I. INTRODUCTION

A Federal Register notice was published by the U.S. Department of Energy (DOE) requesting public comment on the DOE's definition of the statutory term "high-level radioactive waste"(HLW).[1] Current definitions of HLW are set forth in the Atomic Energy Act (AEA) of 1954 and the Nuclear Waste Policy Act (NWPA) of 1982. DOE is requesting stakeholders submit comments on the HLW and non-HLW interpretation to explore waste disposition decisions. There is increased interest from stakeholders at Idaho National Laboratory (INL), Savannah River Site (SRS), and Hanford Site due to the large inventory of reprocessing waste managed as HLW at each site.

A subcommittee was formed during the October 2018 meeting of the Idaho Cleanup Project (ICP) Citizens Advisory Board (CAB) to evaluate the HLW reinterpretation issue. The subcommittee was tasked to provide an overview to the CAB members on the DOE Request for Public Comment on the U.S. DOE Interpretation of HLW and develop recommendations for the reinterpretation of HLW with respect to the waste at INL.

Recommendation development included review of various pertinent documents, some of which are discussed below, and verification of some factual information through relevant DOE representatives. The documents that we reviewed are presented in chronological order below.

II. BACKGROUND

a. Energy Communities Alliance September 2017 Report

The Energy Communities Alliance (ECA) published a report titled, "Waste Disposition: A New Approach to DOE's Waste Management Must Be Pursued", in September 2017. The ECA report evaluates DOE's environmental liability and risk from legacy waste cleanup efforts and waste management, specifically their management and classification of HLW throughout DOE sites. They analyze current DOE policies, such as DOE order 435.1 Radioactive Waste Management, and the lack of a pathway for HLW disposition. ECA observes and assesses the socially unacceptable DOE strategy of storing waste on site, benefits of transporting to the Waste Isolation Pilot Plant (WIPP) in New Mexico, and the problems associated with absence of a geological repository.

The ECA members provide a two-pronged approach for addressing problematic and/or currently orphaned waste streams around the DOE site:

1. An **administrative** approach that we use existing DOE authorities provided under DOE Order 435.1 to provide clarity in how waste is defined
2. A **legislative** approach to codify the statutory change in the legal definition [under AEC 1954 and NWPA 1982]

The ECA report evaluates five sites with HLW waste streams at West Valley Demonstration Project, SRS, INL, and Hanford. ECA members believe DOE activities of reclassifying and updating their policies and congressional activities can potentially allow for the waste to be

[1] 83 Federal Register Notice 50909

disposed of at WIPP. In summary, the report supports DOE efforts to reclassify the waste utilizing a risk-based approach rather than classifying the waste based on origin. Instead of managing all reprocessing waste as HLW, DOE needs to work towards managing it based on radiological characteristics. The ECA members provide five key recommendations for Congress and/or DOE to implement in the near term:

1. *Congress should develop legislation that clarifies the existing definition of high-level waste in the NWPA. Specifically, that wastes derived from reprocessing of spent nuclear fuel can be managed as "other than HLW." The legislation should require a literal reading of the Nuclear Waste Policy Act definition of high-level waste: "(12) (A) the highly radioactive materials […] that contains fission products in sufficient concentrations." Representatives from the communities in South Carolina have created draft legislation that is set forth in Appendix A (See: page 33).*

2. *DOE must immediately revise its radioactive waste management policy (DOE Order 435.1) to clarify that waste will be managed and dispositioned according to its characteristics, not its origin, consistent with 10 CFR Part 61 regulations. This will allow some waste currently managed as high-level waste to be more appropriately dispositioned as transuranic (TRU) or low-level waste (LLW).*

3. *DOE needs to immediately begin work with the State of New Mexico on a permit modification for the Waste Isolation Pilot Plant (WIPP) to remove the blanket prohibition on tank waste and wastes managed as HLW so that any TRU waste that meets the applicable requirements can be disposed of at WIPP.*

4. *Congress and DOE should provide full funding for WIPP capital asset projects (ventilation projects, shaft/conveyance) to support optimal use of WIPP, resumption of mining to increase capacity, and resumption of the full range of waste disposal capabilities.*

5. *DOE should begin work on a number of pilot projects and waste management policy decisions—including a planned pilot project to demonstrate feasibility of treatment and off-site disposal Hanford low-activity tank waste, and documenting the technical basis and plan for disposition of certain treated tank wastes at Savannah River and Idaho as TRU waste to WIPP—in order to make full use of the clarified HLW definition.*

b. INL Waste Streams – Calcine & Sodium Bearing Waste

We believe this introductory material presented makes the case for procedural and protocol changes in the manner the DOE Office of Environmental Management (EM) manages the various HLW streams at DOE facilities across the complex. Due to the complexity of these issues, and the limited scope of the ICP CAB charter, we have limited our discussion and subsequent recommendations to issues relevant to the two HLW waste streams at the INL: Calcine (4,400 m^3) and sodium-bearing waste (SBW) (900,000 gallons).

