



UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
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June 27, 2018

The Honorable Anne White
Assistant Secretary for Environmental Management
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Mr. Ed McGinnis
Principal Deputy Assistant Secretary for Nuclear Energy
U.S. Department of Energy
1000 Independence Ave., SW
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Dear Ms. White and Mr. McGinnis:

On behalf of the U.S. Nuclear Waste Technical Review Board (Board), I want to thank you and your staff for supporting the Board's 2018 Summer Meeting, which was held on June 13, 2018, in Idaho Falls, Idaho. The purpose of the meeting was to identify and discuss technical and integration issues that will need to be addressed before the Department of Energy (DOE) can implement a nationwide program to transport commercial and DOE-managed spent nuclear fuel (SNF) and high-level radioactive wastes (HLW). To remove SNF and HLW from their current storage locations at commercial power plant sites and federal facilities around the country, transportation of the wastes will be necessary. The agenda and presentation materials for the 2018 Summer Meeting are posted on the Board's website at <http://www.nwtrb.gov/meetings/past-meetings/summer-2018-board-meeting---june-13-2018>. Materials submitted by members of the public as part of the meeting record will also be posted on the same web page.

Nuclear waste transportation has been a topic of Board review since the Board first began operation almost thirty years ago. Congress created the Board in the 1987 Nuclear Waste Policy Amendments Act (NWPAA) (Public Law 100-203) to evaluate the technical and scientific validity of activities undertaken by the Secretary of Energy to implement the Nuclear Waste Policy Act and to advise Congress and the Secretary on technical issues related to nuclear waste management. Among the topics specifically identified in the law for Board evaluation is the transportation of SNF and HLW.

Consistent with the ongoing national discussions regarding nuclear waste management, the Board has continued its efforts to evaluate issues related to the need to prepare for transporting nuclear wastes from where they are now stored to a permanent repository or a temporary interim storage facility. These efforts have included staff-to-staff discussions with DOE, fact-finding meetings at national laboratories, and the 2018 Summer Meeting. This letter provides some preliminary Board observations, based on the meeting presentations and information gathered to date. As part of its ongoing evaluation of this topic, the Board is also planning future review

activities and is developing a report on the technical and integration issues that will need to be addressed before DOE can implement a nationwide effort to transport nuclear wastes. The report, which we expect to issue later this year, will reflect the information obtained during future review activities as well as the information presented and discussed at the 2018 Summer Meeting.

The scope of the technical issues to be addressed before a large transportation effort can begin is broad. These issues include uncertainties about the condition of the SNF to be transported, particularly the many DOE-managed SNF types and commercial SNF that was used in reactors for relatively long periods (“high burnup” SNF). These uncertainties lead to questions about the ability of these SNFs to meet the requirements for transportation.

Other uncertainties apply to the casks and canisters storing SNF and HLW. As an example, for commercial SNF, there are questions about the transportability of some of the welded stainless-steel canisters that are prevalent in dry storage at commercial nuclear power plant sites. For commercial SNF canisters and for the welded stainless-steel canisters storing DOE-managed SNF and HLW, inspections may have to be conducted prior to transportation to ensure the canisters have not experienced corrosion or other degradation that may prevent the canisters from meeting the transportation requirements. Addressing these and other issues, as well as integrating the waste transportation program within DOE and with the activities of other organizations such as the Nuclear Regulatory Commission (NRC), the Department of Transportation, the States, and the private sector will require significant advanced planning and coordination.

At its 2018 Summer Meeting, the Board heard presentations from past and present transportation system managers at DOE and staff involved in current activities related to transportation planning. The Board also heard from representatives of the nuclear industry, including domestic companies and one utility in Switzerland, and from representatives of stakeholder groups and the NRC. Based on these presentations and previous interactions with DOE, the Board makes the following preliminary observations.

- DOE’s preliminary evaluations of removing commercial SNF from shutdown sites, which involved working with site personnel, utilities, and local stakeholders, have generated valuable information and are important to continue. As these studies have shown, considerable planning and coordination will be required to refurbish or re-establish the capabilities to handle and load SNF containers, re-constitute needed site infrastructure (e.g., electrical power, radiological controls), and rebuild the roadways and/or rail lines necessary to support SNF transportation.
- The current effort by the DOE Office of Nuclear Energy (NE) to plan and coordinate a nationwide transportation program does not appear to be well integrated with activities of the DOE Office of Environmental Management (DOE-EM). Furthermore, the current transportation program plan does not include sufficient consideration of the SNF and HLW materials and packages that are managed by DOE-EM.
- The Waste Isolation Pilot Plant (WIPP) transportation approach represents a useful model and provides relevant lessons for the development of a nationwide transportation program for SNF and HLW. However, transuranic waste is transported to WIPP by road, while

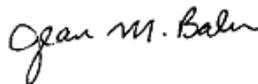
transportation of commercial SNF is expected to be mostly by rail, so the differences between highway and rail transport will need to be considered in applying WIPP experience in developing the SNF and HLW transportation program.

- Several presenters emphasized the need for early and continuous engagement and collaboration between DOE and stakeholders at the state and local level as well as other organizations such as nuclear utilities and rail carriers that are essential to ensuring an effective nationwide transportation program.
- Several presenters mentioned that a lack of adequate and predictable funding adversely affects the development of a transportation program, including, for example, advanced procurement of casks and other essential equipment, full stakeholder engagement, and emergency preparedness planning.
- DOE will need to develop designs for new casks and canisters for transporting DOE-managed SNF and HLW. Additional types of new casks and canisters may be required for the transport of some commercial SNF. Furthermore, several presenters noted advantages to developing a waste management program based on new standardized cask and canisters designs. Given the need for new cask and canister designs, several presenters noted that the lead times for licensing and procurement of any new types of casks and canisters may be greater than ten years, and therefore, considerable advanced coordination with NRC will be required.
- The advances made by DOE-NE in developing the system analysis and planning tools are to be commended. These tools will be a major asset in designing the transportation program, particularly as development of the tools is continued and as DOE gains access to the detailed technical information necessary to conduct realistic system analyses.

Further details about these and other Board observations, findings, and associated recommendations are expected to be included in the Board report on this topic.

The Board also would like to thank you for your support of tours and technical briefings for the Board on June 11, 2018, at the Idaho National Laboratory. Staff members in the DOE Offices of Nuclear Energy and Environmental Management, the DOE Idaho Field Office, and the Idaho National Laboratory ensured the tours and briefings proceeded effectively and efficiently. These interactions provided valuable information for the Board as it continues its evaluation of DOE activities related to the management of SNF and HLW. We look forward to future productive interactions with you and your staff.

Sincerely,



Jean M. Bahr
Chair

cc:

Dr. William Boyle, DOE Office of Nuclear Energy

Mr. Kenneth Picha, DOE Office of Environmental Management