

February 24, 2000

Dr. B. John Garrick, Chairman  
Advisory Committee on Nuclear Waste  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUBJECT: DISCUSSIONS WITH YUCCA MOUNTAIN STAKEHOLDERS ON THE ROLE  
OF SAFETY ASSESSMENTS IN REGULATORY DECISION-MAKING –  
OBSERVATIONS AND RECOMMENDATIONS

Dear Dr. Garrick:

I am responding to your December 23, 1999, letter to the Chairman. In that letter you provided the views of the Advisory Committee on Nuclear Waste (hereafter, the Committee) on the importance of effective risk communication. In particular, the Committee offered some general observations, conveyed three specific observations and associated recommendations, and summarized input it had received from stakeholders at an October 12, 1999, public meeting on the role of safety assessment in regulatory decision-making. First, I would like to address the Committee's general observations, and then, after that, respond to your specific recommendations.

We appreciate the Committee's thoughtful observations about the importance of effective, two-way communication with the public, especially when the subject is the U.S. Nuclear Regulatory Commission's (NRC's) decision-making process. We completely agree with the Committee on the value of affording the public opportunities for meaningful participation in that process and on the importance of public understanding of the NRC's use of risk assessment. To these ends, the NRC staff is actively pursuing public and stakeholder involvement in the development of licensing criteria for Yucca Mountain. As the Committee is aware, these criteria, as proposed, place primary emphasis on properly conducted, and documented, safety assessments as the principal means through which the U.S. Department of Energy (DOE) must demonstrate compliance.

After publication of the Commission's proposed regulations at 10 CFR Part 63, early last year, the staff sought to provide members of the public, and other stakeholders,<sup>1</sup> multiple opportunities to participate, and to discuss the proposed requirements. We also supported and participated with former Chairman Dicus in bringing about direct, individual interactions with local opinion leaders and government representatives. We found these meetings very valuable in identifying issues of concern to local citizens and communities. In response to many requests, we extended the public comment period, originally scheduled to end on May 10, 1999, to June 30, 1999 (64 FR 24092). Since publication of the proposed rule on February 22, 1999, (64 FR 8640) the staff has held six facilitated public meetings in Nevada with stakeholders, five of which were held during the public comment period on the proposed rule.

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<sup>1</sup>Stakeholders included the State of Nevada, affected units of local government, Indian tribes, the DOE, the U.S. Environmental Protection Agency (EPA), and members of citizen advocacy groups.

We held meetings at Las Vegas and Beatty, Nevada, on March 23 and 25, 1999, respectively, and later at Amargosa Valley, Las Vegas, and Caliente, Nevada, on June 15, 16, and 17, 1999, respectively. The staff has considered close to 200 discrete comments received at these meetings, along with written comments, in developing a draft final rule. The staff held a sixth public meeting in Nevada on November 2, 1999 -- a facilitated roundtable discussion -- at which staff sought to clarify the proposed requirements for multiple barriers. At this meeting we explained further the relationship between these requirements and the Commission's philosophy of defense-in-depth. This meeting was one of several steps we took in response to Commission direction (Staff Requirements Memorandum, April 12, 1999) to work with stakeholders to develop a more clear understanding of the application of defense-in-depth and of requirements for multiple barriers to the proposed repository.

With regard to the first stakeholder perception cited in your letter (*i.e.*, that NRC's attempt at "risk communication" was disingenuous because there are no opportunities to influence NRC's options and decisions), we believe this is a perception that needs to be changed. We are seriously evaluating the comments we have received as we develop a draft final rule for the Commission's review and approval. As a result of our interactions with stakeholders, we are addressing a large number of significant issues, in the draft final rule package, that we would not have considered without the valuable insights, comments, and criticisms offered to us during these interactions. Thus, participants have already significantly influenced the NRC's options and decisions by providing comments and by identifying issues that have driven the staff's reexamination of the proposed rule.

We, too, have learned that many Nevadans who attend our public meetings have had little or no experience with the NRC and the way we license and regulate nuclear facilities. As a result, we have modified our public meetings to include more information on the NRC's role as an independent regulator, and how we intend to carry out that role, should the DOE pursue a license for a repository at Yucca Mountain. Based on the response we have received to this approach, we have concluded that we need to continue to provide more opportunities for interested members of the Nevada public to interact with NRC staff members about our regulatory process. We intend to hold one, or perhaps two, public workshops later this year, in Nevada, on the process the NRC will use to reach a decision to grant or deny a license for a repository at Yucca Mountain, if the project proceeds to that phase. We also plan further meetings on our licensing criteria when they become final (see discussion under Recommendation 1, below).

