Sustainable Fuel Cycle
TASK FORCE

**Sustainable Fuel Cycle Task Force Science Panel**

March 3, 2022

Dr. Kim Petry
Acting Deputy Assistant Secretary
for Spent Fuel and Waste Disposition
U.S. Department of Energy
Office of Nuclear Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

*Submitted via consentbasedsiting@hq.doe.gov*

Subject: Science Panel of the Sustainable Fuel Cycle Task Force Response to DOE's RFI on Using a Consent-Based Siting Process to Identify Federal Interim Storage Facilities, 86 Fed. Reg. 68,244 (Dec. 1, 2021)

Dear Acting Deputy Assistant Secretary Petry:

On behalf of the Science Panel of the Sustainable Fuel Cycle Task Force [1] we are pleased to provide DOE with the requested information regarding how to move forward our Nation's currently stalled nuclear waste program. As discussed more fully in the attachment to this letter, we applaud and support DOE's issuance of the Request of Information and outreach efforts to establish an integrated waste management system to support the advancement of nuclear energy to meet our nation's needs for safe clean and environmentally sound energy.

It is our opinion, that the science behind Yucca Mountain was conducted to the highest standards, has withstood countless peer reviews, and is sound such that the nearly finished licensing process should be completed. However, we also realize that within the current DOE political situation that this not possible, thus we strongly support proceeding in parallel with possible alternate approaches, such as Consent Based Siting of permanent geologic disposal facilities and integrated interim storage facilities.

The fundamental core of a nuclear waste management system, and the heart of the Nuclear Waste Policy Act, is permanent geologic disposal. Interim storage is an important positive addition, but it is only an initial receipt/storage bridge to the ultimate solution. And to be interim, DOE must have a timely parallel credible geologic disposal siting program to make it truly interim. Thus, we urge DOE to expand their consent-based program to include geologic disposal as well. We realize there are legal uncertainties that must be addressed, but we believe there are ways that this can be accomplished if DOE tries. It will be extremely difficult to convince

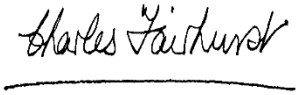
[1] The Science Panel of the Sustainable Fuel Cycle Task Force is a group of senior scientists who have worked for decades to provide a scientifically sound approach for safely managing and disposing of used nuclear fuel and high-level radioactive wastes. More information is available at our website at http://www.sustainablefuelcyclesciencepanel.org/#/homepage.

communities that interim storage facilities are truly temporary if there is no meaningful companion disposal program moving forward together.

We also strongly support DOE moving forward promptly with providing funding for interested communities who may respond to the RFI and wish to learn more.

It is the collective view of our Panel that it is essential that we move forward with implementing our national integrated waste management program and leave our country a better place for future generations. Saddling our children and grandchildren with spent nuclear fuel in dozens of temporary storage locations across the country adjacent to our rivers, lakes, and seashores along with endless financial liabilities for engineered storage is irresponsible. We need to act, and the time is now.

Yours sincerely for the Science Panel,



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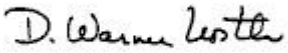
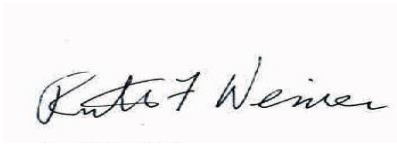


D. Warner North Ph.D.



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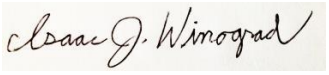

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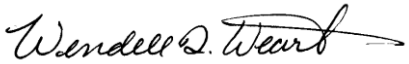

Wendell Weart, Ph.D.

John Kessler, Ph.D.

Attachment to March 3, 2022, Science Panel of the Sustainable Fuel Cycle Task Force RFI Letter

**Responses to Specific DOE RFI Questions**

In addition to the below specific responses, we have also attached our July 28, 2016, responses to the DOE IPC that addresses many of the same issues that are now requested and responded to below.

