Sustainable Fuel Cycle
TASK FORCE
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Sustainable Fuel Cycle Task Force Science Panel

May 22, 2013

Subject: Sustainable Fuel Cycle Task Force Science Panel Comments on the Draft Nuclear Waste Administration Act of 2013

To: U.S. Senate Committee on Energy and Natural Resources

The Science Panel of the Sustainable Fuel Cycle Task Force appreciates the opportunity to provide comments on the draft Nuclear Waste Administration Act of 2013. Today, the legislatively mandated geologic disposal program has been suspended, not by Congress, who hold the legitimate authority to do so, but by powerfully placed individuals. To scientists, such as those comprising this panel, who have worked for many decades to provide a scientifically sound approach for safely managing and disposing of the nation's used nuclear fuel and high-level radioactive wastes, any effort to address the mired high-level radioactive waste disposal program is seen to have merit. Failure to act expeditiously exacerbates two situations. Fuel in storage at closed reactor facilities continues to incur unanticipated costs for monitoring and control. Operating nuclear reactors, with no disposal pathway for the used nuclear fuel, must continue to place it in dry storage with significant repercussions; economics drive the utilities to use ever larger storage systems, and storage costs are passed on to tax payers because the disposal costs have already been borne by rate payers. Rapidly growing additional costs and impacts appear to be inevitable; large disposal canisters, which likely could have been handled at Yucca Mountain, might need to be repackaged for placement in a different repository.

The significance of the bi-partisan efforts of the Senate Committee on Energy and Natural Resources to tackle the nuclear waste disposal stalemate is noteworthy. We agree with the fact that the draft bill does not eliminate the Yucca Mountain project from consideration, as we support continuing the licensing process by the Nuclear Regulatory Commission, as well as proceeding with a consent-based siting process for the NWPA authorized second geologic repository.

The draft Nuclear Waste Administration Act of 2013, however, does not address sufficiently the significant technical and institutional challenges and consequences inherent in an approach to implement the recommendations of the Blue Ribbon Commission on America's Nuclear Future and the Secretary of Energy's *Strategy for the Management and Disposal of Used Nuclear Fuel and High-level Radioactive Waste.* A principal concern is that once again mandated schedules, which do not take into account historically, encountered legal complexities and unanticipated findings during site exploration, form the backbone of the approach embodied in the draft bill. Consider first Sec. 504(b)(2) which requires … *schedules and milestones for carrying out the functions of the Administrator, which shall provide for the operation of: (A) a pilot facility not*

later than December 31, 2021; (B) a storage facility for nonpriority waste not later than December 31, 2025; and, (C) a repository not later than December 31, 2048. The challenges to meet the 2021 date for an operational pilot storage facility include: passing new nuclear waste legislation; overcoming or addressing existing House support for Yucca Mountain; changing the longstanding focus from disposal to storage; changing the funding concepts embodied in the Nuclear Waste Policy Act to allow the fund to be used to focus on interim storage; reversal of longstanding Congressional policy not to give final veto or consent authority to a state and to reserve to Congress the authority to override a state or tribal disapproval; promulgating interim storage facility siting regulations to reflect the new policies after changes to policy and law; completing already underway changes to storage and transportation regulations, possibly incorporating changes to reflect changes to waste disposal law; promulgating new repository siting regulations, recognizing the interim storage facility is to support repository development; identifying volunteer sites, negotiating agreements and receiving Congressional approval for negotiated benefits packages; and designing, licensing, and developing the pilot interim storage facility, including addressing legal challenges. To address concerns often voiced about perceived shortcomings of the Nuclear Waste Policy Act program, many of these challenges must be tackled sequentially; for example, the regulations should not be developed before the legislative policy is finalized, and siting ought not begin before the regulations are finalized, including legal challenges.

To argue that this can be accomplished by 2021 ignores historical precedent. Consider, for example, the promulgation of new regulations. The initial Environmental Protection Agency and Nuclear Regulatory Commission regulations were promulgated over a period of seven years and remanded following challenge; the program was without even generic regulations for nearly six years until Congressional action forced those agencies to promulgate regulations. Following Congressional direction in the Energy Policy Act of 1992, it took until 2002 for the Environmental Protection Agency and the Nuclear Regulatory Commission to develop site specific regulations for Yucca Mountain and until 2009 to address the remands and finalize them. An argument that it will be easier to promulgate new regulations because of experience gained is unsupportable; constituents that oppose nuclear power have become more effective with time in impeding progress in such rulemakings.