Calcine

INL's current Calcine Disposition Project (CDP) proposed path forward is to pneumatically retrieve the calcine from the existing material storage (CSSFs) and transfer it to the Integrated Waste Treatment Unit (IWTU) for treatment. There it will be blended with additives and processed in a hot isostatic pressing

(HIPing) system to immobilize the material. The HIPing process was identified as the preferred calcine treatment technology by DOE through the *National Environmental Policy Act* (NEPA) process, and documented in the resulting HLW Environmental Impact Statement (EIS) Amended Record of Decision (ROD), issued in December 2009. As envisioned, the HIPing process will produce a glass-ceramic waste form deemed suitable for disposition of HLW in a geologic repository, although the waste form has not been qualified yet for this specific application.

Subcommittee Conclusion: ***There are no existing transport containers certified and approved for this waste. There is no existing repository in the United States which could accept the treated waste. There are no repository waste acceptance criteria (WAC) currently prepared for this waste. Because there is no WAC, determining a treatment method and a disposition pathway for calcine is uncertain and problematic.***

Sodium-Bearing Waste

Liquid SBW at INL, generated from the decontamination of reprocessing facilities at the Idaho Nuclear Technology and Engineering Center (INTEC), is stored in three stainless steel 300,000-gallon storage tanks that are part of a tank farm of 15 tanks. DOE manages this liquid waste as HLW.

INL's Integrated Waste Treatment Unit (IWTU), located east of INTEC, is designed to convert the liquid to a solid, granular material using steam-reforming technology. It will then be packaged in stainless steel canisters and stored in concrete vaults at the site, due to no disposition pathway for HLW.

In 2008 INL utilized the waste incidental to reprocessing (WIR) 3116 closure plan on the SBW. Although NRC and DOE approved of the WIR plans for reclassifying it as transuranic waste, challenges have stalled the process from continuing.

Subcommittee Conclusion: ***Treatment of SBW supports the regulatory agreements between the DOE and state of Idaho. However, there are no existing transport containers certified and approved for this waste. There is no existing repository in the United States which could accept the resulting treated waste form. There are no repository waste acceptance criteria currently prepared for this waste. Because there is no WAC, determining a disposition pathway for SBW is also uncertain and problematic.***

c. Idaho Settlement Agreement

The Idaho Settlement Agreement (ISA), a 1995 document signed by the State of Idaho, U.S. Navy, and DOE is also relevant to the disposition of calcine and sodium bearing waste at the INL.[2] If DOE continues to manage calcine and SBW as HLW then they must comply with the ISA requirement that all HLW be road-ready by 2035.

III. RELEVANT IDAHO COMMENT LETTERS

[2] http://www.deq.idaho.gov/media/550338-1995_Settlement_Agreement.pdf

We read the Idaho Department of Environmental Quality's and Idaho Falls Mayor Rebecca Casper's letters of public comment. We believe that these comments certainly have merit and are worth including in this white paper:

The letter submitted by the State of Idaho Department of Environmental Quality is a coordinated effort between IDEQ, the Attorney General's Office, and the Office of the Governor. These entities are the major regulatory bodies in the state of Idaho on environmental issues and in relation to the Federal Register notice (83 FR 50909) these entities regulate the 1995 Settlement Agreement.

On behalf of these state offices, the comment letter displays overwhelming concern for DOE's past approaches and current proposal for reinterpreting high-level waste. The reasons are provided in a summary list below:

- DOE's non-compliance to a congressional directive, for providing a report by February 1, 2018 to Congress on the "Evaluation of Classification of Certain Defense Nuclear Waste". State of Idaho believes this report will include information regarding State of Idaho concerns on the HLW at the INL.
- Past approaches by DOE to reclassify high-level waste under Order 435.1 were unsuccessful and legally challenged by several states including Idaho. The court concluded the definition of HLW was established by Congress under the language of the Nuclear Waste Policy Act. Due to these past unsuccessful attempts, Idaho encourages DOE to work with the states and affected parties to resolve their concerns
- DOE's past approaches also incorrectly imply that DOE has sole authority and discretionary power to determine wastes that are high-level and non-high-level waste. Their approach to reclassify HLW, again, does not align with Idaho's position for treatment and a disposition pathway for waste located at INL. According to the letter, these offices affirm their position that DOE does not have this unilateral authority and cannot "reclassify" wastes that are already defined in the ISA.