**Area 1: Consent-Based Siting Process**

1. *How should the Department build considerations of social equity and environmental justice into a consent-based siting process?*

   Reach out with honest communications, listen to the communities' concerns, and dialog with communities about how partnerships can be mutually developed to address any concerns and advance whatever interests that the communities may need and desire. Working with communities to fulfil cultural needs, power sharing arrangements, educational development, benefits, and infrastructure enhancements are all mutual opportunity areas for an effective positive host-facility relationship.

2. *What role should Tribal, State, and local governments and officials play in determining consent for a community to host a federal interim storage facility?*

   Whatever role the community structure wishes them to have in a representative democracy. DOE should listen to all points of view and adapt through dialog and discussion.

3. *What benefits or opportunities could encourage local, State, and Tribal governments to consider engaging with the Department as it works to identify federal interim storage sites?*

   DOE should provide information on what a possible interim storage facility would technically look like in a very general sense. It should also provide suggestions of what benefits and safety and environmental protection assurances could be provided if asked by the community. Colocation of other advanced research and development safety centers, educational partnerships, land utilization, and whatever topics a community might wish to have an interest in. DOE should be prepared to discuss whatever issues a community wishes to discuss.

   DOE should be prepared to assist the community in exploring new governance and ownership arrangements other than DOE. An example might be the replacement of DOE with a joint venture public service corporation that includes host communities within the governance structure.

4. *What are barriers or impediments to successful siting of federal interim storage facilities using a consent-based process and how could they be addressed?*

   The lack of a credible geologic disposal program to eventually remove the stored radioactive materials for permanent disposal. DOE must provide a credible realistic disposal program that meaningfully proceeds in parallel to assure the community that the interim storage is truly "interim."

   The involvement of the DOE organization, which has a varied history of being a dependable partner to achieve mutual success, is a barrier. DOE should be willing to work with the community to develop a replacement DOE organization with a community desired and better functional organizational ownership/governance structure. The goal would be to jointly propose the new structure to be included in the necessary amendment to the Nuclear Waste Policy Act.

5. *How should the Department work with local communities to establish reasonable expectations and plans concerning the duration of storage at federal interim storage facilities?*

   Listen to what communities want and discuss with them how their needs for assurance can be achieved. Application of commercial contracts with host communities is a sustainable approach to address community schedule expectations. Appropriate contractual conditions, with compensatory actions for failures, is a approach to ensure that commitments are achieved in a manner that is satisfactory to the community.

6. *What organizations or communities should the Department consider partnering with to develop a consent-based approach to siting?*

   DOE should listen to community views regarding organizations that should be involved. Non-aligned independent organizations, such as local or regional respected academic institutions, might be the most useful and trusted by the host communities.

7. *What other issues, including those raised in the Draft Consent-Based Siting Process (www.energy.gov/sites/prod/files/2017/01/f34/Draft Consent-Based Siting Process andSiting Considerations.pdf), should the Department consider in implementing a consent-based siting process?*

   Please see our July 16, 2016, comments at the end of this attachment.

**Area 2: Removing Barriers to Meaningful Participation**

1. *What barriers might prevent meaningful participation in a consent-based siting process and how could those barriers be mitigated or removed?*

   Trust concerns are likely and honest and open communications with communities to listen, explain and inform will be critical. Anti-nuclear "no solution" groups will likely wage "scare" campaigns to try to intimidate local elected officials with biased part truth information to attempt to prevent or terminate meaningful discussions. DOE needs to enhance its communications capabilities to be able to withstand unfounded emotional political attacks with accurate and timely science based information that is understandable to the public.

2. *What resources might be needed to ensure potentially interested communities have adequate opportunities for information sharing, expert assistance, and meaningful participation in the consent-based siting process?*

   DOE should support reasonable requests from organizations that the community trusts and wishes to engage for independent support. This independent support should generally not be active nuclear nor anti-nuclear organizations. Such organizations may include colleges and universities, professional societies (e.g., ANS, ASME, HPS), and pragmatic environmental organizations that the community may be familiar with.

