

PROGRAM STATUS and OUTLOOK

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to the

Nuclear Waste Technical Review Board

at

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Introduction

Chairman Cantlon and members of the Board, I appreciate this opportunity to speak to you about the status and outlook for the Civilian Radioactive Waste Management Program. Lake Barrett gave you a progress report several months ago in Beatty, Nevada, and you will be hearing from several of my staff members on the issues you have chosen for this agenda including a status of tunnel boring machine operations to date. I will confine my remarks to some policy issues that I know are of particular interest to you.

The new program approach that we implemented in late 1994 relied in a significant measure on the advice received from this Board over several years. We appreciate your continued support of our efforts to refine the *Program Plan* and respond to new developments. Later today and tomorrow, we will continue our dialogue on the technical aspects of our approach.

A comprehensive approach to an undertaking of this complexity is not easily defined and communicated to thousands of participants. Furthermore, we are engaged in a dynamic planning process. Although our knowledge of the Yucca Mountain site and our comprehension of the institutional setting for nuclear waste management decisions have progressed over the past years, we are still far from the point where we can set forth a definitive concept for a repository and contend that it will adequately address all of the demands and expectations of society. We aspire to make formative conclusions about the technical issues in 1998. At its current stage, the program remains exploratory in nature and we will be continually revising our working hypotheses as we gain new understanding of both the technical aspects of the program and the requirements of the policy setting. We will appreciate the Board's advice and guidance as the program approach evolves.

We have been criticized by a number of observers, including this Board, regarding the past effectiveness of program management. The program approach includes a rigorous performance measurement system to track progress against cost and accomplishment targets. The response to this system and the measured progress thus far attest to a cultural shift in this program regarding the importance of achieving targets. It is possible that the published milestones and costs may need to be adjusted. These targets, however, should not be modified for convenience. Serious efforts should first be made to meet or exceed the targets. Only when the realities require, should targets be modified and the consequences addressed. This Board's insights and comments regarding our plans and targets are valuable input to deciding when adjustments will be needed.

This Board has also noted that in the past the program suffered from a lack of

sufficient resources to carry out its legislative mandate. For Fiscal Year 1995, we received a substantial increase in funding despite severe government-wide budget constraints. The Administration's FY 1996 budget request for the program is \$630.0 million. This amount will support our program plan, but it will not be easy to get Congressional approval of the funding in the current climate. Pressure to reduce discretionary spending is severe in FY 1996 and will grow more severe with time. We must pursue an appropriate accounting treatment of the Nuclear Waste Fund.

To address this need, the Administration has submitted a legislative proposal to Congress which authorizes mandatory funding for the civilian portion of the program. It includes provisions for continued Appropriation Committee oversight. In addition to these mandatory amounts, a discretionary appropriation would continue to be requested for the costs of disposal of the wastes resulting from defense activities.

The FY 1996 budget request for the Yucca Mountain Site Characterization project is \$472.1 million. This represents an increase of \$96.8 million over FY 1995, which is nearly all of the total program increase that we are requesting. The details of this budget and its implications for program progress will be discussed later today.

We are also involved in a broader policy debate regarding the future direction of the program. A number of bills have been introduced and a hearing was held with the Senate Energy and Natural Resources Committee on March 2, 1995. The discussion will be focused on interim storage. It is certainly timely for Congress to readdress this issue. As a practical and political matter, the program needs guidance, and probably new authority, to define its role in the near-term management of commercial spent fuel. But that guidance and authority must set forth a feasible approach and provide the tools to pursue it. As near-term objectives for the program are redefined, I hope that long-term strategy of geologic disposal will not be lost or subverted. Otherwise, interim storage may become the nation's nuclear waste management strategy by default. This, in my mind, would represent a major failure of public policy. A decision to abandon permanent disposal would be profoundly important both nationally and internationally, and it should not be made for expedient, short term-reasons.

Technical Issues

We recognize that many of the technical strategies to address cross cutting aspects of the program are not fully developed. Your recent letters highlighted two recurrent themes; the need for a better articulated waste isolation strategy, and for a better definition of our thermal loading strategy. A third issue, which has become more prominent with the New York Times publicity, is criticality safety. These topics will be addressed in detail later during this meeting. I have some general remarks to make.

We must recognize that, in most cases, definitive positions on the crosscutting strategies have not yet been established. In our publications and briefings, we are still presenting working hypotheses which are being refined or revised as greater understanding is gained. We expect that we will have to modify our current strategies as new data are obtained and analyzed.

Waste Isolation Strategy

This Board has recognized that a coherent waste isolation strategy is essential for a credible disposal program. Your observations that such a strategy was not readily discernible in our program was valid. The waste isolation strategy embodied in the 1988 Site Characterization Plan was difficult to discern, and developments since then have altered our approach. I have assured the Nuclear Regulatory Commission that our current strategy, as well as that contained in the Site Characterization Plan, relies upon multiple engineered barriers to limit the release of radionuclides to a natural barrier. We expect low liquid saturation and low aqueous flux to provide long-term isolation. The current iteration reflects a greater understanding of the probable near-field environment for the waste package and the development of the multi-purpose canister concept.

