on the working group session on performance assessment for the proposed high-level waste repository at Yucca Mountain, Nevada. The U.S. Nuclear Regulatory Commission (NRC) staff concur that the working group session provided an excellent forum in which to exchange views on the technical issues associated with the performance assessment process and to discuss issues surrounding the definition of the source term for the proposed Yucca Mountain repository. The NRC staff appreciated the opportunity to participate in the ACNW's working group session on performance assessment.

The ACNW's letter identified extensive discussion of parameter uncertainties, including uncertainties associated with source term parameters. The NRC staff recognizes the importance of the proper treatment of uncertainties, especially for source term parameters. We believe the NRC's total-system performance assessment (TPA) code is flexible enough to provide the capability to evaluate the importance of the uncertainties associated with specific parameters or groups of parameters. The staff routinely use the TPA code to perform sensitivities studies to gain insights into the importance of specific parameters and to better understand U.S. Department of Energy's (DOE's) treatment of uncertainties. The TPA code also provides the flexibility to allow the staff to update input data for various parameters or mechanisms (i.e., the inclusion of diffusive transport) as new information is identified.

The Committee's letter also discussed the importance of incorporating increased realism in the performance assessment models. The staff recognizes the benefits of incorporating increased realism. As may be dictated by the modeling approaches of DOE, the TPA code provides the NRC staff with considerable flexibility to incorporate varying levels of realism.

The ACNW reiterated its interest in seeing a "pinch point" structure for the performance assessment models. The staff recognize the value of this type of analysis and plan to document its use as part of the staff's risk "insights" initiative.

The Committee's letter also addressed the NRC staff's readiness to perform an independent, competent, and comprehensive review when DOE submits a license application. The Committee expressed confidence that the NRC staff will have the necessary technical tools and personnel in place to perform a competent review of DOE's performance assessment. The

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staff will continue to develop the technical capabilities and analytical tools to ensure an independent and comprehensive review of DOE's performance assessment that would be submitted as part of a license application for a high-level waste repository at Yucca Mountain, Nevada.

The NRC staff appreciates the ACNW's continued interest in, and input to, performance assessment and the TPA code. We look forward to your continued involvement in our future activities.

Sincerely,

/RA/

William D. Travers
Executive Director
for Operations

cc: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield
SECY

Dr. G. M. Hornberger

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* See previous concurrence

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