



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

July 14, 2011

The Honorable Pete Domenici  
The Honorable Per F. Peterson  
Co-Chairs  
Reactor and Fuel Cycle Technology Subcommittee  
Blue Ribbon Commission on the Nation's Nuclear Future  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Commissioner Domenici and Commissioner Peterson:

On behalf of the U.S. Nuclear Waste Technical Review Board, I submit these Board comments on the Reactor and Fuel Cycle Technology Subcommittee draft report, dated June 2011.

As you know, the Board has followed closely the Commission's activities since the Commission was established. Board members and staff have testified on several occasions, either before Commission subcommittees or the full Commission. Given the Board's technical mandate, it would not be appropriate for the Board to make comments on non-technical aspects of the Subcommittee's recommendations. However, the Board is pleased to provide the following technical comments.

The Board notes the Subcommittee's discussions on the need to provide "*near-term improvements in the safety and performance of existing light-water reactor technology as currently deployed in the United States*" and the need for "*longer-term efforts to advance potential 'game-changing' nuclear technologies and systems that could achieve very large benefits across multiple evaluation criteria compared to current technologies and systems.*" The Board believes that consideration of improvements in existing technologies and development of new nuclear technologies should include the waste-stream consequences of the adoption of the changes as part of the decision-making process. For example, changes in fuel burnup levels achieved in reactors, together with changes in other performance parameters and the introduction of "game-changing" technologies, such as advanced reprocessing flowsheets, may have a significant impact on both waste streams requiring disposal and the final waste forms best suited to their disposal. The Board thus recommends that any evaluation of the benefits of such changes also take into account the impact on the waste management requirements that will result from the adoption of the changes.

Evaluation of various potential fuel cycles is extremely difficult due to the highly technical aspects of these fuel cycles and the lack of mature development of the technologies. The Board agrees with your conclusion that "*No currently available or reasonably foreseeable reactor and fuel cycle technologies—including current or potential reprocess and recycle*

*technologies—have the potential to fundamentally alter the waste management challenge this nation confronts over at least the next several decades, if not longer.”* This conclusion should be integrated into the nation’s near-term planning for what needs to be done to deal with the continuing build up of nuclear waste from commercial nuclear plants and the existing stockpile of defense and DOE wastes stored across the country. While RD&D is important, it also is important to move on a disposal solution which will ultimately be required regardless of waste form(s). Efforts at siting such a facility should not be delayed by RD&D on fuel-cycle alternatives.

The Board thanks the Commission for the opportunity to comment on the draft report prepared by the Reactor and Fuel Cycle Technology Subcommittee. The Board looks forward to interacting with the Commission as it moves forward in preparing its final report.

Sincerely,

{Signed by}

B. John Garrick  
Chairman