Everyone wants a fair and scientifically based process that allows all stakeholders ample opportunity to participate and appropriately intercede in nuclear waste decisions. Perhaps the draft bill ought to recognize that the price of allowing open and full participation in the process is time; allowing several decades to reach a fair, equitable, and safe conclusion is not unreasonable. Performance milestones may be reasonable to the extent that they only serve as a trigger to allow ongoing monitoring and maintenance to be paid from the Working Capital Fund and / or the Nuclear Waste Fund. Payments from utilities should continue without regard to any specific milestone. In this manner, utilities would pay for nuclear waste management only once. The nuclear waste lawsuits would end and focus could be on resolving the waste problem instead of focusing on arbitrary deadlines.

Another significant concern with the draft bill is the weak linkage in the draft bill between the interim storage facility and the repository. Referring to the milestone dates in the Secretary's *Strategy for the Management and Disposal of Used Nuclear Fuel And High-level Radioactive Waste*, the date for *siting* a repository is 2026, which is a year later than the consolidated interim storage facility is to be *operational*, according to the schedules of Sec. 504(b)(2). It is difficult to imagine a community volunteering to host a storage facility once it realizes that after the storage facility is operational and used nuclear fuel is being shipped, there is little incentive to continue pursuit of repository development. This fact was recognized prior to enactment of the Nuclear Waste Policy Act in 1982 and is a principal reason for the primacy of repository development in that Act. The requirements for making progress on repository development of the Sec. 306, *Linkage Between Storage and Disposal* and those of Sec. 504, *Mission Plan*, cannot effectively force repository development when all the Administrator has to do is assert that progress is being made siting a repository, and defend that by arguing that the repository does not need to be sited before the consolidated interim storage facility is to be operational.

The draft bill assumes that a consent-based repository site will be found and licensed with no political interference over the 30 to 40 years it likely will take to have an operating repository. A community contemplating volunteering needs only to look at the current situation. The Nuclear Waste Policy Act program was a bipartisan effort that addressed extremely difficult issues in its passage; today it sits suspended, awaiting the results of several lawsuits, owing to the actions of individuals, not Congress collectively, which is the true authority. Frankly, Congress's acquiescence to the will of individuals can only lead to mistrust in any commitment to follow through in development of a repository once an interim storage facility is sited.

The Blue Ribbon Commission recommendation for consent-based siting was patterned in large part after a European model where local communities had the authority to make commitments for development of a facility.

It goes without saying that several communities, including Nye County in Nevada and Lea and Eddy Counties in New Mexico to name but two have strong local support for nuclear facilities and have expressed this to Congress. It is clear that the State of Nevada has refused to even discuss a repository. It is not so clear for New Mexico, but the negative reception of the Blue Ribbon Commission at their hearing in Albuquerque certainly suggests that the northern part of the state, where its population centers are located, might not be quite so receptive to the idea. In the Nuclear Waste Policy Act the role of the states is correctly vested in the will of Congress collectively. That model is supported by recent research[1] into public support for siting used nuclear fuel facilities, which found that most of those polled ranked the majority of citizens residing within 50 miles of the proposed facility as the appropriate authority to block or veto a

[1] Jenkins-Smith, Hank C., Carol L. Silva, Kerry G. Herron, Evaristo "Tito" Bonano, and Rob P. Rechard, 2012, *Designing a Process for Consent- Based Siting of Used Nuclear Fuel Facilities–Analysis of Public Support*, The Bridge, National Academy of Engineering of the National Academies, Fall.

siting decision. Furthermore, a majority of voters in the state was ranked higher than the governor of the state as the deciding authority.

The Nuclear Waste Policy Act process that designated Yucca Mountain was skillfully crafted and succeeded (until politically derailed by the current Administration) over the objections of the State of Nevada because of carefully negotiated provisions that were designed to give the host state an opportunity to disapprove the site unless it was overridden by both Houses of Congress. The State of Nevada did disapprove, and both Houses of Congress overrode the disapproval, by large majorities. It is unlikely that any new consent-based process that does not include this Congressional pre-emption when necessary will ultimately prevail.

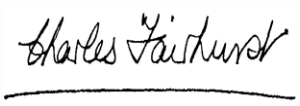
If Congress is serious about finding a solution to the nuclear waste problem in this country, the incentives issue should be addressed immediately with substantial benefits defined in Federal legislation before other, more controversial, changes to nuclear waste policy are addressed. Substantial benefits, valued on the order of $300 to $500 million per year for at least 50 years, may need to accrue to the appropriate entities where such facilities are located.

