

PREPARED STATEMENT  
SUBMITTED BY  
UNITED STATES NUCLEAR REGULATORY COMMISSION

TO  
UNITED STATES SENATE  
COMMITTEE ON  
ENERGY AND NATURAL RESOURCES

CONCERNING  
CIVILIAN HIGH-LEVEL RADIOACTIVE WASTE MANAGEMENT PROGRAM

SUBMITTED BY  
ROBERT M. BERNERO  
DIRECTOR, OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

SUBMITTED: MARCH 31, 1992

9203300371 920325  
PDR WASTE  
WM-11 PDR

Good morning, Mr. Chairman and members of the subcommittee, I am Robert M. Bernero, Director of the U.S. Nuclear Regulatory Commission's (NRC's) Office of Nuclear Material Safety and Safeguards. I would like to thank you for the opportunity to present a brief status report on NRC's repository licensing program with an emphasis on our reviews of the U.S. Department of Energy (DOE) site characterization program at the Yucca Mountain site. In addition, I will address the NRC staff activities related to the development of the U.S. Environmental Protection Agency (EPA) high-level waste standards.

The NRC's high-level waste repository program is proceeding consistent with the responsibilities and process established by the Nuclear Waste Policy Act, as amended. During this pre-licensing phase, NRC is focusing its efforts on refining the regulatory framework so that it is clear and complete, developing technical capabilities to review DOE's site characterization program and license application, identifying and resolving potential licensing issues, and issuing guidance to DOE to help ensure that DOE submits a complete and acceptable license application.

One way NRC provides guidance to DOE is through pre-licensing reviews and consultations. This involves technical review and comment on DOE's plans and reports, as well as on-site reviews of selected site characterization activities and data. Quality Assurance reviews, audits, and surveillances are also conducted. NRC's two on-site representatives provide important support to the headquarters staff for both technical reviews and quality assurance audits

of DOE field activities at the Yucca Mountain site. NRC also holds numerous interactions with DOE to discuss resolution of the major concerns identified in staff reviews. I would like to emphasize that NRC's pre-licensing reviews and interactions are documented and that documentation is available to the public. Furthermore, NRC interactions with DOE are open to the public and offer the opportunity for participation by the State of Nevada and local units of government so that the views of those parties can be considered.

To date, NRC's most significant pre-licensing review has been of DOE's Site Characterization Plan (SCP) for Yucca Mountain, which DOE issued in December 1988. NRC documented its review of the SCP in its Site Characterization Analysis (SCA), which was issued in July 1989. The SCA identified two objections to DOE beginning site characterization work and a number of major comments.

The first objection was that DOE had not demonstrated the adequacy of the design control process under which the Exploratory Studies Facility (ESF) design presented in the SCP was developed or the adequacy of the design itself. In response to this objection and concerns expressed by others, including the Nuclear Waste Technical Review Board, DOE has revised its design control process and is revising its ESF design under this process. The NRC staff has determined that the design control aspects of that process are now in place. On March 3, 1992, DOE provided NRC with the "Exploratory Studies Facility

Alternatives Study: Final Report" and a discussion of how specific aspects of that report respond to NRC's site characterization concerns (including the ESF objection) relevant to the ESF and repository design. The NRC staff is reviewing the information provided by DOE and will make a decision on whether or not to lift the objection and close related comments based on that information.

The second objection was that an adequate QA program was not in place for site characterization activities. During the past year NRC had concurred with DOE's findings that the QA programs of organizations involved with limited new site characterization activities were acceptable. On March 2, 1992, NRC determined that DOE and its contractors had developed and are implementing a QA program that meets NRC requirements and this objection was lifted. To make this determination NRC QA staff evaluated QA program plans and the effectiveness of the QA program implementation of DOE and DOE's contractors. NRC staff also observed DOE audits and surveillances conducted at all major organizations participating in the site characterization program. The NRC will continue to monitor DOE's QA program implementation through future audits and surveillances.

