Statement for the Record

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Nuclear Waste Technical Review Board

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Committee on Appropriations
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Chairman Myers and members of the Subcommittee, I am John Cantlon, Chairman of the Nuclear Waste Technical Review Board and former vice president for research and dean of the graduate school at Michigan State University. Thank you for this opportunity to present the Board's appropriation request for fiscal year 1997.

As you know, Mr. Chairman, Congress created the Nuclear Waste Technical Review Board (the Board) in the Nuclear Waste Policy Amendments Act (NWPAA) of 1987 as an independent executive agency and assigned it the responsibility of providing an unbiased and expert evaluation of the technical and scientific aspects of the Department of Energy's (DOE) efforts to manage and dispose of our nation's spent fuel and high-level radioactive wastes. The Board's mission is simply stated in the NWPAA, as follows.

> *The Board shall evaluate the technical and scientific validity of activities undertaken by the Secretary after the date of the enactment of the Nuclear Waste Policy Amendments Act of 1987, including (1) site-characterization activities; and (2) activities relating to the packaging or transportation of high-level radioactive waste or spent nuclear fuel*

The DOE's Office of Civilian Radioactive Waste Management (OCRWM) is responsible for transporting and disposing of our nation's high-level nuclear waste — 85,000 metric tons of spent fuel from civilian nuclear plants, along with about 8,000 metric tons of high-level defense waste and a smaller amount of government-owned spent fuel. As directed in the NWPAA, the DOE is characterizing a site at Yucca Mountain, Nevada, to determine its potential suitability for construction of a permanent repository for these wastes.

Since 1989, when the original Board members were appointed, the Board has brought a high level of technical and scientific expertise to its review of this program, which the Board believes is of significant national importance. In my statement today, Mr. Chairman, I will provide a summary of the Board's fiscal year 1997 appropriation request of $3,214,000. This amount establishes a viable baseline for future funding, which the Board does not now have, and ensures that the Board will be able to effectively continue its important work.

However, before I get into the specifics of the Board's appropriation request, Mr. Chairman, I would like to comment on encouraging progress that is being made in the Yucca Mountain site-characterization program. I also would like to bring to the Subcommittee's attention some Board concerns about proposed program changes that are being considered just as previous investments in the program are beginning to show tangible results. I have attached to this statement a summary of conclusions and recommendations made in a report released by the Board on March 20, 1996, to Congress and the Secretary of Energy entitled *Disposal and Storage of Spent Nuclear Fuel — Finding the Right Balance.* The report, copies of which have been delivered to your individual offices, explains in detail the basis for the Board's concerns about proposed changes to the civilian radioactive waste management program.

Mr. Chairman, I ask that my full statement and the attachments referred to be included in the record of these hearings.

Recent Progress at Yucca Mountain

Consistent with its congressionally established mandate, the Board reported in the attached February 15, 1996, letter to Congress and the Secretary of Energy on the DOE's progress in excavating underground at Yucca Mountain. The program has been able to improve significantly the advance rates of the tunnel boring machine, which is excavating at the geologic level of the proposed repository. As a consequence, the program is acquiring important data about the suitability of the site. Board members have examined the tunnel rock at the repository level and can report that, so far, nothing has been identified that would indicate that the site is unsuitable. Important testing will soon be initiated underground, and overall the Board is very encouraged by progress at the site.

The DOE also has made strides in developing a coherent and testable waste isolation strategy. The strategy is becoming increasingly well defined and more understandable. Together with recent advances in performance assessment, this strategy should enable the OCRWM to undertake an aggressive delineation of program priorities and allocate available funds more efficiently among the various activities of the scientists and engineers working on the program.

Program management continues to improve, as well, as evidenced by the improved performance of the tunnel boring machine and the increased emphasis on setting priorities among site studies. Although room for further improvement remains — especially in program integration and in defining the roles of government versus contractor participants — the Board believes there is a clear trend toward more efficient management of the program.

