

**STATEMENT OF
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Chairman Frelinghuysen, Ranking Member Kaptur, distinguished members of the Subcommittee, it is a pleasure to appear before you today to discuss nuclear waste programs and strategies. I was most pleased to receive the invitation to testify today because I believe our nation simply must craft a sustainable solution to the nuclear waste management issue.

BRC Report Overview

As you know, the Blue Ribbon Commission on which I served was formed by the Secretary of Energy at the direction of the President. Our charge was to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle and to recommend a new strategy. We delivered our final report to the Secretary in January of last year, and made eight key recommendations in that report, which articulated:

1. A new, consent-based approach to siting future nuclear waste management facilities.

Experience in the United States and in other nations suggests that any attempt to force a top-down, federally mandated solution over the objections of a state or community—far from being more efficient—will take longer, cost more, and have lower odds of ultimate success. By contrast, the approach we recommend is explicitly adaptive, staged, and consent-based. Based on a review of successful siting processes in the United States and abroad—including most notably the siting of a disposal facility for transuranic radioactive waste, the Waste Isolation Pilot Plant (WIPP) in New Mexico, and recent positive outcomes in Spain, Finland and Sweden—we believe this type of approach can provide the flexibility and sustain the public trust and confidence needed to see controversial facilities through to completion.

2. A new organization dedicated solely to implementing the waste management program and empowered with the authority and resources to succeed.

The overall record of DOE and of the federal government as a whole has not inspired confidence or trust in our nation's nuclear waste management program. For this and other reasons, the Commission concluded that new institutional leadership is needed. Specifically, we recommended a single-purpose, Congressionally-chartered federal corporation, although there may be other organizational structures that could work. We believe a Fed Corp is best suited to provide the stability, focus, and credibility needed to get the waste program back on track. For

the new organization to succeed, a substantial degree of implementing authority and assured access to funds must be paired with rigorous financial, technical, and regulatory oversight by Congress and the appropriate government agencies.

3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management.

The 1982 Nuclear Waste Policy Act (NWPA) created a “polluter pays” funding mechanism to ensure that the full costs of disposing of commercial spent fuel would be paid by utilities - and their ratepayers - with no impact on taxpayers or the federal budget. Nuclear utilities are assessed a fee on every kilowatt-hour of nuclear-generated electricity as a *quid pro quo* payment in exchange for the federal government’s contractual commitment to begin accepting commercial spent fuel beginning by January 31, 1998. Fee revenues go to the government’s Nuclear Waste Fund, which was established for the sole purpose of covering the cost of disposing of civilian nuclear waste and ensuring that the waste program would not have to compete with other funding priorities. The Fund does not work as intended. A series of Executive Branch and Congressional actions has made annual fee revenues - approximately \$750 million per year - and the unspent \$27 billion balance in the Fund effectively inaccessible to the waste program. Instead, the waste program must compete for federal funding each year and is therefore subject to exactly the budget constraints and uncertainties that the Fund was created to avoid. This situation must be remedied immediately to allow the program to succeed.

4. Prompt efforts to develop one or more geologic disposal facilities.

The conclusion that disposal is needed and that deep geologic disposal is the scientifically preferred approach has been reached by every expert panel that has looked at the issue and by every other country that is pursuing a nuclear waste management program. Moreover, all spent fuel reprocessing or recycle options-- either already available or under active development at this time-- still generate waste streams that require a permanent disposal solution.

The Commission recognized that current law establishes Yucca Mountain in Nevada as the site for the first U.S. repository for spent fuel and high-level waste. The Blue Ribbon Commission was not chartered as a siting commission. Accordingly, we did not evaluate Yucca Mountain or any other location as a potential site for the storage or disposal of spent nuclear fuel and high-level waste, nor did we take a position on the Administration’s request to withdraw the license application. We simply noted that regardless what happens with Yucca Mountain, the U.S. inventory of spent nuclear fuel will soon exceed the amount that can be legally emplaced at this site until a second repository is in operation. So under current law, the United States will need to find a new disposal site even if Yucca Mountain goes forward. We believe the approach set forth here provides the best strategy for assuring continued progress, regardless of the fate of Yucca Mountain.

