

**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 use my time to discuss the broader issues that affect the Program, along with the issues raised in the Board's recent report and letter. After my talk, there will be detailed discussions on the technical topics you requested.

Program Budget

In June, the full House passed the Energy and Water Development Appropriations Act, which included \$413 million for our Program. This amount is a reduction of \$24.5 million from our request of \$437.5 million. In recognition of the importance of State oversight at this crucial stage in the site characterization process, the House included \$2.5 million for oversight activities. Although this amount is \$2.1 million less than the Administration's request, it is significantly larger than appropriations to the State in the past several years. I understand that the State will discuss its program later this morning.

The House Committee on Appropriations requested that we prepare two reports for Congress next year. The first is an updated report on alternative means of financing and managing the Program. This report, completed in response to a provision in the Nuclear Waste Policy Act, included the feasibility of evaluating various management structures. Second, the Department must submit a plan for the timely development and deployment of waste acceptance capabilities. This requirement reflects the Committee's concern regarding the limited funding for activities associated with waste acceptance and transportation functions over the past several years.

The Senate Appropriations Committee included \$351 million for the Program with a substantial share coming from the defense contribution. I remain very concerned that if we do not receive adequate funding for Fiscal Year 2001, we may be forced to delay critical Program milestones, such as the site recommendation and license application. This is certainly the case should the Senate Committee budget mark prevail in conference. On July 21, the Administration expressed its strong objection to the mark in a Statement of Administration Policy.

Board's Report and Letter

We appreciate the Board's timely and constructive feedback on our activities. I believe the Board's recommendations have led to substantial improvements in our Program, especially toward influencing the evolutionary design process. Our recent efforts to enhance our repository design and better address the uncertainties in repository performance analyses reflect the input of the Board.

Your April report and June letter raise several issues that I would like to briefly address. I see the Board's broad concerns as threefold: first, understanding uncertainties; second, increasing the level of confidence in performance assessment; and third, describing the technical decision-making process, including the ability to accommodate new information into plans. I will address each of these concerns.

Understanding Uncertainties

A central issue has been the notion of uncertainty and its consequences for decisions regarding the suitability of the site. Level of confidence has always been an important factor in reaching a decision on a repository, which involves assessing performance over many thousands of years. As the Board, the Department, the Environmental Protection Agency (EPA), the Nuclear Regulatory Commission (NRC), and the National Academy of Sciences have recognized, uncertainty about long-term repository performance cannot be totally eliminated.

To address the quantification of uncertainty, the Department is developing and documenting a consistent and defensible method of treating uncertainty in our Program. We are examining how uncertainties are currently treated in the process model reports, the analysis and model reports, the total system performance assessment, and the Site Recommendation Consideration Report (SRCR). The goal is to describe associated uncertainties and make the treatment of uncertainty in performance assessment and other Program areas technically defensible and understandable to all interested parties. Our intent is that this process will help to gain the confidence of stakeholders and provide a better scientific basis for decision-making. We expect that this will lead to continuous improvements in understanding uncertainties as we proceed through the site recommendation process and, if the site is recommended, to license application.

There is widespread recognition that unquantified uncertainties will remain, due to the limits of characterizing any site and to the present limits in our knowledge of natural and engineering processes over thousands of years. As the NRC's Advisory Committee on Nuclear Waste recently noted in its review of risk-informed regulatory systems, the defense-in-depth philosophy is a strategy to mitigate such unquantified uncertainties. Similarly, the Department expects that the analysis of repository performance conducted for the site recommendation process, together with the safety margin and defense-in-depth provided by the multiple natural and engineered barriers in the current repository design, will provide a sufficient technical basis to judge whether the Yucca Mountain site should be recommended for development as a repository.

Increasing the Level of Confidence

A primary objective of the Program's engineering and scientific work continues to be to increase the level of confidence in our analysis of repository performance. Our repository design has evolved to better manage thermal loads and reduce uncertainty. Our current design is both robust and flexible. The design can be operated to manage thermal loads by varying operational parameters including adjusting the period of ventilation, varying the amount of fuel staging, and adjusting waste package spacing. We are continuing to evaluate other operational parameters that could also be varied to manage temperature and potentially reduce uncertainties in estimates of repository performance. A repository that is flexible to accommodate technical advances or future changes in priority is one way to address concerns regarding the need to increase the level of confidence. This approach will permit future generations to learn from the operations and monitoring, and to close the facility when appropriate.

We are also evaluating additional technical work to increase the level of confidence for any licensing decisions. The work will provide additional assurance that relevant issues are evaluated and the context necessary for decision-making on issues such as the appropriate operating mode for the repository.

In addition to reducing uncertainty through engineering design and scientific studies, we are increasing our confidence in performance assessment by stressing supplementary lines of evidence as suggested by the Board. These other elements of the safety case, such as analysis of natural analogues and performance confirmation, are also addressed in the repository safety strategy. This fall we are completing the fourth revision of this strategy, which will support the site recommendation process.