In addition to DOE's response to the NRC objections, DOE also responded in December 1990, to the other concerns NRC identified in its analysis of DOE's SCP. NRC reviewed those responses and provided DOE with its evaluations in July 1991. Based on those DOE responses and subsequent submittals, 61 of the 198 NRC concerns were closed and significant progress was made toward closure of many of the remaining concerns. NRC is continuing to interact with DOE on timely resolution of those remaining concerns.

NRC also has been reviewing DOE study plans which are the detailed plans necessary to implement the investigations described in the SCP. To date we have reviewed 28 study plans, including many related to new surface-based testing. During these reviews, we have not identified any objections to DOE starting these studies. Progress on these and eventually other site characterization studies is necessary to resolve the technical questions about the acceptability of the Yucca Mountain site.

On March 3, 1992, the DOE issued a "Report of Early Site Suitability Evaluation of the Potential Repository Site at Yucca Mountain, Nevada" (ESSE). This report is the result of an evaluation by DOE contractors to determine if there is evidence of features or conditions that could render the Yucca Mountain site unsuitable for repository development. Criteria for the evaluation are the site disqualifying and qualifying conditions stated in DOE's high-level waste regulations, 10 CFR Part 960. DOE has requested a 90-day period for public comments. The NRC staff plans to review this report and provide comments.

DOE also plans to issue a nominal total system performance assessment for the proposed repository at Yucca Mountain, in April 1992. This study is expected to consider a suite of important radionuclides and several disruptive scenarios. The NRC staff plans to review the first steps of DOE's program in order to determine if it is responsive to an NRC concern which dealt with DOE's need to periodically conduct iterative performance assessments. The NRC also is developing its own performance assessment capability and plans to apply the knowledge gained from its work in this area in staff reviews of DOE performance assessments that will be done iteratively throughout site characterization.

I would now like to address the status of NRC's review of EPA's high-level waste standards. In preparation for reissuance of the standards, EPA has circulated "working drafts" of its high-level waste regulations to solicit the views of other Federal agencies and interested parties. NRC provided EPA with its comments on Working Draft 2 in August 1990, and on Working Draft 3 in October 1991. The Working Draft 3 comments reiterated NRC's earlier concern about the underlying technical basis for EPA's standards and recommended risk comparisons to support the basis for the standards. NRC also repeated its earlier recommendation for adoption of alternative wording for EPA's probabilistic containment requirements. Finally, NRC's comments continued to question EPA's jurisdictional authority to issue assurance requirements and other implementation criteria and guidance. NRC believes these criteria and guidance may be inappropriate for inclusion in a "generally applicable environmental standard."

The EPA staff suggested that a series of meetings with the NRC staff be conducted to attempt to resolve the issues raised in the NRC comments as well as in other comments. There have been four of these meetings to date, with another proposed. It appears that EPA is trying to accommodate several of the specific technical concerns raised in NRC's comments; however, some of the more important NRC comments involved the underlying technical basis used by EPA to support the standards. Since EPA's updated technical support is not yet available for review, it is not clear how or if some of our concerns will be resolved.

In addition to our comments on the EPA standards, we have also participated in two workshops (September 1991 and February 1992) sponsored by the Electric Power Research Institute (EPRI) for the purpose of discussing issues related to the EPA standards . The States of Nevada and New Mexico as well as EPA, DOE, and other interested parties were invited and participated in these workshops.

Finally, fundamental to any safety evaluation of any proposed high-level waste site is the need to understand the natural system and its potential effects on repository performance regardless of the specific form or numerical values of the EPA standards against which the site ultimately will be judged. The purpose of site characterization is to gather the scientific information necessary for this understanding. Therefore, beginning site characterization should be viewed as largely independent of potential changes to the EPA standards.

This concludes my statement. Mr. Chairman, I am prepared to answer any questions than you or the subcommittee members may have.