   DOE should look to existing successful nuclear facility/host community relationships for guidance. Many commercial reactors have had decades of good relationship experiences with local and regional/state level hosts. It would likely be very beneficial for possible CBS interested communities to visit existing national and international nuclear facility communities to witness for themselves how positive hosting arrangements can be developed and operated.

3. *How could the Department maximize opportunities for mutual learning and collaboration with potentially interested communities?*

   Extensive outreach activities and financial support for interested communities to learn for themselves. Funding should be provided as soon as possible.

4. *How might the Department more effectively engage with local, State, and Tribal governments on consent-based siting of federal interim storage facilities?*

   Emphasize possible new non-DOE partnership governance arrangements that can be adjusted to local, State and Tribal desires. DOE should leverage the range of benefits and power sharing possibilities available from the federal government to encourage State cooperation.

5. *What information do communities, governments, or other stakeholders need to engage with the Department on consent-based siting of federal interim storage facilities?*

   DOE needs to be able to explain what a general sense of the facility would be. Invite and take the community leaders, if they want, to see similar existing domestic and international nuclear facility sites. DOE should directly support communities and governments to have the ability and resources to develop their own information independently, rather than being forced to rely on federal government experts or activists alone.

**Area 3: Interim Storage as Part of a Waste Management System**

1. *How can the Department ensure considerations of social equity and environmental justice are addressed in developing the nation's waste management system?*

   Listen to interested communities about their concerns and desires. This of course has a sense of the past and well as the present. Regardless of the past and present, both the DOE and community want the future to be better with respect and social equity and environmental justice. Let the community start with what they believe would be a fair just approach for taking the next steps to consider some productive fair relationship. The potential host communities are in the driver's seat and DOE need to adjust to their views of equity and justice.

2. *What are possible benefits or drawbacks to co-locating multiple facilities within the waste management system or co-locating waste management facilities with manufacturing facilities, research and development infrastructure, or clean energy technologies?*

   This solely depends upon the dialoging communities' desires. In general, the benefits of co-location of other desired facilities are all positive for everyone. The only drawbacks could be the loss of jobs at some other existing location or the potential increase in cost to DOE or whomever the responsible owner organization is.

3. *To what extent should development of an interim storage facility relate to progress on establishing a permanent repository?*

   Likely very much. How much, is in the view of the potential host community and how they assess the likelihood of the fuel being removed at an appropriate time. And their assessment of the sufficiency and sustainability of any commitments being provided, and the reliability of the actions stated if the commitments are not met.

   Any created functional CBS Interim Storage arrangement will require a revision to the Nuclear Waste Policy Act. Traditional statutory changes alone may not provide the host community with sufficient protections as there is an unfortunate history, especially with Federal-Tribal agreements, where the Federal government did not perform as promised. Thus, additional community protections, such as those provided by commercial contracts, will likely be necessary. Exactly what these are will need to be jointly developed to the eventual satisfaction of the community.

4. *What other issues should the Department consider in developing a waste management system?*

   The fundamental core of a national waste management program is passive safe and environmentally protective geologic disposal. Integrated interim storage is now a valuable addition to our overall waste management program because of the unfortunate significant political delays in implementing geologic disposal. An early initial Interim Storage facility closely coupled with a relatively near-term geologic disposal facility, provides an opportunity to divide functions in an integrated manner to better accommodate community desires with national needs. For example, some classical disposal functions could be shifted to the Interim Storage facility if the host community so desires the additional economic activity. Such functions could include:

   - Manufacturing and installation of the engineered waste package (which was done in Sweden)
   - Transportation equipment manufacturing, maintenance, and operations
   - Confirmatory science and engineering functions for transportation safety, nuclear fuels development, nuclear materials recycling, and advanced materials manufacturing technologies.

DOE, in a dialog with interested communities, should be prepared to discuss locations of DOE sponsored Office of Science activities to be collocated with an Interim Storage facility. In addition, if the interested community is in the vicinity of an existing DOE cleanup site, then DOE should be prepared to discuss modifications to existing cleanup agreements to accelerate cleanup goals, if the community so desires.

