**PRESENTATION TO THE**
**NUCLEAR WASTE TECHNICAL REVIEW BOARD**

# STATUS OF THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM

**BY**
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Chairman Cohon and Members of the Board:

Thank you for this opportunity to update the Board on recent progress and near-term plans for the Civilian Radioactive Waste Management Program. I will also use my time to discuss some of the broader issues that affect the Program, along with the issues raised in your recent correspondence. After my talk, there will be more detailed discussions on these issues and the other topics that you requested.

## Program Budget

Over the past three years, the Program has received approximately $110 million less than the amount requested from Congress. Because of these shortfalls, we have focused our efforts on the science and engineering activities most important for determining the suitability of the Yucca Mountain site for a geologic repository. This focus has taken into account the improved repository system performance from the design enhancements for the repository and waste packages. I would like to emphasize that even under a restrictive budgetary climate, the Program has aggressively addressed those issues most pertinent to understanding the uncertainties that could be associated with repository performance.

In spite of our efforts to focus the Program, the budgetary shortfalls have had consequences. The Program has had to defer or reduce the scope of work required for licensing. Some of the work reduced in scope includes key elements of preclosure design and analysis, such as the integrated safety assessment required by the Nuclear Regulatory Commission (NRC). The benefits that could be attained by further evolving the repository from the viability design to a modular concept have been deferred. We can no longer continue to delay completion of this work and maintain our goal for submitting a license application to the NRC in 2002.

Our Fiscal Year (FY) 2001 budget request of $437.5 million is essential to complete the work necessary for a defensible site recommendation. Significant components of our planning are additional design and engineering work and focused testing and analyses, both of which address recommendations from the Board. The FY 2001 request is a 25 percent increase over last year's budget authority. As I have testified before the Congress, if we do not receive the funding that

we have requested, we would be forced to curtail our science and engineering work, potentially delaying site recommendation.

Our plans for FY 2001 reflect the evolution of the Yucca Mountain Project's emphasis from comprehensive site characterization to focused scientific investigations and data synthesis, model validation, repository and waste package design, safety analysis, and documentation. Upon completion of site characterization, the Program will shift its priorities to enhancing and refining repository design features and to developing the remaining information required for licensing.

Our plans are described in Revision 3 of the Civilian Radioactive Waste Management Program Plan, released in March. This revision takes into account the programmatic changes since publication of the Viability Assessment, including the substantial budget shortfalls in FY 1999 and FY 2000. Copies of the plan were provided to all Board members.

I would like to add that the FY 2001 budget request includes $10 million for a cooperative agreement between the Department and the University and Community College System of Nevada for performing scientific and engineering research. We hope that this agreement, which started in FY 1999 and lasts into FY 2002, will continue to foster collaborative working relationships between government and academic researchers.

**Legislation**

As you know, Congress passed S. 1287, the Nuclear Waste Policy Amendments Act of 2000, and sent it to the President in April. If enacted, the bill would authorize acceptance of spent fuel at the repository surface facilities after the NRC issues a construction authorization for the repository. The bill would set a milestone of January 31, 2006, for NRC to decide whether to issue the construction authorization. The bill would not allow the Environmental Protection Agency (EPA) to promulgate radiation protection standards for the Yucca Mountain site before June 1, 2001. Before promulgation, the NRC and the National Academy of Sciences would each submit a report to Congress on the proposed standards.

The President vetoed S. 1287 for reasons that the Administration has consistently cited before. The Administration opposes legislation that would undermine EPA's existing authority to establish standards for a repository at Yucca Mountain. The bill that the President vetoed does nothing either to advance the scientific understanding of the Yucca Mountain site, or to increase the public's confidence in a siting decision. The Administration continues to believe that the overriding goal of the Federal government's high-level waste policy should be to establish a permanent geologic repository. The Administration remains fully committed to completing the scientific investigations necessary to make an objective, science-based determination on the suitability of Yucca Mountain as the site of a permanent geologic repository.

