



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
ADVISORY COMMITTEE ON NUCLEAR WASTE  
WASHINGTON, DC 20555 - 0001

ACNWR-0207

May 5, 2004

The Honorable Nils J. Diaz  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**SUBJECT: REVIEW AND EVALUATION OF THE U.S. NUCLEAR REGULATORY COMMISSION'S RADIONUCLIDE TRANSPORT WASTE SAFETY RESEARCH PROGRAM**

Dear Chairman Diaz:

The Advisory Committee on Nuclear Waste conducts periodic reviews of the activities of the U.S. Nuclear Regulatory Commission (NRC) in nuclear waste safety research and the high-level waste (HLW) technical assistance program. The ACNW provided a comprehensive report on this work and the work being carried out in the Radionuclide Transport Research Program by the Office of Nuclear Regulatory Research (RES) on March 22, 2002. ACNW also reported on research related to the safety of spent fuel storage systems in its June 28, 2002, report.

Research efforts sponsored by RES in the radionuclide transport program address waste management and decommissioning programs. Specific studies address sorption, groundwater monitoring, and evaluation of clay covers. Work is also under way that supports the specific rulemaking activities associated with clearance and entombment. RES is tracking developments related to health effects models (e.g., linear-no-threshold theory) and the work of the International Commission on Radiological Protection and the National Council on Radiation Protection and Measurements. This combination of cross-cutting, specifically focused, and anticipatory research work is an effective approach to conducting a small research program that supports NRC decisionmaking.

One element of the RES-sponsored research is designed to provide generic support for the staff's analysis of factors influencing biosphere transport of radionuclides. While generic in nature, the work could be useful in the NRC staff's evaluation of a potential license application for an HLW repository at Yucca Mountain. Specifically, studies are planned which will provide data and information on radionuclide transport, that may be used in modeling. The radionuclides currently included in this the study matrix are I-129, Tc-99, Np-237, Pu-239, and Ni-63. The Committee was informed that the radionuclides studied were limited and that Am-241 would be evaluated later. The Committee believes, based on the Risk Insights Baseline Report and discussions with the NRC staff, that Am-241 is of high risk significance and recommends that Am-241 be included in the radionuclide matrix for the current studies. The Committee recommends further that the RES program provide some additional rationale for the selection of radionuclides to study.

The ACNW believes that the RES program is responsive to the NRC's needs and is producing quality work with limited resources. Progress continues to be made in developing collaborative arrangements with other Government organizations. It is important for RES to continue to focus its work on issues critical to the NRC's regulatory decisionmaking process and to leverage its limited resources.

RES has completed its external peer review of its nuclear-waste-related programs in response to an ACNW recommendation. The staff is in the process of incorporating changes to accommodate some of these recommendations. The staff is also committed to seeking stakeholder input on prioritization of research needs. The Committee believes that these are positive steps toward setting research priorities and will continue to follow RES work in this area.

Sincerely,

***/RA/***

B. John Garrick  
Chairman

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