

PRESENTATION TO THE
NUCLEAR WASTE TECHNICAL REVIEW BOARD

STATUS OF THE CIVILIAN RADIOACTIVE WASTE
MANAGEMENT PROGRAM
BY
LAKE H. BARRETT, ACTING DIRECTOR
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
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Introduction

Chairman Cohon and Members of the Board:

Thank you for the opportunity to appear here today to provide my perspective on the status of the Civilian Radioactive Waste Management Program and our plans for the coming year. When I spoke to you in June, I discussed the progress we had made in implementing our Revised Program Plan and noted the importance of adequate funding to complete the Viability Assessment and maintain the momentum toward a national decision on geologic disposal.

Current Status

Budget

Congress has completed work on our fiscal year 1998 appropriation. We received \$346 million for the Program, which was \$34 million less than the President's budget request. The appropriation does not include funds for oversight by the State of Nevada, although \$5 million is provided for the local counties. Congress stipulated that \$12 million of the budget reduction be taken from science activities at Yucca Mountain and \$16 million be taken from program management, cooperative agreements, and other programs not directly associated with site characterization and interim storage activities. The remaining \$6 million is a \$2 million reduction left to the discretion of the Program and the \$4 million for U.S. Nuclear Regulatory Commission's (NRC) certification of multi-purpose canister designs that was line item vetoed by President Clinton last Friday.

The reductions in our 1998 budget affect ongoing and proposed scientific work related to the Viability Assessment at Yucca Mountain. These reductions are causing some delays in the schedule for collection of the scientific data from several areas including the East-West drift. We have been able, however, to sustain construction and basic construction science for the East-West drift. The program direction cut affecting contractual services has adversely impacted

independent reviews of elements of the Viability Assessment, including a validation of repository design features, concepts of operation, and refined cost estimates of these designs. Although these cuts are having an impact on the Program, I firmly believe Program funding is adequate to complete satisfactory Viability Assessment documents.

Legislation

Congress continues to consider legislation to address the near-term management of spent fuel. In April, the Senate passed a bill, similar to legislation that it passed last year, siting an interim storage facility on the Nevada Test Site, with alternate siting provisions if the President, upon consideration of the Viability Assessment, determines that the site is not suitable. The House is considering legislation that would direct the Department to begin waste acceptance at an interim storage facility on the Nevada Test Site by January 2002, irrespective of the Viability Assessment.

The House legislation, H.R. 1270, has cleared several committees. The House Commerce Committee passed this legislation on September 18, 1997, by a vote of 42-3. The House Transportation Committee discharged the legislation by letter on October 6, 1997, and the House Resource Committee reported the legislation out unfavorably on October 8, 1997. Consideration of this legislation by the Full House is expected later this Fall.

As you are aware, the Administration opposes the peremptory siting of an interim storage facility near Yucca Mountain before the Viability Assessment has been completed. The Administration believes that a decision on the siting of an interim storage facility should be based on objective, science-based criteria and should be informed by the Viability Assessment. Consequently, the President has stated that he would veto either bill, if presented in their current form.

Litigation

The Department's acceptance of commercial spent fuel remains an important issue. On January 31, 1997, 33 electric utilities and 46 State agencies petitioned the court to review the Department's December 1996 announcement that it will not begin disposing of commercial spent nuclear fuel from utility sites on January 31, 1998. Oral arguments were held on September 25, 1997. The petitioners argued that the court's previous decision held that the Department's obligation to begin accepting commercial spent nuclear fuel on the specified date is statutory, not contractual. Based on this interpretation, the utilities asked the court to enforce the Department's obligation to accept commercial spent nuclear fuel by ordering the Department to develop a program that would begin waste acceptance by January 31, 1998, or in lieu of the Department complying with that order, authorize utilities to place Nuclear Waste Fund fees in escrow until the Department commences disposing of the utilities' spent nuclear fuel. A court decision on this action is expected in several months.

Yucca Mountain Project

During 1997, the Project has continued to make substantial progress in the investigation of Yucca Mountain. The majority of the Project activities during the year were focused on providing the information required for the Viability Assessment. These efforts have advanced our understanding of Yucca Mountain and provide a sound basis for completing the Viability Assessment this year. The Project has adopted several measures to ensure that the Viability Assessment provides a complete and technically sound analysis of geologic disposal at Yucca Mountain. As noted by the Board, this effort is particularly important in our performance assessment where a transparent analysis is central to public confidence in the results. To provide a complete and unambiguous record of the evaluation, we completed seven abstraction workshops to increase our confidence that the performance assessment properly reflects the comprehensive process models for the natural and engineered systems. This effort has also enhanced the integration of the design, science, and performance assessment activities.