Responses to the Committee's specific recommendations are provided below:

#### 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. 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."

Response:

We agree with this recommendation. All of the NRC's interactions with the DOE with regard to our review of the DOE's total system performance assessments (TSPAs) have been, and will continue to be, open to the public. Roughly twice a year, the NRC staff conducts technical exchanges with DOE staff that specifically address the NRC's review of the DOE's TSPA activities. The modeling approaches used by the DOE and the NRC in assessing performance of the potential repository at Yucca Mountain, and all relevant inputs and modeling assumptions, are discussed at length in the meetings. Pursuant to a procedural agreement that governs the conduct of all pre-licensing interactions between the NRC and the DOE, these technical exchanges are announced ahead of time, and observers are specifically asked if they wish to ask questions or offer comments. Thus, the opportunities exist for the staff to increase its efforts to directly involve the public, as the Committee has recommended.

In addition to regular technical exchanges with the DOE, once final regulations at Part 63 are issued, the staff intends to conduct more public meetings on the content of the final rule. Because of the importance of the pre-closure safety assessment (PSA) and the post-closure performance assessment (PA) to the NRC judgment of the DOE's compliance, these meetings, by necessity, will include presentations on the nature of the required safety assessments.

Finally, the staff is preparing the Yucca Mountain Review Plan (YMRP). This plan will contain the methods and criteria the staff will use to determine the acceptability of the DOE application. Because the YMRP is the key tool the staff will use to conduct its licensing review, the staff plans to provide it for public comment as various versions are prepared. It is through this comment process that the public will have the greatest opportunity to impact the methods and criteria the NRC staff will use to review the DOE application. If the application is ultimately docketed by the NRC staff, the public will then have an opportunity to challenge how effectively the staff has implemented the criteria by participating in the hearing 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."

Response:

We agree, in general, that consistency, clarity, and transparency, in NRC's use of risk assessment, are highly desirable and invite the Committee's specific suggestions in our future interactions with you. In June, 1999, the Commission approved the staff's proposed framework for using risk assessment in regulating nuclear material uses and radioactive waste disposal (SECY-99-100). This framework was developed, and will be implemented, to foster consistency, where appropriate, as well as clarity and transparency, in all applications of risk insights and risk assessment, throughout NRC's regulatory programs for waste and materials. Key to the successful application of this framework will be the peer review and insight of the ACRS/ACNW joint subcommittee, as well as the involvement of interested stakeholders. We also note that the NRC co-chairs, and is extensively involved in, the Interagency Steering

Committee on Radiation Standards (ISCORS). ISCORS reviews risk assessment and risk management approaches for all radioactive waste programs, and is charged, among other things, with promoting consistent risk assessment and risk management approaches.

With regard to the Committee's specific comment about relying on PA for a regulatory decision, it is important that the stakeholders understand that the staff's determination on a license application will not be based solely on PA. Rather, the main thrust of the staff's review will be an evaluation of the justification provided by the DOE in its license application. This evaluation will involve a detailed review by the staff of the information presented. As part of this review, the staff will complete confirmatory audit calculations using its performance assessment calculations. However, these calculations do not serve as the basis for the staff's findings about the acceptability of the application. As stated, they will be used to confirm the in-depth staff evaluations, which are the primary basis for the staff reaching conclusions on the DOE's application. In addition, as discussed below, the staff will also use its own PA as a tool in helping the Commission establish appropriate regulatory requirements for a repository.

Although repository postclosure performance is evaluated with respect to a single performance measure, the NRC will consider a broad range of information in arriving at a licensing decision. In support of the requirement that compliance with the postclosure performance objective be demonstrated through a PA, the proposed licensing criteria at Part 63 contain a number of additional requirements (e.g., qualitative requirements for data and other information; the consideration and treatment of uncertainties; the demonstration of multiple barriers; a performance confirmation program, and a quality assurance program) designed to increase confidence in the demonstration that the performance objective is satisfied. The staff continues to believe that a PA, developed with sufficient credibility, and appropriately documented, is the best means to provide useful information to the Commission for making an informed, reasonable licensing decision. The NRC expects to rely on the results of the DOE's PA, supported by the DOE's compliance with the other requirements, noted above, in its evaluation of any license application that the DOE might submit for a repository at Yucca Mountain.

#### Recommendation 3 (first sentence)

"The ACNW recommends that NRC take the lead in clarifying the roles of the different agencies involved in the transportation of HLW, LLW, and in emergency response."