It is also important not to lose site of the fact that there is a viable repository site at Yucca Mountain, developed and designated in accordance with Congressional direction. The magnitude and diversity of geologic and engineering exploration of this site, and the extensive technical oversight that it has received by expert panels over the past three decades, is unprecedented. Siting and developing at any other location is uncertain and any schedule is highly speculative. The thirty-five year projection in the Secretary's *Strategy for the Management and Disposal of Used Nuclear Fuel and High-level Radioactive Waste* may well be optimistic. Yucca Mountain, after thirty-five years, was in the midst of the Nuclear Regulatory Commission licensing process when individuals chose to ignore federal law and stop work on the program. Before it was stopped, the Nuclear Regulatory Commission found the DOE license application to be complete and had issued one Safety Evaluation Report and several Technical Evaluation Reports that appear to agree with DOE's assessment in its license application indicating all safety requirements would be met by a wide margin. This Science Panel has in the past provided commentary and opinion pieces that are supportive of Yucca Mountain, and continue to believe that Yucca Mountain is a viable repository.

This country has been producing high-level radioactive wastes from reactors for nearly seventy years without overcoming the social/political obstacles such as those that have recently stopped progress on the Yucca Mountain geologic repository. To meet our needs for clean affordable energy, we need continued nuclear electric power. We must act responsibly now to provide a real disposal capacity and not just pass the environmental consequences of inaction on to future generations.

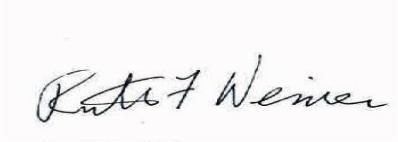
Our answers to the questions asked by the Committee, and a detailed analysis of sections of the draft bill are attached.

Yours sincerely for the Science Panel,



Charles Fairhurst, Ph.D.

D. Warner North Ph.D.



Ruth Weiner, Ph.D.

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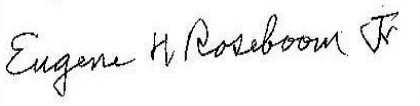

Eugene H. Roseboom Jr., Ph.D.

Sustainable Fuel Cycle Task Force Science Panel

Attachment:

Science Panel Responses to Draft Senate Bill Committee Questions

Considerations for locating storage facility sites

Should the Administrator take into account, when considering candidate storage facility sites, the extent to which a storage facility would: (a) unduly burden a State in which significant volumes of defenses wastes are stored or transuranic wastes are disposed of;

No. Congress should leave that detail to the Host State and Host Community to work out in a Consent Agreement with the Implementing Organization.

or (b) conflict with a compliance agreement requiring the removal of nuclear waste from a site or a statutory prohibition on the storage or disposal of nuclear waste at a site?

No. Congress should leave that detail to the Host State and Host Community to work out in a Consent Agreement with the Implementing Organization. It is expected that any Consent Agreement will have legally enforceable conditions within it that the hosts consider necessary and appropriate.

Alternatively, should the State and other non-federal parties seeking to site a candidate storage facility be allowed to determine whether they are unduly burdened?

Yes.

Should the final consent agreement, which would be sent to Congress for ratification, contain an authorizing provision to amend any conflicting compliance agreement or statutory prohibition?

No. When the Host State and Host Community reach a binding consensus hosting agreement, Congress should concur via an appropriate mechanism. Likely Appropriations or Budgetary language or whatever mechanism Congress deems appropriate.

Linkage between storage and repository

2. Should the bill establish a linkage between progress on development of a repository and progress on development of a storage facility?

Not specifically with a hard linkage. This is primarily a Host State issue and the Host State is capable to negotiate in the consent agreement whatever it deems necessary to host. It can be made meaningful and sustainable if it is in the form of a legally binding contract between the Hosts and implementing organization.

The legislation should however, clearly state that geologic disposal is the ultimate national goal and that interim storage alone is not a solution. Interim storage is an important management tool. The national program must have a parallel timely ultimate geologic disposal program along with an interim storage program. It is expected that any host state agreement will address the linkage specifics, and those specifics will become a legally binding linkage when the host agreement is ratified. Therefore, a meaningfully progressing geologic repository program will always be necessary. However, we believe it is counterproductive to a-priori to legislatively state a specific linkage independent of a specific host state negotiation.

If so, is the linkage proposed in section 306 of the bill appropriate, too strong, or too loose?

Neither. It should not be a Congressional matter at this point, however Congress will get to review and basically approve whatever agreement is presented after the Hosts and Implementing Organization come to an agreement that is presented to Congress.

If a linkage is needed, should it be determined as part of the negotiations between the state and federal governments and included in the consent agreement rather than in the bill?

Yes.

