UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
2300 Clarendon Boulevard, Suite 1300
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June 30, 2011

The Honorable Chuck Hagel
The Honorable Jonathan Lash
Co-Chairs
Disposal Subcommittee
Blue Ribbon Commission on the America's Nuclear Future
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Commissioner Hagel and Commissioner Lash:

On behalf of the Nuclear Waste Technical Review Board, I would like to submit general comments on the Subcommittee on Disposal's draft report, dated June 1, 2011.

As you know, the Board has followed closely the Commission's activities since its inception. Board members and staff have testified on several occasions, either before subcommittees or the full Commission. The Disposal Subcommittee's draft report provides a strong foundation for debating key institutional issues that need to be addressed as the Nation moves forward with its efforts to provide a long-term solution to the problem of managing high-level radioactive waste and spent nuclear fuel.

Given its *technical* mandate, the Board will not offer a detailed critique of the Subcommittee's three key recommendations dealing with institutional design (organizational form, funding, and siting strategy), other than to note that Board members with extensive program management experience concur with the draft report's conclusion that substantial changes are necessary in these areas. Nor, consistent with its past practice, will the Board comment on the Subcommittee's recommendations dealing with the Environmental Protection Agency and the Nuclear Regulatory Commission.

The Board has, however, recently published two substantial reports—*Technical Advancements and Issues Associated with the Permanent Disposal of High-Activity Wastes* (TAI) and *Experience Gained from Programs to Manage High-Level Radioactive Waste and Spent Nuclear Fuel in the United States and Other Countries* (EG)—that speak to matters raised by the Subcommittee.[1] As the following paragraphs suggest, the Subcommittee has reached conclusions that are tightly aligned with many of the views contained in those Board reports.

[1]Both of these reports are available on the Board's website: www.nwtrb.gov.

On the need for a deep-mined geologic repository

In Chapter Four of the draft report, the Subcommittee maintains that "one or more permanent disposal facilities for high-level nuclear waste will be needed in the United States under all reasonably foreseeable scenarios" and that "[d]eep geologic disposal has emerged as the most promising and technically acceptable option" [pg. 27]. The Board agrees. As it states in its TAI report:

> The Board believes that keeping a focus on a permanent solution is critical regardless of what interim measures for managing high-activity waste are charted. Among the reasons are (1) a permanent solution is critical to building public confidence that there is a way of isolating nuclear waste radioactivity from the biosphere to acceptable levels; (2) given the long duration of the hazard of high-activity waste, undue delay in implementing a permanent solution could make tenuous a concept of waste management dependent on institutional stability; (3) experience to date has indicated that deploying a permanent solution to isolating high-activity waste could take decades; and (4) there is an international consensus that a permanent solution to high-activity waste isolation is feasible via geologic disposal. [pg. 69]

On the question of organizational form for the implementer

In Chapter Five of the draft report, the Subcommittee considers alternative organizational forms that a new manager of a nuclear waste program might take on. The Subcommittee recommends that a FEDCORP-like organization be created to direct future efforts. The Board takes no position on this particular recommendation, but it is cognizant of language in the draft report that seems to qualify the Subcommittee's position. To begin with, the Subcommittee realizes that the choice of organizational form depends on how potentially conflicting values, such as independence and accountability [pg. 31], are traded off. Further, the Subcommittee understands that "[t]he general conclusion has been that a number of different organizational forms are viable and could work to provide the focus and effectiveness needed to successfully implement program objectives" and "[m]ore importantly than what form it takes is that a new waste management organization display certain behaviors and attributes (i.e., competence, transparency, flexibility, responsiveness, accountability, etc.)" [pgs. 41, 42].

Both of these conclusions very closely reflect views that the Board expresses in its TAI and EG reports. The impact of organizational arrangements on technical work, for instance, is addressed in the TAI report.

> [There is a] need for continuity of management, personnel, and funding. Contractors came and went, and managers cycled in and out, while the amount of money available in the next fiscal year was always in doubt and not under the control of the management of the program. Any engineering program would benefit greatly from having a dedicated organization that would maintain continuity of its personnel, especially of its management and principal engineers and scientists. [pg. 40]

More generally, the EG report considers how different countries have organized their waste-management programs.

> The choice of organizational form for the implementer depends in each country on how value-based conflicts are resolved. There does not seem to be "one best way" that can be universally applied. [pg. 22]

> Rather than organizational form *per se*, what appears to be important are organizational behaviors, such as leadership continuity, funding stability, and the capacity to inspire public trust and confidence over long periods of time. [pg. 60]

The Board believes that the experience of the 13 national waste-management programs it examined in its EG report does not unequivocally support the Subcommittee's claim that FEDCORP-like organizational form is the most appropriate for the United States. At most, the international experience suggests that an organization devoted exclusively to managing high-level radioactive waste and spent nuclear fuel, whether government, private, or hybrid, seems to work better than an organization that has multiple missions, some of which may be at cross-purposes with its waste-management responsibilities.

On structuring a new siting and development process

In Chapters Three and Seven of the draft report, the Subcommittee devotes considerable attention to diagnosing the root causes of the problems encountered in the United States in siting and developing both consolidated interim storage facilities and deep-mined geologic repositories. The Board believes that the Subcommittee's historical analysis is largely correct and informed. Out of the Subcommittee's evaluation comes the recommendation that a "phased, adaptive approach" be adopted. Support for this recommendation comes from a report by the National Research Council (NRC), *One Step at a Time*, as well as from international experience especially in Canada.[2]

In its EG report, the Board takes note of the fact that the approach the Subcommittee recommends is derived from research on decision-making dating back to the 1950s. Subsequently, researchers have assessed both the strengths and weaknesses of such an approach. The Subcommittee's discussion does not fully reflect the balance of those assessments, which are well-described in both the NRC report cited above and key documents issued by the Canadian program. For example, the Subcommittee does not examine the difficulties the Japanese have encountered, even pre-Fukushima, in implementing a phased, adaptive siting strategy.

As the Board observes,

> At the theoretical level, it is hard to find fault with a decision-making strategy that seems to promise so much [in terms of potential benefits]. As a more practical matter, however, it is unclear whether it can be any more successful than earlier efforts in overcoming local and state opposition to specific siting decisions, whether it can be implemented, and whether it *should* be implemented. [pg. 6]

[2]The Subcommittee's draft report asserts that the phased adaptive approach also has been used in Finland and Sweden. A review of the historical record in both these countries suggests that neither one originally cast its siting process in those terms. Although it is possible to interpret what both countries did as being consistent with a phased, adaptive approach, such an interpretation probably reflects the malleability of the concept most of all.

The Board thanks the Commission for the opportunity to comment on the draft report prepared by the Disposal 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