5. Prompt efforts to develop one or more consolidated storage facilities.

Developing consolidated storage capacity would allow the federal government to begin the orderly transfer of spent fuel from reactor sites to safe and secure centralized facilities, independent of the schedule for operating a permanent repository. The arguments in favor of consolidated storage are strongest for “stranded” spent fuel from shutdown plant sites; of which there are ten across the country. Stranded fuel should be first in line for transfer to a consolidated facility so that these plant sites can be completely decommissioned and put to other beneficial uses. Looking beyond the issue of today’s stranded fuel, the availability of consolidated storage will provide valuable flexibility in the nuclear waste management system that could achieve meaningful cost savings for both ratepayers and taxpayers when a significant number of plants are shut down in the future. They can also provide back-up storage in the event that spent fuel needs to be moved quickly from a reactor site, and would provide an excellent platform for ongoing R&D to better understand how the storage systems currently in use perform over time.

6. Prompt efforts to prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available.

The current system of standards and regulations governing the transport of spent fuel and other nuclear materials appears to have functioned well, and the safety record for past shipments of these types of materials is excellent. (According to the American Nuclear Society, “Over the past 40 years, about 3,000 shipments of spent nuclear fuel have navigated more than 1.7 million miles of U.S. roads and railways. Of all this travel, no radioactive materials have been released to contaminate the environment as a result from an accident.”)

That being said, past experiences in the United States and abroad, and extensive comments to the Commission, indicate that many people fear the transportation of nuclear materials. Thus greater transport demands for nuclear materials are likely to raise new public concerns. This is why public education is key to this process.

At the same time, to allay these concerns while ensuring the highest levels of transport safety, the Commission recommended that State, tribal and local officials should be extensively involved in transportation planning and should be given the resources necessary to discharge their roles and obligations in this arena. Historically, some programs have treated transportation planning as an afterthought. No successful programs have done so.

7. Support for advances in nuclear energy technology and for workforce development.

Advances in nuclear energy technology have the potential to deliver an array of benefits across a wide range of energy policy goals. The benefits identified by the Commission—in light of the environmental and energy security challenges the United States and the world will confront this

century—justify sustained public- and private-sector support for RD&D on advanced reactor and fuel cycle technologies.

The Commission also recommended expanded federal, joint labor-management and university-based support for advanced science, technology, engineering, and mathematics training to develop the skilled workforce needed to support an effective waste management program, as well as a viable domestic nuclear industry. At the same time, DOE and the nuclear energy industry should work to ensure that valuable existing capabilities and assets, including critical infrastructure and human expertise, are maintained.

8. Active U.S. leadership in international efforts to address safety, non-proliferation, and security concerns.

As more nations consider pursuing nuclear energy or expanding their nuclear programs, U.S. leadership is urgently needed on issues of safety, non-proliferation, and security and counter-terrorism. From the U.S. perspective, two points are particularly important: First, with so many players in the international nuclear technology and policy arena, the United States will increasingly have to lead by engagement and by example. Second, the United States cannot exercise effective leadership on issues related to the back end of the nuclear fuel cycle so long as its own program is in disarray; effective domestic policies are needed to support America's international agenda.

Prompt Development of Storage and Disposal

Our Commission viewed these eight recommendations as an integrated set, which would be most effective if implemented as a complete package. But given the focus of today's hearing, I would like to delve deeper into our recommendations concerning prompt development of both repositories and consolidated storage facilities. While we recommended that this be done using a consent-based approach to siting, let me make it clear again that we were directed by the Secretary of Energy *not* to serve as a siting body, so we did not evaluate Yucca Mountain or any other location as a potential site for the storage of spent nuclear fuel or disposal of high level waste, nor did we take a position on the Administration's request to withdraw the Yucca Mountain license application. Instead, we recommended what we regard as a sound waste management approach that can lead to the resolution of the current impasse; an approach that neither includes nor excludes Yucca Mountain as an option for a repository and can and should be applied regardless of what site or sites are ultimately chosen to serve as the permanent disposal facility for America's spent nuclear fuel and other high-level nuclear wastes.

Consistent with this position, our final report concluded that, "The approach laid out under the 1987 Amendments to the Nuclear Waste Policy Act—which tied the entire U.S. high level waste management program to the fate of the Yucca Mountain site—has not worked to produce a timely solution for dealing with the nation's most hazardous radioactive materials." At this point, with key decisions by the courts and the NRC still pending, the future of the Yucca

Mountain project remains uncertain, and the 1987 Amendments made no provision for an alternative path forward if Yucca Mountain proves untenable for any reason. Consequently, in view of the stalemate over Yucca Mountain and the fact that under current law, the United States will need to find a new disposal site even if Yucca Mountain goes forward, a main focus of our policy recommendations was “Prompt efforts to develop one or more geologic disposal facilities.” We concluded that site identification, characterization, and licensing for a geologic repository using the consent-based approach we recommended might be accomplished in 15 to 20 years, i.e. by 2030-2035 if we do not continue to delay. I should note here that the Administration’s spent fuel management strategy, developed in response to the Commission’s recommendations, envisions a longer timeframe with a repository put into operation by 2048. Based on other consent-based experience, it may be possible to get the job done sooner than that.

