

December 23, 1999

The Honorable Richard A. Meserve  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Chairman Meserve:

**SUBJECT:   ADVISORY COMMITTEE ON NUCLEAR WASTE ROUND-TABLE  
DISCUSSION WITH YUCCA MOUNTAIN STAKEHOLDERS ON THE ROLE  
OF SAFETY ASSESSMENT IN REGULATORY DECISION-MAKING –  
OBSERVATIONS AND RECOMMENDATIONS**

The Advisory Committee on Nuclear Waste (ACNW) hosted a round-table discussion on the role of safety assessment in regulatory decision-making on October 12, 1999, in Las Vegas, Nevada. Our objective in holding the round-table discussion was to enhance our own capability to communicate technical issues and to develop ideas about how to improve effective public participation in the NRC's regulatory process. We also hoped to strengthen our relationship with Nevada stakeholders and clarify our role as an independent technical oversight body to the NRC. The ACNW met with stakeholders again on the evening of October 12<sup>th</sup> to hear their concerns directly and to clarify the roles of the ACNW and the NRC. The NRC staff participated in both meetings.

In this letter we make some general observations about risk communication and risk perceptions, and convey three specific observations and recommendations. We also summarize input from stakeholders.

In support of the agency's goal to inspire public confidence in the regulatory process, the ACNW identified risk communication as one of its first-tier priority topics in its 1999 action plan. The ACNW believes that risk communication should be an essential element of risk-informed, performance-based regulation.

## **BACKGROUND**

The NRC states in its strategic plan<sup>1</sup> that building and maintaining public trust is critical for carrying out its mission and achieving its vision, and that involving stakeholders in the conduct of NRC business is essential for inspiring public confidence in the agency's decisions and actions. The NRC identifies an overarching management goal of inspiring public confidence by providing the public, those it regulates, and other stakeholders in the national and

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<sup>1</sup>NRC Strategic Plan, September 1997.

international community with clear and accurate information about, and a meaningful role in, its regulatory program.

The ACNW identifies in its 1999 action plan<sup>2</sup> a goal of supporting the NRC in improving public involvement. On the basis of what we learned from our international technical exchange meeting on nuclear waste held last year and from a meeting last year with Yucca Mountain stakeholders, the ACNW alerted the Commission that public involvement and public confidence may be the biggest impediments to progress in radioactive waste disposal worldwide.<sup>3</sup>

In exploring this important topic, the ACNW became familiar with ongoing public communication and public involvement initiatives internal and external to the NRC. The ACNW learned about new NRC communication and outreach efforts, as well as Environmental Protection Agency (EPA) and Nuclear Energy Institute (NEI) risk communication and public involvement initiatives and lessons learned. The ACNW also received training in risk communication and initiated the round-table discussion and public meeting with stakeholders in the Yucca Mountain area. These activities form the basis for our observations and recommendations, which follow.

## **GENERAL OBSERVATIONS**

The stakeholders at the round-table meeting and in the audience contributed valuable information to the discussion. Participants in the round-table meeting were ACNW members and representatives from the State of Nevada's Agency for Nuclear Projects, the Environmental Protection Agency, Sandia National Laboratories, the Department of Energy, the Management and Operation (M&O) contractor for Yucca Mountain, Nevada's Clark, Eureka, Nye, and Lincoln counties, the Yucca Mountain Study Committee, the National Congress of American Indians, the Nevada Nuclear Waste Task Force, and some members of the general public.

The Committee offers the following general observations relating to the topic of the working group session.

1. Risk communication is the process of effectively exchanging information about risk with the public. It involves listening to the views and concerns of the public and stakeholders. It involves creating opportunities for the public to contribute to the regulatory decision-making process, not just to review documents.
2. The subject of risk has many facets, of which the principal ones are risk assessment, risk management, and risk communication. Risk communication, like assessment and management, should be an integral part of a risk-informed and performance-based regulatory process.

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<sup>2</sup>Advisory Committee on Nuclear Waste 1999 Action Plan and Priority Issues, January 22, 1999.

<sup>3</sup>ACNW Visit to German Waste Isolation Authorities and Facilities, September 14-18, 1999, General Observations and Impressions, dated January 27, 1999.

3. Stakeholder and public understanding of the NRC's use of risk assessment would be greatly enhanced if the process were transparent and made available to the public with appropriate opportunities for effective participation.
4. Unlike the public living near NRC-licensed nuclear sites, most Nevadans have little or no experience with the NRC and its way of regulating nuclear facilities. For this reason, the NRC needs to place major emphasis on informing the local public about the licensing of civilian nuclear facilities. The emphasis should not only be placed on the technical issues of safety, but on the comprehensive process the NRC employs to provide reasonable assurance about safety, including the use of confirmatory safety assessment.