We are developing an explicit statement of the strategy at a sufficient level of detail so that an informed observer can understand the rationale for design decisions and site characterization activities. We will use this strategy to focus the site characterization activities on the key uncertainties we face in evaluating the suitability of the site and designing the repository. The strategy will utilize a defense-in-depth philosophy, consistent with the Nuclear Regulatory Commission's regulations. The capabilities of the natural system as well as engineered systems will be utilized. Our goal is to develop a waste package that will provide containment of the radionuclides for well in excess of 1000 years with a high degree of confidence, and which will provide gradual release thereafter. The greater integrity intended for the engineered system, which is consistent with the Board's recommendations, has led to some concern that we are de-emphasizing comprehension of the natural barriers. We are not. Engineering solutions are not likely to replace reliance upon the natural environment over the very long term.

Thermal Loading

The waste disposal concept we are developing now calls for in-drift emplacement of large, multi-barrier waste packages. We have not, at this time,

progressed to the point where we can decide on a design thermal load. Therefore, as the Board recommends, we are carrying a number of alternative concepts forward. The panel later today will discuss a strategy proposed by our contractor that calls for the evaluation of site suitability based upon an assumed thermal loading near the lower end of the range. The program is still developing a position on this strategy.

Ultimately, we must achieve thermal loading that is compatible with the broad objectives of the program. The intent is to determine the suitability of the site for a geologic repository for the disposal of spent nuclear fuel and high-level radioactive waste with a capacity near the statutory expectation of 70,000 MTU. This must also be accomplished within rational cost and schedule constraints, both for the evaluation itself and for the potential construction of the repository. A decision to make the national investment in a geologic repository will certainly depend upon the showing that it will substantially address the national need. Should the results of site characterization and related analyses indicate that the repository setting is only suitable for a design with a relatively low thermal load, other strategies, such as the characterization of significantly more emplacement area or technical options to manage heat will have to be explored. It is clear to me that the decision to propose construction of a repository must include more than having an appropriate licensing approach for some technical concept. It will also require balancing the contribution the project will make toward a national waste management system against the costs of constructing and operating it.

Criticality Safety

The Los Alamos debate and the recent New York Times "Sunday Supplement" treatment of it have raised the criticality issue to national visibility. Criticality control, of course, has always been a consideration in our program. It is required by regulations for the entire waste management cycle: storage, transportation, disposal for the period of substantially complete containment, and longer-term after containment in the waste package may be lost. The issue raised in the current debate, selective accumulation of fissile isotopes into a critical mass in a geologic repository setting, was the subject of studies as early as 1978 and '81. It is not a newly discovered concept.

Certainly the criticality issue must be resolved in the design of a repository. As the New York Times somewhat cynically observed, the threat of nuclear explosion could undermine public confidence and kill a repository proposal, even if it does not gain widespread scientific support.

We will closely follow the ongoing scientific debate. The discussions thus far have focused primarily upon the risk involved in the geologic disposal of weapons-grade plutonium. We intend to take seriously, however, the possible risk of nuclear explosions in the proposed Yucca Mountain repository. The topic will be included in

our evaluation of long-term criticality control. We will conduct whatever technical work is needed in our program to resolve the issue. If it turns out that there is a non-negligible risk, we will evaluate it and act accordingly, to assure protection of the public health and safety and the environment.

Conclusion

I do not intend to let the program be driven to premature conclusions concerning major strategic issues such as waste isolation strategy, thermal loading, and criticality. It is not our role to arrive at rigid concepts early, and then to adopt an inflexible, defensive posture to justify them.

We in the program are charged with the first line responsibility of deciding if the Yucca Mountain site is suitable, and indeed if the general concept of geologic storage, makes sense for the nation. We must maintain a skeptical and objective viewpoint about all of the issues until we have satisfied ourselves. Then, if we are satisfied, we have a responsibility to design and propose the best project that we can conceive of, and to describe it as objectively and clearly as possible, so that the final judgement made in the political and regulatory arenas will be an informed judgement.

For our part, we expect to continue to develop solutions for the remaining technical issues. We will strive to come to closure on a realistic time schedule and within resource limitations that society can tolerate. And we consider our obligation to make the first call on the feasibility of this venture to be a public trust.

The proper relationship between this program, and its advisors and regulators, and the public ought to be one of collaboration on the first determination that we must make, technical site suitability in 1998. That collaboration should help to ensure that we have considered the facts objectively and reached a sound conclusion. The relationship ought not to be an adversarial one, in which we try to make it work and the oversight bodies try to prove us wrong. The public interest deserves the constructive input of all knowledgeable participants in an undertaking of this consequence.

Thank you for the opportunity to meet with you today. I will be happy to answer any questions you may have.