Science Program

The Program continues to collect scientific information and, using the insights gained from our performance analyses, to focus testing strategies on key uncertainties. For example, our performance assessments have shown that seepage of water into the emplacement drifts to be significant to repository performance. To better understand this process, we have isolated niches in the underground facility from the effects of ventilation to observe the presence or absence of water in the fracture system.

The movement to a dose-based standard has heightened the importance of the saturated zone to the repository evaluation. Our testing in the saturated zone at the C-well complex is continuing. The results of this testing are being used to refine our saturated zone flow and transport models. An expert elicitation was also conducted on this subject to obtain outside views based on the available information. The results of this elicitation are being considered in the refinement of the models and the development of further testing strategies.

We have also just completed an expert elicitation on waste package degradation. This elicitation has identified a number of issues that we expect will result in refinements to our testing program. Our effort to seek the advice and insights from outside experts has enabled us to improve our Program and will result in more defensible technical products.

Design

Over the next two days, we will discuss the progress we have made in our waste package and repository design efforts. Although we are developing a workable reference design for the Viability Assessment, we consider the design to be work in progress. We are evaluating alternative design features and concepts and expect that alternatives will continue to be evaluated throughout licensing, repository construction, and operation. Our design strategy recognizes the

need for a workable reference design to support the development and review of a license application, as well as the reality that technological advances can be expected over the decades of repository operation. We are preserving flexibility to ensure that design features identified now as possible alternatives, as well as those that emerge with advancements in technology, can be accommodated in the repository development process.

Performance Assessment

Since we published our last total system performance assessment in 1995, we have continued to conduct informal site performance assessments on a regular basis to help us manage the ongoing science and engineering activities. Our recent efforts have focused on developing the foundation for the Total System Performance Assessment for the Viability Assessment. Our accomplishments for 1997 included completing the documentation of the results of the abstraction workshops on the process models. In addition, the description of the methodology and assumptions of the performance assessment was completed and is currently undergoing project review. These products will support the completion of the process model abstractions early this year, and the completion of the Total System Performance Assessment in late spring.

The Total System Performance Assessment for the Viability Assessment will provide a formal and reviewable analysis of the expected performance of a repository at the Yucca Mountain site based on our reference design. This analysis should provide us and all interested parties with a reasonable estimation of the capabilities of a Yucca Mountain repository based on the available data. This analysis will also provide important insights into the significance of the uncertainties that our science program is currently addressing and help us refine our testing activities.

Office of Waste Acceptance, Storage, and Transportation Activities

Our Office of Waste Acceptance, Storage and Transportation is working towards issuing a revised draft for comment of the Request for Proposals for procuring waste acceptance and transportation services. This revised draft will respond to comments received on the draft Request for Proposals and during interactions with industry and the public regarding our approach. The strategy is focused on utilizing commercial contractors to supply both equipment and services for shipment of commercial spent nuclear fuel to a centralized interim storage facility or the repository.

Should the Program be authorized to conduct interim storage activities, we have been identifying and resolving non-site specific issues related to possible construction of a Centralized Interim Storage Facility and a Dry Transfer System. Non-site specific Topical Safety Analysis Reports have been developed for both a generic Centralized Interim Storage Facility and Dry Transfer System. Both Topical Safety Analysis Reports have been submitted to and accepted by the Commission for review. Over the next year, we are looking forward to interacting with the Commission staff to resolve any issues that may arise.

Additionally, the Program recently submitted to the Commission a Topical Report on Burn-up Credit for Actinide Elements. We hope to have feedback on the report from Commission staff by the middle of next year.

Plans for 1998

This year will be a particularly important one for the Program as we complete the Viability Assessment of Yucca Mountain as directed by the President and Congress. Susan Jones, the Acting Deputy Project Manager for the Yucca Mountain Site Characterization Project, will discuss the Project activities supporting the completion of the Viability Assessment following my talk. I intend to use my time on the agenda to provide you my perspective on the strategic significance of this milestone.

