



UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
2300 Clarendon Boulevard, Suite 1300
Arlington, VA 22201

June 30, 2011

The Honorable Phil Sharp
The Honorable Richard Meserve
Co-Chairs
Transportation and Storage Subcommittee
Blue Ribbon Commission on the Nation's Nuclear Future
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Commissioner Sharp and Commissioner Meserve:

On behalf of the U.S. Nuclear Waste Technical Review Board, I am submitting these Board comments on recommendations in the Transportation and Storage Subcommittee's draft report, dated May 31, 2011. The Subcommittee in its draft report identifies many important issues and makes recommendations that will contribute positively to a discussion among policy-makers on an effective approach for managing high-level radioactive waste (HLW) and spent nuclear fuel (SNF). As the Board has often stated, we believe that it is important to move forward expeditiously in establishing policies and taking actions that demonstrate the will and the capacity for addressing these critical national issues.

As you know, the Board has followed closely the deliberations of the Blue Ribbon Commission on America's Nuclear Future (Commission) since the Commission was established in January 2010. Board members and staff have testified on several occasions, either before the full Commission or its subcommittees. In its presentations and written documents, the Board has provided its technical perspective, consistent with its mandate to review the technical and scientific validity of activities undertaken by the Secretary of Energy related to implementing the Nuclear Waste Policy Act and to report Board findings and recommendations to Congress and the Secretary.

Based on the Board's experience in reviewing DOE SNF and HLW management activities and its strong interest in an integrated systems approach to U.S. high-level radioactive waste management (an interest shared by the Commission's Transportation and Storage Subcommittee), the Board conveys the following comments on Subcommittee recommendations numbers 1 through 3, and recommendation number 6.

Subcommittee Recommendation #1: *The United States should proceed expeditiously to establish one or more consolidated interim storage facilities as part of an integrated, comprehensive plan for managing the back end of the nuclear fuel cycle. An effective integrated plan must also provide for the siting and development of one or more permanent disposal facilities.*

Board Comments: The Board believes that the system-wide implications of developing consolidated interim storage should be considered as part of a detailed evaluation that includes the advantages and disadvantages of such an approach. For example, the Board notes in its report, *Evaluation of the Technical Basis for Extended Dry Storage and Transportation of Used Nuclear Fuel*,¹ that the length of time SNF is stored at commercial nuclear power plant sites will affect the degree to which fuel or dry storage system components may degrade. Such degradation affects compliance with the regulatory requirements for storage, retrieval, and transport of SNF. Information from the detailed analysis, suggested above, also will inform decisions about what technical capabilities may be required at SNF storage-site locations. The Board agrees that taking full account of the complex nature and integrated dependencies of the entire waste disposal system is vitally important in making any decisions about options for managing SNF and HLW. Thus, siting an interim storage facility without an integrated waste management plan is not recommended.

Subcommittee Recommendation #2: *Recognizing the substantial lead-times that may be required in opening one or more consolidated storage facilities, dispersed interim storage of substantial quantities of spent fuel at existing reactor sites can be expected to continue for some time. The Subcommittee has concluded that there do not appear to be unmanageable safety or security risks associated with current methods of storage (dry or wet) at existing sites. However, to ensure that all near-term forms of storage meet high standards of safety and security for the multi-decade-long time periods that they are likely to be in use, active research should continue on issues such as degradation phenomena, vulnerability to sabotage and terrorism, full-scale cask testing, and other matters.*

Board Comments: The Board agrees that technical information and experience to date indicates that low-burnup SNF can be stored safely in the short-term and then transported for additional storage, processing, or disposal. However, as noted in its report on *Extended Dry Storage*, referenced above, the Board believes that there are outstanding issues for which more information is needed before it can be concluded that SNF can be safely placed in dry storage over an extended period of time. For this reason, the Board strongly endorses the Subcommittee's recommendation that an active and sustained research program is required to obtain the additional information necessary to have similar high-confidence in the safe extended storage and subsequent transportation of SNF, particularly for high burn-up SNF, and HLW. Recommendations for future research described in the Board's report concur with the summary of research needs that are discussed in Chapters 3, 4, and 7 of the draft Subcommittee report. Additionally, after extended storage at an interim site, and particularly after transportation, the condition of the spent fuel would need to be established to confirm the integrity of the cladding.

Subcommittee Recommendation #3: *Spent fuel currently being stored at decommissioned reactor sites should be "first in line" for transfer to a consolidated interim storage facility as soon as such a facility is available.*

Board Comments: The Board believes that, should one or more consolidated interim storage facilities be constructed, an incremental, staged approach for transferring SNF and HLW to an interim facility is appropriate. It makes sense for the reasons outlined in your report to consider

¹ This report is available on the Board's website: www.nwtrb.gov.

decommissioned sites as “first in line.” However, should it be necessary to transfer SNF or HLW from storage containers to transportation casks after extended storage, this will require either dry-transfer capability or the availability of an operational spent fuel pool at the interim facility.

***Subcommittee Recommendation #6:** The current system of standards and regulations governing the transport of spent fuel and other nuclear materials appears to be functioning well, and the safety record for past shipments of these types of materials is excellent. However, planning and coordination for the transport of spent fuel and high-level waste is complex and should commence at the very start of a project to develop consolidated storage capacity.*

Board Comments: The Board strongly concurs with the Subcommittee that transportation planning should be considered as early as possible in the development of any waste management system in line with the Board’s comment on Subcommittee Recommendation 1. As the Board has noted in its “Extended Storage Report”, there are inconsistencies in NRC’s storage and transportation regulations that need to be addressed. Based on prior experience with the U.S. repository program, the Board notes the existence of transportation logistics challenges that can affect safety and operational efficiency with respect to loading/unloading, access/egress, and line-haul operations. The Board also notes that, although the safety record for past shipments of these types of materials may be excellent, the scale of the transportation campaign involved in transferring SNF and HLW to one or more interim storage facilities could dwarf those of previous shipments.

Finally, the Board notes that during the next year, a significant amount of new technical information may be available from the Extended Storage Collaboration Program (ESCP), with which the Board interacts, which is focusing on research and information needs related to extended dry storage. The ESCP effort and other analysis and planning work being carried out by the Department of Energy, the Nuclear Regulatory Commission, and the nuclear industry, may provide useful technical information on aspects of the system for managing and disposing of SNF and HLW. The Board suggests that to the extent new technical findings become available in the next few months, the Commission consider such information, if possible, in drafting its final report.

The Board appreciates the interest and courtesy the Commission has extended to the Board during the Commission’s deliberations. We hope that the Commission will continue to call on the Board when it requires technical information related to the management or disposal of SNF and HLW.

Sincerely,

{ Signed by }

B. John Garrick
Chairman