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**Sustainable Fuel Cycle Task Force Science Panel**

July 28, 2016

U.S. Department of Energy, Office of Nuclear Energy
Response to IPC
1000 Independence Ave SW
Washington, DC 20585

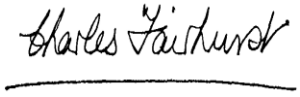
The Science Panel of the Sustainable Fuel Cycle Task Force is pleased to provide its response to the U.S. Department of Energy's *Invitation for Public Comment to Inform the Design of a Consent-Based Siting Process for Nuclear Waste Storage and Disposal Facilities*.

As scientists who have independently worked for many decades to support a sound approach for safely managing and disposing of our nation's used nuclear fuel and high level radioactive wastes, it is our view that the decades of extensive international scientific analyses support moving forward promptly to establish an operable geologic disposal repository. In theory, we support the proposed concepts expressed, however this should not be used as an excuse to not finish the nearly complete licensing process for the Yucca Mountain site. Thus we strongly recommend that these concepts be added as a supplement to the continuation of the Yucca Mountain licensing process rather than to replace it.

It is the collective view of our Panel that the need for progress to promptly develop a geologic repository is more critical now than ever. Used nuclear fuel accumulations at both shutdown and operating reactors continues to grow imposing significant societal burdens; disposal of defense high level radioactive waste needs are not being met; and important legal contractual obligations and state agreements are not being achieved. In addition to restarting Yucca Mountain licensing, we note the need for urgent action expressed by the Blue Ribbon Commission (BRC). The BRC did not preclude continuing Yucca Mountain licensing and we believe continuing the Yucca Mountain licensing review is the most reasonable and prudent means to address this issue with a sense of urgency. We strongly believe that the legally mandated Yucca Mountain licensing process should continue now and that the addition of proposed consent based concepts can help with Yucca Mountain and with the establishment of other future waste management facilities such as supplemental Interim Storage facilities and a potential second geologic repository as stated in the Nuclear Waste Policy Act. We urge the NRC and DOE to now be proactive and move forward with both Yucca Mountain licensing and development of consensus concepts rather than accept the unrealistic unscientific politically motivated inaction excuses of the past few years.

Detailed responses to the requested questions are attached.

Yours sincerely for the Science Panel



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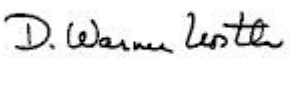

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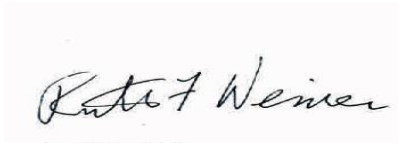

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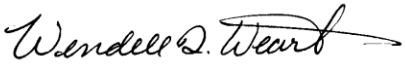

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Attachment to July 28, 2016, Letter
U.S. Department of Energy, Office of Nuclear Energy,
Response to IPC

Sustainable Fuel Cycle Task Force Science Panel, Response to Invitation for Public Comment to Inform the Design of a Consent-Based Siting Process for Nuclear Waste Storage and Disposal Facilities

**How can the Department ensure that the process for selecting a site is fair?**

A definition of "fair" is difficult because it is a value judgement that means different things to different people. To us a "fair" process is one that is open, transparent, and defined and once established should not be altered by any party, including the federal legislative and executive branches.

**What models and experience should the Department use in designing the process?**

The business community affords examples with siting of industrial facilities. Agreements are made with local and state governments and confirmed by contracts.

The experience of the WIPP is relevant, as is that of other countries such as Sweden, Finland, UK, Canada, Switzerland, and Spain. All societal experiences are different and there has been considerable difficulties in successfully implementing a theoretically desirable consensus process in the real world where there are strong emotional, but often un-scientifically based fears.