### **STAKEHOLDER INPUT**

Some of the perceptions of the different stakeholder and public groups are summarized below. Also below are comments pertaining to the subjects of risk communication and public involvement; the role and use of performance assessment; perceptions about the NRC's role, process, and regulations; the ongoing disagreement between the EPA and the NRC over the HLW standard; issues associated with transportation of HLW and the Yucca Mountain repository Draft Environmental Impact Statement (DEIS); and other subjects. Some representatives of the state and counties and members of the "public" perceived the following about the NRC:

- NRC's attempt at "risk communication" is disingenuous because of a lack of opportunities to influence NRC's options and decisions;
- The NRC relaxed regulatory requirements to ensure that the Yucca Mountain repository can be licensed (State);
- The NRC and the DOE have a strong camaraderie and a common language, and have a common interest in getting the repository licensed, that is, the NRC will not challenge the DOE (State, counties, the public);
- The disagreement between the EPA and the NRC undermines public understanding and trust in the NRC (State, counties, the public);
- The NRC has not justified its position against ground-water protection, and appears to want a less stringent standard than does the EPA because the proposed Yucca Mountain repository cannot meet the proposed EPA standards (State);
- The NRC does not have a clear "bottom-line" as to what it would take to reject the Yucca Mountain site (some members of the public);
- Some public groups are convinced that the NRC would never reject an application.
- Public participation has no impact on the NRC decision-making process and public input is not accepted (State, counties, the public);
- Once the NRC adopts the DEIS, it will not raise issues during its license application review or impose licensing conditions that are not contained in the scope of the DEIS (counties);
- Transportation is always an afterthought, and DOE will not consider the details of transportation until the repository is already decided upon (counties);
- The citizens of Nevada will not be given the same level of protection as what was given to the citizens of New Mexico in connection with the Waste Isolation Pilot Project (WIPP);

- A representative from the *Las Vegas Sun* asked how a citizen can participate in the risk assessment process itself, especially in identifying elements that should be analyzed; and
- The NRC needs to have a greater presence in Nevada.

## **SPECIFIC OBSERVATIONS AND RECOMMENDATIONS**

### **Observation 1**

Experience in other waste programs<sup>4</sup> and current research suggest that public confidence will likely depend more on the process of decision-making than on the scientific evidence used to support the conclusions. Pielke, et al.,<sup>5</sup> suggest that “the key to effective decision-making for any environmental problem lies in improving the decision environment itself, with the goal of making good decisions rather than good predictions.... In the absence of an integrated and open decision environment, the scientific merit of predictions can be rendered politically irrelevant...,” and “In a healthy prediction process, stakeholders must question predictions, and predictions must be transparent, and assumptions and limitations forthrightly discussed.”

Distrust in the Yucca Mountain performance assessment (PA) process was conveyed during the round-table discussions. The State representative noted that DOE has historically not accepted information or suggestions from people outside the DOE program concerning what to analyze in PAs. He believes that it is hard to trust the DOE’s PA results when for years the DOE has acted confident about its understanding of the physical system at Yucca Mountain, but has been proved wrong time and again. A DOE representative indicated that the DOE has learned from conducting random focus groups around the country that people’s greatest concern is whether the risk assessors have thought of everything that could go wrong. Yucca Mountain stakeholders also voiced this concern and the concern that in their desire to license a repository at Yucca Mountain, both the NRC and DOE may lack proper incentive to discover fatal flaws in the performance of the repository.

### **Recommendation 1**

The NRC should evaluate the feasibility of directly involving the public in conducting its confirmatory performance assessment analyses for review of the DOE’s total system performance assessment for the Site Recommendation and License Application. This would include the NRC’s soliciting stakeholder ideas about what to consider in the analyses, and willingness to expose its total performance assessment analyses to the public for questioning. A similar process was used for conducting the PA for the WIPP site.<sup>6</sup> By including the public’s concerns about what can go wrong in the NRC’s independent analysis, the NRC could enhance its credibility and gain greater trust and confidence in its licensing process.

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<sup>4</sup>Presentation by Paul Davis on the WIPP program during the October 12, 1999, round-table discussion.

<sup>5</sup>Roger Pielke, D. Sarewitz, R. Byerly, Jr., and D. Jamieson, "Prediction in Earth Sciences and Environmental Policy Making," *EOS*, Volume 80, No. 28, July 13, 1999.

<sup>6</sup>Davis, op. cit.

**Observation 2**

Improving the practice of Risk-Informed, Performance-Based (RIPB) decision-making by ensuring that risk assessment results and risk management decisions are transparent is a critical step for facilitating stakeholder involvement and possibly gaining public confidence in the NRC's process. An RIPB framework should produce a more open, transparent, and consistent approach to risk-based decision-making, which, should foster greater visibility, access to, understanding of, and opportunity to participate in, the NRC's regulatory process. The process of becoming RIPB should help to create a healthy environment for decision-making that enables the public and other stakeholders to become involved more meaningfully in the regulatory process.

**Recommendation 2**

The NRC should focus on achieving greater consistency, clarity, and transparency in how it uses risk assessments across all of its waste programs in its decision-making process. For example, the NRC should clarify the extent to which it will rely solely on PA to make a regulatory decision about a Yucca Mountain repository and how and whether NRC will consider additional information.

**Observation 3**

One of the largest stakeholder concerns relates to transportation of HLW. Some members of the public fear that transportation accidents translate into nuclear disasters and to economic loss in affected communities. The absence of comprehensive and transparent risk assessments of nuclear waste transportation is a classic example of a failure in risk communication. It is not even clear whose role it is to evaluate and regulate the risk of the entire transportation system. Also of concern may be a real or apparent lack of integration in evaluating routing decisions about ongoing shipments of low-level waste (LLW) to the Nevada test site and proposed shipments of high-level waste (HLW) to Yucca Mountain.

**Recommendation 3**

The ACNW recommends that the NRC take the lead in clarifying the roles of the different agencies involved in the transportation of HLW, LLW, and in emergency response. The NRC should seek authority to require DOE to submit a comprehensive assessment of transportation risk at the time of the license application, so that this information can be considered as part of the overall licensing decision regarding Yucca Mountain.

Sincerely,

**/RA/**

B. John Garrick  
Chairman