Despite these very promising program developments, it has become increasingly clear that the civilian radioactive waste management program is fast approaching a critical crossroads. As a result of political and budgetary concerns, the authorizing and appropriating committees of both Houses of Congress have signalled that a change of primary program focus — from disposal to storage — is a near-term possibility.

The Board would be concerned if such a shift were to occur. We believe that, using the right approach, *it is possible to find the right balance and integration between storage and disposal.* The nation's future storage needs can be addressed while keeping the national goal of permanent disposal of *all* spent fuel and high-level reprocessing wastes on track. Although the nation will clearly need a fully operating centralized storage facility, especially when utility reactors begin shutting down in large numbers, the Board believes it is equally necessary to maintain the recent pace of site-characterization and repository development activities for the next several years.

Board Membership, Role, and Operation

Mr. Chairman, technical and scientific oversight such as that provided by this Board is especially critical now that site-characterization activities at Yucca Mountain are being constrained by budgetary limitations. Site-characterization activities, repository design and total system performance assessment, and transportation and storage of the waste, must be integrated into a comprehensive system for managing spent fuel and high-level radioactive waste. Such a system begins at reactor sites — where the spent fuel is packaged for storage and eventual transport — and ends with the final closure of the repository as many as 100 years after the spent fuel is placed underground. In between are numerous complex and diverse activities related to spent fuel and high-level radioactive waste management and repository operation and performance whose technical validity will largely determine the success of the civilian radioactive waste management program. Recognizing the critical need for technical and scientific

oversight of the development of this waste management system, Congress required in the 1987 Amendments Act that the Board "shall be representative of the broad range of scientific and engineering disciplines related to activities under this title." In accordance, Board member capabilities include expertise in geology, geoengineering, hydrology, materials science, geochemistry, transportation, systems analysis, environmental science, risk and performance assessment, and public health and safety. Drawing on this expertise, the Board has provided an in-depth evaluation of many technical and scientific aspects of the DOE's civilian radioactive waste management program, including the following.

- The site-specific waste isolation strategy for the proposed repository and methodologies for assessing repository performance
- Surface-based and underground exploration and testing activities at the Yucc a Mountain site
- Integration of the various components of the program into a comprehensive waste management system
- Repository design
- Waste package design and materials testing
- Transportation and handling
- Technical and system interactions among spent fuel packaging, storage, transport ation, handling, and repository design and operation.

Board members are appointed by the President from a list of candidates nominated by the National Academy of Sciences. The first Board members were appointed on January 18, 1989. The current Board consists of nine members. In addition, two former members are used when their expertise is needed as consultants pending new appointments. The Board appreciates very much recent efforts of Chairman Myers that resulted in a change in procedure allowing Board members whose terms have expired to serve until new members have been appointed to replace them. (A list of current Board members and consultants is attached to this statement.)

In conducting its reviews, the Board sponsors regular meetings to which it invites representatives of the DOE and its contractors, regulatory agencies such as the Nuclear Regulatory Commission (NRC), the state of Nevada, area Native Americans, the nuclear industry, nuclear utilities, and state utility regulators. Input from congressional staff at

the Board's October 1995 meeting was especially helpful. Board members and staff also conduct routine examinations of the on-site geologic, hydrologic, engineering, and ecological studies as well as features of the proposed repository site at Yucca Mountain. When relevant, Board members and staff attend or participate in pertinent technical conferences, symposia, and workshops.

One very important role the Board plays is that of catalyst for the technical community. By scheduling open, public meetings and asking detailed technical questions of the program participants, the Board is able to affect the DOE's technical and scientific program as it unfolds. The Board helps the DOE to continuously reevaluate its own activities, to reexamine the fundamentals of the program, to revise priorities, and to define the program's technical objectives. The Board has been instrumental in increasing communication and coordination within this DOE program and among DOE contractors and other organizations involved with or concerned about spent fuel and high-level radioactive waste disposal issues.