#### Response:

Because of the pronounced interest and concern about transportation issues expressed at earlier public meetings on the proposed Part 63 regulations, staff has made efforts to include an overview of transportation regulation in subsequent public meetings. Staff knowledgeable of the NRC's transportation program and applicable regulations participated in these meetings and answered transportation-related questions as they arose. Recently, the staff has also encouraged greater public involvement in the transportation studies the NRC is performing on package safety. In addition, the staff has held roundtable workshops and public meetings that included representatives from various industry, Federal Agencies, and State organizations. The roles of different agencies for transportation safety were presented as background.

The full extent of the NRC's role during transportation of spent fuel shipments to Yucca Mountain may depend on decisions, yet to be made, regarding transfer of ownership of the fuel

from the NRC licensees to the DOE. That being said, Section 180 of the Nuclear Waste Policy Act (42 USC 10175) (NWPAA) requires the DOE to use packages certified by the NRC for transportation of spent nuclear fuel and HLW. The NWPAA also requires the DOE, not the NRC, to provide funds and technical assistance for training of local public safety officials (e.g., emergency responders) along the routes. For emergency response activities, the Federal Emergency Management Agency maintains a plan describing the roles of Federal agencies in response to transportation accidents involving radioactive material. The NRC participates in the development of that plan.

With respect to LLW shipments, with minor exceptions, the NRC has no role in the transport (or emergency response) of DOE-owned material, such as the LLW shipments to the Nevada Test Site cited by the Committee. Consequently, we believe it would be inappropriate for the NRC staff to assume a lead role in communicating information about such shipments.

Recommendation 3 (second sentence)

“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.”

Response:

The staff believes that the recommended action is not necessary because the DOE must perform a transportation risk assessment in support of Yucca Mountain licensing. Specifically, such an assessment, of both National and Nevada-specific impacts, is part of the DOE's draft environmental impact statement (EIS). The staff is reviewing and developing comments on the transportation aspects of the draft EIS, and the staff expects its comments, and those of others, will be addressed in DOE's final EIS. Using the process set forth in 10 CFR 51.109, the NRC staff will determine whether it is practicable to adopt the DOE's EIS, if DOE submits a license application for a Yucca Mountain repository.

In the staff's view, there is no health and safety concern that would justify the NRC seeking additional statutory authority (either in addition to - or replacing - existing authority of other agencies) in this area. Certain transportation-related activities (e.g., package preparation, receipt, and loading/unloading practices) are already subject to review during NRC licensing, consistent with the practices at other NRC-licensed facilities.

An example of an aspect of transportation that is not reviewed by the NRC during a license application review, but affects comprehensive transportation risk assessments, is route selection. With regard to route selection decisions, the DOT is the Federal agency with authority to establish specific highway routing requirements (49 CFR 397.101). The DOE is subject to these requirements. Carriers of spent fuel shipments must follow “preferred routes,” meaning routes designated by a State routing agency or the Interstate highway system (and city bypasses), where an alternate route is not designated by a State agency. These routing requirements were developed considering the risks of transportation. Further, the DOT has published guidelines (DOT/RSPA/HMS/92-02) for State agencies to use in performing route analyses to ensure that the overall risk of the shipments to the public is considered in designating alternate routes. Any route selection issues are resolved by the shippers, carriers, the DOT, and States. The NRC's use, during licensing, of such information (e.g., how route

selection affects comprehensive transport risk) may introduce a duplicative regulatory burden and be inconsistent with other NRC-regulated activities.

In conclusion, I wish to thank the Committee for its observations, many of which the staff has made over the past few years with regard to the importance of effective risk communication. Consistent with the Commission's guidance in Direction Setting Issue #14, these observations and experiences have reinforced our resolve to expand our efforts to enhance the quality and quantity of our interactions with the public. The staff recognizes that effective communication with, and involvement of the public in our regulatory decision-making, is an important part of our mission of protecting the public health and safety. We also recognize that improvements in this area will only come with a long-term commitment of time and resources. We believe we have taken a number of very important steps in this direction over the past year. We have summarized, in this letter, a number of initiatives taken in our HLW program -- efforts we expect to continue in years to come. We welcome the Committee's future observations and recommendations in this area for our expanding program of public outreach.

Sincerely,

***/RA by Carl J. Paperiello For/***

William D. Travers  
Executive Director  
for Operations

cc: Chairman Meserve  
Commissioner Dicus  
Commissioner Diaz  
Commissioner McGaffigan  
Commissioner Merrifield  
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