**Board Letters and Report**

Now I will briefly discuss some of the issues raised in your recent correspondence. Since January, we have received three letters from the Board and the summary report on its 1999

activities. We appreciate your timely and constructive feedback on our activities. We recognize the important independent oversight role that the Board plays in the Program. I look forward to working towards a common understanding of these issues and our approach to resolving them.

Our recent discussions and correspondence continue to stress the notion of uncertainty and its consequences for decisions regarding the suitability of the site. The issue of uncertainty has always been an important factor in reaching a decision on a repository, which involves assessing performance over many thousands of years. Through our scientific investigations, we have assembled the technical knowledge necessary to support analyses of repository performance and to develop site-specific repository designs and operational concepts.

These efforts have also led to the development of state-of-the-art analytical tools needed to determine the significance of uncertainty. Our analyses seek both to quantify the degree of uncertainty and to evaluate the significance of that degree of uncertainty to the overall performance of the repository system. This approach ensures that relevant issues are thoroughly evaluated and provides the context necessary for decision-making on issues, such as the appropriate operating mode for the repository.

Our current repository design concept and its operational mode were selected after a thorough evaluation of alternatives, as suggested by the Board. The Board noted that the selected design concept showed much progress when compared with the design concept in the Viability Assessment. As the Board is aware, the repository design process involves the definition of both the physical characteristics of the engineered system and its operational parameters. Our design process has produced a robust design concept that offers a great deal of operational flexibility by allowing us to make adjustments in the period of ventilation, in the amount of fuel staging and fuel loading into waste packages, and in waste package spacing. The current design concept retains the flexibility to implement either an above-boiling or below-boiling thermal load. This design flexibility permits us to refine the operational parameters of the repository as we gain a greater understanding of the uncertainties associated with thermal loading.

The Board has stated that repository operation at below-boiling temperatures would reduce uncertainties in assessing performance, in particular those associated with the complexity of coupled processes. The Board also suggested that reduced uncertainties would increase the confidence in a site suitability determination by improving confidence in the scientific basis for the determination. We recognize the interdependence between the thermal characteristics of the repository operating mode and uncertainty in the analyses of water movement in the surrounding rock. We have considered and will continue to consider this relationship in the evolution of our design and operational concepts.

To further reduce uncertainty, the Board has recommended that we evaluate operating our current design concept at below-boiling temperatures. Our evolutionary design process is responding to the Board's recommendation in a thorough and controlled manner. With the analytical tools we have developed, we are evaluating the key operational parameters and refining our operational concepts to mitigate, to the extent practical, the impacts of uncertainties of concern to the Board, while accommodating the other constraints on the Program.

For example, we have evolved the design by removing backfill to lower fuel pin temperatures, thereby reducing the uncertainties associated with long-term fuel pin integrity. We believe that this design and its operational flexibility effectively balance the uncertainties in repository performance analyses with other programmatic considerations, such as public and worker safety, intergenerational equity, and cost.

The Program's ongoing evaluation is focused on the operational parameters that could further reduce temperatures. Those parameters are being assessed to evaluate their impacts on both the uncertainty in performance analyses and the other programmatic considerations. We recognize that the Board is very interested in this effort and have supported a number of related interactions over the past several months.

I urge that we both explore the flexibility of the current robust design concept thoroughly, in particular, its options for managing temperature conditions. A decision on whether or not to proceed with a repository should be met with prudent consideration of all relevant aspects. The Program has put forth a flexible repository design that balances all the technical and programmatic considerations. This approach will permit future generations to evaluate actual repository performance, learn from operations and monitoring, and close the facility when appropriate. A repository that is flexible to future changes in priority, and reversible in the event that National policy changes, is one way to address concerns regarding the need for additional information due to uncertainty.

**Regulatory Framework**

Let me now address the status of development of the regulatory framework for Yucca Mountain. Finalizing this site-specific regulatory framework is central to determining the suitability of the Yucca Mountain site for development as a repository.

NRC and EPA proposed their site-specific regulations last year. The public comment periods for these draft regulations have ended. We understand that both NRC and EPA are now working to complete their final regulations.