Separate process for storage facility siting

3. Should the bill establish separate storage and disposal programs with clearly defined requirements for each, with any linkage negotiated in the consent agreement between the federal and non-federal parties, to allow the two program to run on separate, but parallel tracks, as proposed in the alternative section 305 (which would replace section 304(b)-(g) of the draft bill)?

Congress should authorize three Projects: A First Repository (which is legally Yucca Mountain or somewhere else if Congress changes the 1982 Nuclear Waste Policy Act), a Second repository which can be sited using the consensus process and third, a consensus-sited Interim Storage Facility. No a-priori linkages. Let the Hosts work that to their satisfaction subject to final Congressional oversight.

4. To what extent should the siting and consensus approval process for spent fuel storage facilities differ from that for the repository?

The first repository is based on the NWPA process which lawfully resulted in Yucca Mountain. The Second repository and Interim Storage Facility can be the consensus based siting process.

Should the Administrator be required to conduct sufficient site-specific research (referred to as "characterization" in the bill) on candidate storage sites to determine if they are suitable for storing nuclear waste or only on candidate repository sites to determine if they are suitable for geologic disposal of nuclear waste?

For simplicity, keep it the same for both interim storage facilities and repository. Of course, site characterization for interim storage is relatively simple, whereas a repository is complex, but the principles are the same.

The Administrator be required to hold public hearings both before and after site characterization (as required by current law in the case of the Yucca Mountain site) or only before site characterization?

Public hearings are simple, so do both before and after to maximize public involvement.

Complexity of repository and storage facility siting processes

5. Should the siting process in section 304 of the draft bill be streamlined?

Yes.

If so, how?

There are only two requirements: a hosting agreement with the Host State/Local Community and the site meets the EPA & NRC environmental protection and public health and safety regulatory requirements to be able to get a license. Of course there is continual Congressional monitoring & oversight. Keep it simple to avoid unnecessary lawsuits and complications.

Governance of the Nuclear Waste Administration

6. Should the new entity be governed by a single administrator or by a board of directors?

Board of Directors

(a) If by a single administrator, should the administrator serve for a fixed term? If so, how long should the term of service be? Should the legislation prescribe qualifications for the administrator? If so, what should be the selection criteria?

(b) If by a board of directors, how many people should comprise the board and how should they be selected?

The Board of Directors (BOD) is the primary ruling body. The BOD hires and fires the CEO Head of the Agency (or Fed Corp or whatever it is called). There should be nine Board members that serve staggered seven year terms who are appointed by the President and confirmed by the Senate on a rotating phased basis like the Nuclear Regulatory Commission. There should be no more than six members of the same political party (NRC is 3). Board members should be selected based on the following criteria:

- Two member from entities that have contributed to the Nuclear Waste Fund
- One member who has served on a Public Utility Commission or equivalent
- One member selected from a list prepared by a Host State Governor
- One member selected from a list prepared by the local or regional host community
- One member with Naval Reactors experience
- One member with nuclear waste management experience
- One member selected from a major environmental organization.
- One scientist recommended by the National Academy of Sciences on the basis of international expertise in repository site selection and evaluation.

7. The Blue Ribbon Commission recommended establishment of both a board of directors for management oversight (whose "primary role ... is not to represent all stakeholder views, but rather to carry out fiduciary responsibilities for management oversight") and "a larger and more widely representative stakeholder advisory committee." The draft bill responds to these recommendations, first, by establishing a Nuclear Waste Oversight Board of senior federal officials and, second, by authorizing the Administrator to establish advisory committees. Should the Oversight Board and advisory committee be combined into a single body to perform both management oversight and stakeholder representation functions?

The Bill should make very clear between supervisory roles and advisory roles. Our recommended BOD has direct responsibility for the program and is the only direct authority over the program. The BOD can establish advisory panels and boards as it sees fit. The whole program has direct strong independent external oversight by the EPA/USNRC for public health and safety and environmental protection. It also operates under host state laws and a consensus host agreement. It has Congressional oversight through the BOD confirmation process and some budgetary oversight. It should also have an independent Inspector General function and independent financial audits (like the Nuclear Waste Fund audit).

Given the importance of maintaining public confidence for the success of the program, we recommend continuance of the Nuclear Waste Technical Review Board to provide periodic public reports. But in general, excessive layers of oversight can become counter-productive to progress and serves no useful function other than added expense and delays.

Should the focus and membership of any advisory committees be established in the legislation or left to the Administrator?

Yes. The BOD can add whatever they want.

8. Dr. Meserve testified in 2012 that representatives of stakeholders and public utility commissioners should be added to the Nuclear Waste Oversight Board. Would these additions make the Board better able to carry out its fiduciary oversight mission effectively?

See response to Question 6.