One of the foremost challenges in a complex, first-of-a-kind endeavor is to converge on a working concept and to define the additional information required to implement that concept. The Viability Assessment is a management tool that accomplishes this for the geologic disposal program. Its completion will culminate a three-year effort by the Program to assemble the information collected during site characterization into a workable repository concept for Yucca Mountain and to focus the Program on the key remaining technical issues. The Program has shared its plans for completing the Viability Assessment with the Board and other interested parties over the last year. Much of the attention has been appropriately focused on the design, performance assessment, and supporting science activities. We recognize that the products associated with these efforts will not be sufficient for licensing. Their completion, however, will help integrate the ongoing activities and help guide the completion of site characterization by identifying those areas where additional scientific or technical work is required to evaluate the site or prepare a complete, defensible license application.

We have previously noted that the completion of the Viability Assessment will give all parties a clearer understanding of the information gained from site investigations and the remaining work required to support national decisions on geologic disposal at Yucca Mountain. The license application plan will describe this work and provide an estimate of its cost. This plan will identify the work that the Program believes is necessary to complete the site recommendation process and prepare a license application within the cost and schedule constraints imposed by an ever-tightening Federal budgetary situation. General agreement between the Program and its overseers and regulators on this remaining work is central to the continuation of the geologic disposal program. We would appreciate the Board's views on this effort to ensure that we have identified tests and activities that are appropriate for the task at hand and that can be conducted within the constraints on the Program.

Regulatory Standards

Yesterday, this Board held a panel meeting regarding the performance standards for a repository at Yucca Mountain. The regulatory standards for a geologic repository have been the

subject of much debate since the Program's inception. It would be timely for the Board to examine the issues associated with the standard and provide its views and insights. I would like to provide a few thoughts on those regulatory standards from my perspective.

Our Revised Program Plan recognized the need to update the regulatory framework for the repository to reflect the policy changes since the enactment of the Nuclear Waste Policy Act, the realities of the budget constraints on the Program, and, in particular, the understanding gained in more than 15 years of site investigations. We have considered these factors in the proposed amendments to our siting guidelines. It is similarly important that these factors be considered by the Environmental Protection Agency and the Nuclear Regulatory Commission, respectively, in developing radiation protection standards and revising the licensing criteria for a repository at Yucca Mountain.

The Department believes that the regulatory framework for the repository should focus on issues central to protecting public health and safety, and be implementable in a contentious licensing environment. That is, demonstrating compliance with the standard should not require a degree of proof that is beyond what science and engineering can reasonably provide. The National Academy of Sciences' report and subsequent discussions regarding the Yucca Mountain Standard indicate that the level of protection provided by the repository standard should be commensurate with existing facilities. We certainly agree that the future generations should be afforded the same protection as current populations. This standard, however, will be applied to estimates of repository performance thousands of years in the future, which involve an unprecedented level of uncertainty. Much of this uncertainty is irreducible within the bounds of a rational site characterization program and approach to design. Consequently, the regulations associated with repository development must maintain a degree of flexibility to accommodate the inherent uncertainty in the results of site characterization and performance assessment. The Board's views regarding the acceptability of this residual uncertainty will be significant to the rulemaking process and to the subsequent national decisions on geologic disposal.

Yesterday's discussions addressed the biosphere assumptions that the Department will use to evaluate repository performance. Many of the key issues associated with the repository standard relate to these biosphere assumptions that provide the context in which to evaluate repository performance. Since the future behavior of society cannot be predicted with scientific certainty, these assumptions are ultimately policy decisions. We agree with the view expressed by the National Academy of Sciences in its report that these assumptions should be defined in the rulemaking process. We must be careful to define reasonable assumptions because they are central to the implementability of the standard. We believe that the biosphere assumptions should be based on the current conditions surrounding Yucca Mountain and not speculation about future populations or other regulatory precedents. It is incumbent upon all knowledgeable participants in this process to ensure that the regulatory framework for the repository provides a reasonable basis to assess whether a Yucca Mountain repository will adequately protect public health and safety and is not constructed so as to defeat the Nation's policy of geologic disposal.

Conclusion

The Program is continuing to implement its Revised Program Plan and looks forward to completing the Viability Assessment this fiscal year. This milestone is important to the Nation's geologic disposal program and will represent the culmination of a significant effort by all Program participants. We intend that this assessment will provide an unbiased, technically sound analysis of a Yucca Mountain repository. We look forward to the Board's review of this effort.

Thank you for the opportunity to brief the Board today and I would be happy to answer any questions you may have.