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ON BEHALF OF  
THE NUCLEAR REGULATORY COMMISSION**

**BEFORE THE  
COMMITTEE ON ENERGY AND NATURAL RESOURCES  
U.S. SENATE**

**MAY 23, 2002**

Mr. Chairman, members of the Committee, I am pleased to join you to testify on behalf of the Nuclear Regulatory Commission (NRC) concerning the NRC's regulatory oversight role in the U.S. program for management and disposal of high-level radioactive waste and spent nuclear fuel.

The Commission has long believed that a permanent geologic repository can provide the appropriate means for the United States to manage spent nuclear fuel and other high-level radioactive waste in a safe manner. We also believe that public health and safety, the environment, and the common defense and security can be protected by deep underground disposal of these wastes. However, the Commission takes no position on whether such a repository should be located at Yucca Mountain, Nevada. Our views on that question must be shaped by the results of the Congressionally mandated licensing process.

Congress provided in the Nuclear Waste Policy Act of 1982 (NWPA) and the Energy Policy Act of 1992 that the NRC would serve as an independent regulator to ensure that any repository adequately protects the public health and safety and the environment. I am pleased to state that the NRC has consistently met the obligations established by these Acts. We are now in the midst of preparations for an important transition - - from the pre-licensing role defined for NRC in statute, to the role of regulator and licensing authority - - if a decision is made to authorize the Department of Energy (DOE) to submit a license application for Yucca Mountain.

**The President's Recommendation**

As you know, on February 15 of this year, President Bush accepted the Secretary of Energy's recommendation that the Yucca Mountain site be developed as a potential repository for the disposal of high-level nuclear wastes and spent nuclear fuel. If the Congress approves a resolution of siting approval, the President's recommendation becomes a final decision and DOE could then apply to the NRC for construction authorization. If DOE does so, several important steps must be taken before the Commission can decide whether to authorize construction of a potential repository at Yucca Mountain. First, DOE must submit a high-quality application. Second, staff at the NRC must conduct an independent safety review and issue a safety evaluation report. Third, we must conduct a full and fair public hearing on the DOE application. Only after

these steps are complete will NRC be in a position to determine whether the DOE's license application complies with NRC regulations. Our decision will be based on the information before us at that time.

The Nuclear Waste Policy Act provides that it is NRC's responsibility to establish licensing criteria for a potential repository, to provide our preliminary views on the sufficiency of certain DOE information collected during site characterization, and to comment, along with other federal agencies, on the Environmental Impact Statement prepared by DOE for Yucca Mountain. It is also the Commission's obligation to be prepared to make a fair, informed, and timely licensing decision, if the Congress should approve the President's recommendation. I will discuss each of these activities in turn.

### **The Regulatory Framework**

Under the Energy Policy Act of 1992, the Environmental Protection Agency (EPA) was directed to establish dose-based environmental standards for Yucca Mountain. Congress required EPA to base these standards on the recommendations of the National Academy of Sciences. The NRC was directed to modify its regulations to be consistent with final EPA standards within one year of their issuance. Because of the short period given to NRC to issue final implementing regulations, the Commission initiated its own rulemaking in parallel with that of the EPA.

Immediately upon publishing our proposed regulations at 10 C.F.R. Part 63 for public comment in February 1999, our staff embarked on a series of public meetings to encourage involvement by members of the public in Nevada. From these meetings, together with written submittals, we received more than 1000 comments on our proposed criteria. The Commission carefully considered and analyzed these comments, and last November promulgated the health and safety regulations that will guide any licensing decision on Yucca Mountain. Our regulations are consistent with the health and safety standards established by the EPA. We are confident that any repository that can be shown by DOE to comply with these demanding standards and regulations will protect the people living near the proposed repository today and in the future.

### **DOE's Collection of Information**

In forwarding his recommendation to the President, Secretary Abraham included the Commission's preliminary comments on DOE's examination of Yucca Mountain. As required by the NWPA, our comments addressed ". . . the extent to which the at-depth site characterization analysis and waste form proposal . . . seem to be sufficient for inclusion in [a license application to the NRC]." 42 U.S.C. §10134(a)(1)(E). In offering these comments, the NRC drew no conclusions about the suitability of the Yucca Mountain site. Rather, we commented on whether sufficient information will exist to begin a potential licensing review, if the President's recommendation becomes a final decision and if DOE submits an application. To evaluate the adequacy of DOE's information for this purpose, the NRC staff reviewed all major program documents for Yucca Mountain, as well as the available supporting technical documents. Our staff's

reviews of DOE's program documents and technical material were performed over many years of extensive pre-licensing interactions with DOE staff and various stakeholders, including the State of Nevada, Indian Tribes, affected units of local government, representatives of the nuclear industry, and interested members of the public.

Based on our technical reviews and pre-licensing interactions, we believe that sufficient information can be available at the time of a license application. The DOE and NRC have reached and documented numerous agreements regarding additional information that will be needed for a licensing review. Approximately two-thirds of these agreements call for DOE to document the bases for assumptions or conclusions. The remainder oblige DOE to perform specific tests or analyses, to document prior tests or studies, or to provide other information. As DOE completes the actions necessary to fulfill these agreements, NRC will review the results promptly and notify DOE of our findings. Based on these agreements, we are confident that DOE can assemble the information necessary for an application that NRC can accept for review.

It is important to note that NRC is as concerned about the quality of documentation supporting the recommendation of the Yucca Mountain site as about the quantity of information. Over the course of our pre-licensing interactions we have discussed with DOE the need to verify the quality of the documents it has generated to support the site recommendation. We are aware that DOE performed extensive reviews of this documentation, including dedicated reviews to determine the root causes of any errors. We acknowledge DOE's intention to qualify all data, software, and models fully if they are to be used to support a license application. Quality management continues to be a challenging program area for DOE, one which the NRC staff routinely monitors.