As a complement to a repository, to provide earlier acceptance of spent fuel and other benefits to the operation of the waste management system even after a repository is available, we also recommended “Prompt efforts to develop one or more consolidated storage facilities.” We concluded that a notional timeframe for siting and developing a consolidated storage facility would presumably be shorter than that for a repository, perhaps on the order of 5 to 10 years. I should note here that the Administration’s strategy, developed in response to the Commission’s recommendations, envisions a similar timeframe with operation of a pilot storage facility in 2021 and a larger-scale facility in 2025.

These recommendations should not be viewed as an “either-or” alternative to Yucca Mountain, but rather as a restoration of the much broader and robust approach to siting and operating storage and disposal facilities that existed prior to the 1987 Amendments, so that the ability of the US to meet its waste management obligations does not depend entirely on the fate of a single site.

Let me spend a few minutes discussing the importance of moving ahead with interim storage in parallel with work on a repository.

I believe, as did the Commission, that siting and developing one or more consolidated storage facilities would improve prospects for a successful repository program. First, the technical and institutional experience gained by siting, testing, licensing, and operating a consolidated storage facility, as well as planning for and executing a concurrent transport program, would greatly benefit repository development and operation, especially because all the activities involved (apart from those uniquely associated with underground disposal) would be the same. In addition, consolidated storage would provide the flexibility needed to support an adaptive, staged approach to repository development recommended as early as 1990 by the National Academy of Sciences and endorsed in our report. A consolidated facility would allow federal acceptance of spent fuel to proceed at a predictable, adequate and steady rate independent of the status of the repository—both before one is available and when it is in operation.

Impact of Consolidated Storage Waste Management System Costs

The BRC looked in some detail at the concern that consolidated storage could increase overall waste management costs. Because of the importance of this issue, the BRC commissioned an expert review of estimates of the cost of providing consolidated storage based on analysis of eight studies of this subject published since 1985.¹ I would like summarize a few key findings of that analysis today and submit the full report for the record to provide answers for any detailed questions you might have.

One of the most useful observations of this analysis is that the development of one or more storage facilities does not require, or even imply, an irreversible commitment to any particular long-term plan. All of the capabilities that would ultimately be desirable do not have to be developed at once, particularly since it is not clear at this time exactly what features will be needed over the many decades that such a facility or facilities would be in operation. A storage facility or system of facilities can be undertaken in a stepwise manner, as the need for expansion of capacity and capability becomes clearer, and as technological and other as-yet-unforeseen developments emerge. As the study of storage costs pointed out:

“Regardless of what decisions are made today, leaders in future years will have the opportunity to revise implementation strategies. Today’s decisions can increase the options available in the future, but do not prevent future modifications in light of changed circumstances. *Conversely, future decision makers finding themselves in need of centralized storage cannot implement the option if the developmental work has not been completed.*” (Emphasis added)

While the study concluded that there are a many uncertainties in attempting to estimate the long-term costs of consolidated interim storage, the initial cost to site, design, and license a storage facility is relatively low (in the range of \$50 to \$100 million), so that the money put “at risk” in giving future decision makers the option to proceed with construction and operation of a storage facility is small compared to the potential benefits from having that option available. While appreciable, these are small levels of commitment from the perspective of the overall spent fuel management program. At the same time, the study identified circumstances in which centralized storage facilities could lead to total nuclear waste management system savings on the order of billions of dollars. Siting, licensing, building and operating a storage facility with even limited initial capabilities would substantially resolve uncertainties about the costs and time required for these activities, including associated transportation needs, thereby providing a firmer basis for future decision-making with regard to potential expansion.

¹ Cliff W. Hamal, Julie M. Carey and Christopher L. Ring, “Spent Nuclear Fuel Management: How centralized interim storage can expand options and reduce costs,” May 16, 2011, available at http://brc.gov/sites/default/files/documents/centralized_interim_storage_of_snf.pdf.