**Who should be involved in the process for selecting a site, and what should be their role?**

Any person or group that wishes to be involved can provide their views, however the host landowner/applicant, local government, and state governments are the primary entities that should formally be consulted with. Consensus does not mean that everyone agrees because there will always likely be some group of people that will oppose any solution anywhere. All are listened to, but only the actual applicant and local and state governments are the parties that should have to agree to provide a consensus agreement.

**What information and resources do you think necessary to facilitate your participation?**

All information should be available to everyone. For example, the NWPA Licensing Support Network (LSN) established by NRC and populated by NRC, DOE, and Sate of Nevada, is an example of providing all information to members of the public. DOE could establish such an LSN concept from the very beginning of site selection all the way to site closure. Hopefully a future LSN type system would be more user friendly from a computer software aspect, for simpler access by the general public. But the principles of information availability and transparency are the same.

Local governments should be provided educational grants to study options and participate. No other funds need to be paid to special interest groups.

**What else should be considered?**

Safety and environmental protection are provided by NRC and EPA regulations, so nothing else is needed other than a willing applicant and a working arrangement that the applicant has made with the willing local and state hosts.

***Questions for Input***

***(1) How can the Department of Energy ensure that the process for selecting a site is fair?***

Fairness is a difficult definition because siting involves tradeoffs between various aspects of an integrated waste management system. Positive aspects in one part may not be positive in another, especially when it includes emotional aspects such as "my back yard" versus "your back yard.' So whatever process DOE selects should be adhered to over time so that everyone knows the rules and the process at all times.

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***(2) What models and experience should the Department of Energy use in designing the process?***

The creation of and implementation of the Nuclear Waste Policy Act provides considerable positive and negative experience.

Currently the main obstruction to a consensus on the Yucca Mountain repository is from the State of Nevada. The NWPA addressed the right of the host state to "disapprove" the site and that the site was terminated unless it was over-turned by positive votes by the House and Senate and President.

*The Concept of Consultation and Cooperation:* section 117(b) of the Act includes provisions for a Consultation and Cooperation agreement: "…. the Secretary shall consult and cooperate with the Governor and legislature of such State and the governing body of any affected Indian tribe in an effort to resolve the concerns of such State and any affected Indian tribe regarding the public health and safety, environmental, and economic impacts of any such repository." And section 117 (c) "…. the Secretary shall seek to enter into a binding written agreement."

Thus, the NWPA already has elements of a consensus program within it and it started out fairly well, however the truncation of sites being evaluated in 1987 made the Federal-Nevada relationship very difficult in the end. This truncation was an example of changing the process for site selection after the process had begun that undermined the federal-affected units of local government relationships.

At some point, however, a national decision has to be made and implemented and a societal decision has to be made. In our view, if the site has been found by an independent regulator, such as the NRC, to technically meet all protective safety and environmental requirements in a publicly open and transparent process, and the sponsor of the site, such as the federal government or commercial sponsor, has made a good faith effort to establish a consensus relationship with the Local and State hosts, then a State or Local government should not have an absolute veto over the facility without a reason other than "we don't want it here".

***(3) Who should be involved in the process for selecting a site, and what is their role?***

The Federal government and host landowner/applicant, local government,
and state government. There is no need for others.

***(4) What information and resources do you think would facilitate your participation?***

Just a publicly open and transparent process is all that we would need.

### *(5) What else should be considered?*

Implicit in the answer to each of the above questions is the assumption that the proposed disposal site is undergoing (or has undergone) a reconnaissance study and potentially meets accepted technical criteria for spent fuel disposal. That is, a fair selection process is a necessary but not a sufficient criterion for site selection.

Additionally, whatever repository is to be considered, there should be applicable EPA and NRC protection standards established well in advance so that potential hosts understand what the levels of risk are and what they are potentially agreeing to. Such scientific and legal standards already exist for Yucca Mountain, but do not exist for other potential geologic repository settings. Thus, if there is to be a meaningful consideration of other geologic settings, the EPA and NRC should establish regulatory standards very early in the process because creation of such standards takes many years.