### **DOE's Final Environment Impact Statement**

As required by the NWPA, Secretary Abraham included a final Environmental Impact Statement (EIS) with his recommendation to the President along with the comments agencies provided on the final EIS, including those of NRC. Our comments were developed on the basis of reviews of DOE's draft EIS for Yucca Mountain, the supplement to the draft EIS and the final EIS. Like the sufficiency comments I discussed earlier, our reviews were supported and informed by extensive pre-licensing interactions with DOE, the State of Nevada, Indian Tribes, affected units of local government, representatives of the nuclear industry, and interested members of the public.

As a result of our reviews, we believe that the final EIS contains sufficient information about the environmental impacts of the proposed action to provide a foundation for a site recommendation. The analyses provided in the EIS appear to bound appropriately the range of environmental impacts. We expect that DOE's commitment to refine the repository design and define transportation modes and routes will allow for more precise estimates of impacts and possibly result in future revisions to the National Environmental Policy Act analyses. We expect that any such additional reviews will be completed in support of a license application. If the President's recommendation becomes a final

decision, NRC will, of course, continue interactions with DOE and other interested stakeholders, to resolve outstanding technical and environmental issues, as needed.

### **NRC Preparations for Licensing**

As part of our overall pre-licensing strategy, our staff has applied the experience gained in the reviews of DOE documents and pre-licensing interactions to the preparation of a Yucca Mountain review plan that will eventually guide the NRC's review of any license application. The NRC staff recently published a draft of the review plan which is on our website for public comment. This week, members of our technical staff are conducting public information meetings in Nevada to seek public input on our draft review plan. As our preparation for possible licensing progresses, NRC will continue to conduct public technical exchanges between members of the NRC and DOE technical staffs and with NRC's Advisory Committee on Nuclear Waste.

In addition, our Atomic Safety and Licensing Board Panel has begun to evaluate hearing-related aspects, including location, and the development of the automation tools necessary to meet the time restrictions imposed by the Nuclear Waste Policy Act. These activities include development of an electronic hearing docket to expedite a possible hearing and completion of an Internet-based Licensing Support Network (LSN) that will provide access to all the key documents. Noting delays in entering key licensing documents due to security concerns after the events of September 11, it is important that DOE, which is the stakeholder with the most documents, enters its documents into the system as soon as possible. The NRC staff also is working to provide guidance to DOE on developing an electronic High Level Waste repository license application. In late June, NRC will conduct a public meeting with DOE on this issue in Las Vegas.

### **Safety and Security of Spent Fuel Transportation**

The Commission believes that the spent nuclear fuel and high-level radioactive waste stored at multiple sites can be safely and securely transported to a single location for geologic disposal.

Responsibility for federal regulation of spent fuel transportation safety is shared by the U.S. Department of Transportation (DOT) and the NRC. DOT regulates the transport of all hazardous materials, including spent fuel, and has established regulations for shippers and carriers regarding radiological controls, hazard communication, training, and other aspects. For its part, NRC establishes design standards for the casks used to transport licensed spent fuel, and reviews and certifies cask designs prior to their use. Further, cask design, fabrication, use and maintenance activities must be conducted under an NRC-approved Quality Assurance program.

NRC also conducts an inspection and enforcement program, and reviews and approves physical security plans for spent fuel shipments. These plans provide information on how shippers and carriers comply with NRC spent fuel shipment protection requirements, including advance notification of each shipment to Governors' designees, the

establishment of redundant communication capability with the shipment vehicle, the arrangement of law enforcement contacts along the route, and provision of shipment escorts.

The Nuclear Waste Policy Act requires DOE to utilize NRC-certified casks for spent fuel shipments to a repository, follow NRC's advance notification requirements, and to provide emergency response training along shipment routes. NRC has reviewed and certified a number of package designs intended to be used for transport of spent fuel to a repository, and has additional designs under review.

The NRC believes the safety protection provided by the current transportation regulatory system is well established. Nonetheless, we continually examine the transportation safety program. In FY 2000, NRC re-evaluated its generic assessment of spent fuel transportation risks to account for the fuel, cask and shipment characteristics likely to be encountered in future repository shipping campaigns. Over two years ago, NRC began the Package Performance Study to study cask performance under severe impact and fire accident conditions. The study plan calls for full-scale testing of a cask to confirm computer models of cask response to severe accident conditions. NRC is also supporting a study by the National Academies' Board on Radioactive Waste Management that will examine radioactive material transportation, with a primary focus on spent fuel transport safety. As a part of its evaluation, the NRC staff is analyzing appropriate national transportation accidents, such as the 2001 train accident in Baltimore, Maryland, to determine if lessons learned from that event should be included in our transportation requirements or analyses. The results of our confirmatory analytical studies, the significant history of safe shipments, the rigor of our pre-certification design reviews, and our inspections form the basis for our confidence that spent fuel can be shipped safely today and in the future. Finally, NRC is sponsoring a study to update its evaluation of cask response to acts of sabotage. NRC plans to utilize the results of these studies as input into its comprehensive review of security in light of the events of September 11. These studies should be available at the time possible licensing is being considered.

## **Conclusion**

The Commission believes that deep geologic disposal is appropriate for high-level radioactive wastes and spent nuclear fuel and that such wastes can be safely and securely transported to a disposal location. We take no position, however, on whether the site recommendation for a Yucca Mountain repository should be approved. Our role is to put in place a licensing system that will ensure adequate protection of public health and safety and the environment and to review and evaluate any license application submitted, to ensure its compliance with regulatory requirements. As I believe this statement makes clear, we take that obligation very seriously.

I will be pleased to answer any questions you may have.