To align ourselves with the NRC and EPA site-specific regulations, last year the Department proposed its guidelines for determining Yucca Mountain site suitability. We held two public hearings in Nevada on the proposed suitability guidelines, and the public comment period has ended. We, too, are working to address public comments, including those of the Board, and to complete the final rule.

In determining site suitability, a concern of both the Board and the Department is understanding and communicating the uncertainties about performance assessment. The consideration of uncertainty will be a key component of the determination. The Department has stated that the determination of site suitability is largely an estimate that a repository at Yucca Mountain could meet applicable radiation protection standards, as set by EPA and implemented by NRC. To make this estimate, we will not only present the performance assessment results, but we must

account for the uncertainties and variabilities in parameter values and provide the technical bases for them. This estimate will also take into account other factors, such as analyses of multiple barriers.

**Environmental Impact Statement**

I now want to address our plans to complete the Final Environmental Impact Statement (EIS). During the 199-day public comment period, which ended February 28, we conducted 21 hearings throughout the country to solicit comments on the Draft EIS. More than 2,700 individuals attended those hearings and more than 700 provided comments. The total number of comments received at the hearings, in writing, and by e-mail exceeds 10,600. Among those are comments from the Board. We are presently analyzing the comments, preparing responses to be documented in the Comment Response Document, and continuing development of the Final EIS. As the Nuclear Waste Policy Act requires, the Final EIS will accompany a site recommendation to the President, if the Secretary decides to recommend the site for development as a repository.

**Site Recommendation Consideration Report**

The emphasis of our work this year is on developing the Site Recommendation Consideration Report (SRCR) and supporting documentation. We continue to gather and analyze relevant site characterization data, some of which you will hear about later today. We are completing another major iteration of the total system performance assessment. Although the SRCR is not specifically required by the Nuclear Waste Policy Act, we are planning to issue it late this year. After issuance of the SRCR, we plan to hold public hearings in the vicinity of Yucca Mountain to inform the public of a possible site recommendation. We will solicit comments from the public, States, Native American Tribes, and NRC. The Program will then focus its efforts on updating the technical basis for a site recommendation. This process will provide comments and updated information for the Secretary's consideration in deciding whether to recommend the site to the President.

**Contract Recompetition**

I would like to address the recompetition for our Management and Operating (M&O) contract, which expires in February 2001. In January, I informed you about our decision to recompete the M&O contract, consistent with Departmental policy and Congressional appropriation intent. In February, we asked for comments on a draft request for proposals and held a presolicitation conference. After reviewing the comments and revising the draft, we published a formal Request for Proposals on March 30, 2000. Proposals are due by June 8, 2000. After evaluating the proposals and awarding a contract, there will be contract transition and phase-in periods. We have targeted the transition to begin in November 2000, but it may begin as early as August. The new contract focuses on design and licensing work scope and will require a contractor with strong postclosure performance assessment and preclosure integrated safety analysis capabilities. The work scope will permit the successful offeror to continue to use the national laboratories and the U. S. Geological Survey. We are carefully managing our current scientific and engineering

activities to ensure that the timing of the recompetition does not significantly affect our primary objectives for this year.

**Conclusion**

In conclusion, we are nearing a point where the scientific information will be adequate to determine whether a repository for spent fuel and high-level waste at Yucca Mountain could be operated, monitored, and closed while protecting the health and safety of current and future generations, and the environment. Approximately $3.5 billion has been committed to the work at Yucca Mountain. After almost 18 years of site characterization and design work, we are very close to making that suitability determination.

We are now developing the documentation to present the technical basis to the stakeholders. Comments from the Board on the SRCR and the underlying technical work will be essential. My goal is to ensure that the technical basis is portrayed in such a way that it provides the necessary information to answer the questions of our stakeholders, including the Board; gains the confidence of the public; and provides a sound scientific basis for decision-making.

Thank you for the opportunity to share my views with you today and I will be happy to address any questions.