Technical Decision-Making

We are committed to making our technical decision-making processes, including value judgments and policy bases, transparent. At the same time, we believe that it is unlikely that decision bases and criteria can be established *a priori* and used without modification to reach ultimate decisions. In many cases, the appropriate decision basis and relevant criteria emerge and evolve during the course of investigation as the significance of various parameters, processes, and the associated uncertainty are evaluated.

As a further means of increasing the level of confidence in the understanding of long-term repository behavior in support of an eventual decision on repository closure, the NRC requires that a performance confirmation program be put in place. It would evaluate whether new information obtained during licensing, construction, operation, and monitoring of the repository confirms the assumptions and bases for the postclosure compliance evaluation. The 50-year retrievability period required by the NRC was originally established as a reasonable estimate of the time that might be needed to support an NRC decision to permit repository closure. However, our design would permit future generations to keep the repository open for a significantly longer period, and apply their own evaluation of the technical, social, and economic factors involved in making decisions regarding repository closure. We have developed a

preliminary performance confirmation plan to support any site recommendation and will continue to refine the plan to support a licensing proceeding.

Regulatory Framework

The NRC, EPA, and the Department are all working to complete the site-specific regulatory framework for Yucca Mountain. Finalizing this regulatory framework is central to the site recommendation process. Since I addressed the Board in May, both the NRC and the EPA have continued work to finalize their respective regulations. On May 4, we submitted our draft final regulation to NRC for its review and concurrence. That concurrence process continues.

Environmental Impact Statement

We continue to analyze and develop responses to the public comments on our Draft Environmental Impact Statement (EIS) and to prepare the Final EIS. Our responses will be documented in a Comment Response Document as part 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 has been developing the SRCR and supporting documentation. Although the SRCR is not specifically required by the Nuclear Waste Policy Act, it will help support the statutory site recommendation process by assembling site characterization and repository design information in a format more amenable to widespread public review. We are planning to issue the SRCR late this year. Consistent with our open and transparent policy, we have already begun the process of providing the supporting documentation on the Internet, which will include the nine process model reports, 121 analysis and model reports, and other supporting documentation. To date, more than 153,000 pages of information are available. The SRCR will consist of two volumes: one containing repository and waste package design, site data, and total system performance assessment; and the other containing a preliminary site suitability evaluation. After issuance of the SRCR, we plan to hold public hearings in the vicinity of Yucca Mountain to inform the public and receive their comments regarding a possible site recommendation.

Settlement Agreement with a Utility

As you may be aware, Secretary Bill Richardson recently announced the signing of an agreement with PECO Energy Company to address the Department's delay in accepting spent fuel from utilities. The agreement, which is in the form of a contract amendment, is the first such agreement. It applies only to PECO's Peach Bottom Plant in Pennsylvania. The agreement allows PECO Energy to reduce the projected charges paid into the Nuclear Waste Fund to reflect costs reasonably incurred by PECO Energy due to the Department's delay. It is intended to be a framework that can be applied to other nuclear power plants. Negotiations with other plant owners will be conducted on a contract-by-contract basis.

For this agreement, we estimate that PECO's adjustments could reach \$80 million through 2010. The agreement demonstrates that the Department and the utilities can reach a resolution regarding the delay without resorting to costly and protracted litigation. During our negotiations, we were careful to ensure that this agreement would not have adverse impacts on the Nuclear Waste Fund and jeopardize the viability of the repository program. In fact, we believe that if all the other utilities entered into an agreement of this type, there would be no impact on our current activities at Yucca Mountain. The Administration is committed to resolving the complex, important issue of nuclear waste disposal in a timely and sensible manner and remains committed to a safe, permanent geologic repository.

Status on International Activities

In addition to our work here in the United States, the Department recently signed four agreements to conduct collaborative work with the Russian Academy of Sciences. Under these agreements, the Department and the Russian Academy will collaborate on studying geochemistry of actinides, modeling transport in heterogeneous environments, and developing a Russian plan for a repository. This work will increase the understanding of radionuclide thermochemical properties, contribute to the international database development effort, and may support future uses of less conservatively bounded and more technically defensible models for radionuclide behavior. The geologic repository plan calls for the development of a coordinated approach between the Russian Academy and the Russian Ministry of Atomic Energy that will help prioritize future collaborative work between the Department and Russia.

Contract Recompensation

I would like to update the Board on the recompetition for our Management and Operating contract, which expires in February 2001. In June, we received and are now evaluating submittals from three teams. We expect to award a follow-on performance-based contract late this summer or early in the fall. Upon awarding the contract, we plan an orderly transition to ensure that we maintain the momentum of our efforts and continue to meet the challenging tasks and milestones we have set for ourselves. To that end, we have already established a Federal transition team both at Headquarters and at the Yucca Mountain Project.

Conclusion

In conclusion, we are nearing a point where we expect that the scientific information will be adequate to support a determination whether the Yucca Mountain site should be designated as a repository site, to prepare for a license application if the site is found suitable, and subsequently to complete the process outlined in the Nuclear Waste Policy Act.

We are now completing the documentation to present the technical basis for a possible site recommendation. My goal is to ensure that the technical basis is explained in such a way that it provides the information necessary to answer the key technical questions 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.