In fact, it appears that direct cost considerations alone may provide a compelling reason to move stranded spent fuel as quickly as possible to even a limited initial consolidated storage facility. The review of interim storage casts found that the operation and maintenance costs for spent fuel storage at shutdown sites range from \$4.5 million to \$8 million per year per site, compared to an incremental \$1 million per year or less when the reactor is still in operation. Even assuming no further change in security requirements at shutdown sites, these cost estimates suggest that the savings achievable by consolidating stranded spent fuel at a limited centralized facility would be enough to pay much or all the cost of that facility. Consolidation would also allow any new safety or security measures that might be required in the future to be implemented more cost-effectively.

With these findings in mind, the Commission concluded that it would be prudent to pursue the development of consolidated storage capability without further delay, recognizing that there will be an opportunity to make course corrections later as needed.

Views on the Administration's Strategy

Development of consolidated storage capability was one of many of the Commission's recommendations incorporated into the Administration's January 2013 Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste. The Subcommittee asked that I provide my personal views on the Administration's strategy. On balance, I was pleased to see that the Administration's strategy embraces the spirit of the Blue Ribbon Commission's recommendations, from supporting a consent-based siting process and establishing a new waste management organization to conducting R&D on advanced fuel cycles. As noted earlier, the Administration's projected timeframe for establishing consolidated storage capability is generally consistent with the Commission's findings, though the Administration projects that development of a repository will take a decade-plus longer than the Commission believed is achievable.

I must say that I was disappointed, however, that the Administration's strategy does not adopt the non-legislative funding proposals included in the Commission report, in which we said,

“The Administration should work with the appropriate congressional committees and the Congressional Budget Office to reclassify receipts from the nuclear waste fee as discretionary offsetting collections and allow them to be used to offset appropriations for the waste program.”

Instead, the Administration recommends that all changes to the waste fee process be made legislatively. While legislation will eventually be required to fully implement the Commission's recommendations, we saw near-term non-legislative action as a valuable way for the Administration to signal seriousness of intent on the nuclear waste issue. In my view, the Administration has missed an opportunity here. But all told, the Administration's strategy is considerably better than the status quo.

Getting Started

Let there be no doubt that the status quo is unacceptable. We need prompt action to resume our federal nuclear waste management program. And as we pointed out in our report, work toward a consolidated storage facility can begin immediately under the existing provisions of the Nuclear Waste Policy Act, which authorize the federal government to site, design, license, construct, and operate a monitored retrievable storage facility. According to a legal analysis performed for the BRC, which I would like to submit for the record,² further legislative action would not be required prior to the designation of a storage site (and potentially not until the construction phase), at which time Congress would need to amend the Act to allow construction to go forward independent of the status of a permanent repository.

As with developing disposal capability, the critical challenge for consolidated storage will be finding a site or sites. Because the technical requirements for this type of facility would be less demanding than for a repository, finding a suitable location with an accepting host community may be less difficult, particularly if it is accompanied by attractive incentives. The Commission heard testimony indicating that potential host communities, states and tribes would be willing to participate in an open process that engages affected constituencies from the outset and gives them actual bargaining power. Nevertheless, the potential difficulty of siting consolidated storage and the need for a thoughtful approach to this task must not be underestimated. That is the reason that our first recommendation is for a new, consent-based approach to siting future nuclear waste management facilities. While there is no certainty about how long such a process might take, the only way to find out is to try it.

We must couple this siting effort with a renewed initiative to communicate broadly about the benefits and risks associated with the long-term management of spent fuel and high-level waste. In particular, I believe we must communicate effectively about the steps that are taken to ensure safety in the transport of radioactive wastes. During my service on the Commission I learned of the outstanding track record accumulated over decades of safe spent fuel shipments in the U.S. I firmly believe that an effective outreach program is essential to building public confidence that spent fuel and high-level radioactive wastes can be safely shipped, stored and disposed in the U.S.

Finally, let me call attention to the importance of giving the waste program access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management. Failure to do so could undermine key recommendations of the Commission. For example, the parallel storage and disposal programs we recommend could be in competition for limited funds instead of being mutually supportive, and a consent-based siting process that provides assurances to host

² Van Ness Feldman authorities memo

communities that a storage facility or repository will be a positive asset could be undermined if access to a source of funding for promised benefits is not assured.

In closing, let me thank you for this opportunity and reaffirm that I will be pleased to work with the Subcommittee in any way that we can to help put the U.S. high-level nuclear waste management program back on a path to success.