Fiscal Year 1997 Appropriations Request

To enable the Board to continue its evaluation of this critical national program, the Board's funding requirement for fiscal year 1997 is $3,214,000 in new budget authority. (Attachment #5 provides a detailed explanation of this request.) This amount will meet the Board's total funding requirements for fiscal year 1997 and establish a viable baseline for out-year funding, which the Board does not now have.

The objectives underlying this budget request are the following.

- Support the efforts of the Board members who are heavily involved in a congressionally mandated review of the DOE's technical and scientific activities related to the management of commercial spent fuel and defense high-level radioactive wastes

- Maintain a small professional and support staff of the highest caliber commensurate with the status, abilities, and responsibilities of the congressionally established, National Academy of Sciences selected, and Presidentially appointed Board, which it supports

Provide the tools and the resources for the Board and staff to effectively pursue in a timely fashion the mission with which Congress has charged the Board in the Nuclear Waste Policy Amendments Act.

Historically, Board funding has been satisfied by a combination of appropriated new budget authority and carryover funds from prior years that resulted primarily from unfilled Board member and staff positions. Until now, each budget year, the Board has requested only that new budget authority (appropriation), which, when supplemented by unobligated balances (carryover), was necessary to meet its funding needs. For example, in fiscal year 1996, the Board's total funding was $3,169,000 ($2,531,000 in new budget authority). However, because the Board is now fully staffed, for fiscal year 1997, instead of using the unobligated balance from fiscal year 1996 (approximately $448,000) to supplement its request, the Board is requesting its *total* funding requirement of $3,214,000 in new budget authority. *This will establish a viable baseline for the Board's out-year funding.* If the out-year funding baseline were similar to the appropriations of new budget authority in fiscal years 1995 ($2,664,000) and 1996 ($2,531,000), both of which were supplemented by carryover funds, the Board would fall considerably short of the amount needed to meet its anticipated oversight responsibilities.

The fiscal year 1997 budget request assumes a full 11-member Board operating with a targeted staffing level of 20 (a 10% reduction from fiscal year 1996).

Conclusion

In closing, Mr. Chairman, let me state for the record that site-characterization activities being conducted at the Yucca Mountain site have so far revealed no characteristics of the site that might indicate that it is unsuitable for repository development. However, it will be necessary to complete additional underground exploration and testing at Yucca Mountain before the DOE can make a technically credible final decision about the suitability of the site for repository development. Even if the site is found suitable, additional confirmatory design, experimental data, and assessment activities will be required to support an eventual application to the NRC for construction authorization.

After years of criticism, often from our Board, the DOE is beginning to obtain underground data from the site at the level of the proposed repository. If strong program management continues, if sufficient and consistent funding are provided, and if the program can maintain its recent rates of progress, enough underground exploration, testing, repository design, and analysis can be completed to permit the DOE to make a decision within five years on the suitability of the site for repository development.

The Board believes that maintaining the program's primary focus on the evaluation of the Yucca Mountain site and on developing a credible repository development program is the best way to ensure the responsible management of all of the nation's spent fuel and high-level radioactive waste. Having a credible disposal option also should help to ensure the long-term success of any future storage initiatives. We, therefore, urge Congress to continue to support permanent disposal as the primary objective of the civilian radioactive waste management program and to provide the program with sufficient and consistent funding.

Thank you, Mr. Chairman, for this opportunity to present this statement to the Subcommittee. The Board would be pleased to answer for the record any questions you may have.

Attachments:

1) Attachment A: List of Board members and consultants
2) Attachment B: Interim storage report - Summary of conclusions and recommendations
3) Letters to Secretary of Energy and Congress: December 1995 and February 1996
4) Letters to Dr. Daniel Dreyfus: December 1994 and December 1995
5) Details of Congressional budget request
6) *Disposal and Storage of Spent Nuclear Fuel — Finding the Right Balance* - Executive Summary, March 1996