Due to the State of Idaho's uncertainty surrounding the information provided by DOE in the Federal Register notice, and DOE's noncompliance to a congressional directive, and risks of re-classifying HLW, Idaho requests more information to evaluate the proposal and formal collaborative dialogue with DOE on State of Idaho concerns.

Points to consider as taken from Idaho Falls Mayor Casper's letter to U.S. Department of Energy Office of Environmental Management include the following:

- Using a science-based measure, i.e. "risk" makes far more sense as a waste disposition management tool than point of origin.
- Additional capacity at WIPP may need to be developed.
- Concerning the HLW definition conversation, the Department of Energy needs to be transparent and engage with the right officials in Idaho Falls, the Governor's Office, the Attorney General's Office, the Shoshone-Bannock Tribes, the Leadership in Nuclear Energy (LINE) Commission, Idaho Department of Environmental Quality, and the Citizens Advisory Board.
- The Idaho Settlement Agreement needs to be considered as changes are contemplated.
- DOE should address key details including clarification on how much quicker a site can be cleaned up based on the change in interpretation; the near and long-term benefits to a site; and how existing DOE/state regulator/EPA agreements will be changed (such as the ISA).

The State of Idaho's Public Comments

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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C.L. "Butch" Otter, Governor
John H. Tippets, Director

January 9, 2019

Anne White, Assistant Secretary
Office of Environmental Management
U.S. Department of Energy
1000 Independence Ave. SW
Washington D.C. 20585
Submitted via e-mail to: HLWnotice@em.doe.gov

Subject: State of Idaho Comments on U.S. Department of Energy Interpretation of High Level Radioactive Waste (83 FR 50909)

Dear Assistant Secretary White,

The Idaho Department of Environmental Quality (DEQ), in coordination with the Idaho Attorney General's Office and the Office of the Governor, provides the following comments on the U.S. Department of Energy (DOE) interpretation of the existing High Level Radioactive Waste (HLW) definition, as defined in the Atomic Energy Act of 1954 (as amended) and the Nuclear Waste Policy Act of 1982 (NWPA). These comments address the October 10, 2018, Federal Register announcement, "Request for Public Comment on the U.S. Department of Energy Interpretation of High-Level Radioactive Waste" (83 FR 50909 Document 2018-22002).

Specifically, as stated in Section B of the October 10, 2018, posting:
"The basis for DOE's interpretation comes from the AEA and NWPA definition of HLW:
(A) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient concentrations; and
(B) other highly radioactive material that the Commission, consistent with existing law, determines by rule requires permanent isolation."

Section B of the proposal further states:
"Therefore, under DOE's interpretation, waste resulting from the reprocessing of SNF is non-HLW if the waste
I. Does not exceed concentration limits for Class C low-level radioactive waste as set out in section 61.55 of title 10, Code of Federal Regulations; or
II. Does not require disposal in a deep geologic repository and meets the performance objectives of a disposal facility as demonstrated through a performance assessment conducted in accordance with applicable regulatory requirements."

Idaho is concerned about DOE's proposal for several reasons. First, it appears that DOE has not yet complied with Section 3139 of the National Defense Authorization Act for Fiscal Year 2018 (H.R. 2810), which required DOE to prepare and submit a report to Congress, not later than February 1, 2018, on the "Evaluation of Classification of Certain Defense Nuclear Waste." This report is required to include multiple specific evaluations, as listed under subsection b, which directly impact several State of Idaho concerns below. In the absence of this information the State cannot fully evaluate the ramifications of this proposal. Moreover, it seems premature for DOE to move forward with this proposal when it has not met the Congressional directive.

Next, it should be noted this approach to reclassification of HLW under the authority of Order 435.1 has already been attempted and proven unsuccessful. See, *Natural Resources Defense Council v. Abraham*, 271 F.Supp.2d 1260 (D. Idaho 2003) *vacated on other grounds*, 388 F.3d. 701 (2004). The Court in *Abraham* held that the definition of HLW was established by Congress and that DOE could not, via order, ignore the plain language of the Nuclear Waste Policy Act. Idaho, along with several other States, participated as *Amici* in that case due in part to the same concerns expressed below. Idaho encourages DOE to work with States and affected parties collaboratively to resolve these concerns.

Similar to the past approach, the current proposal outlined in the Federal Register appears to imply unilateral authority on the part of the DOE to determine what wastes are to be considered as HLW and non-HLW, irrespective of the position held by the states which host the affected waste streams. As the Court in *Abraham* put it succinctly, "These ''alternative requirements'' are not defined, and thus are subject to the whim of DOE." 217 F.Supp.2d at 1265. The current proposal's reference to "*performance objectives of a disposal facility as demonstrated through a performance assessment conducted in accordance with applicable regulatory requirements*" is equally vague and leaves too much discretionary power to the DOE to leave waste in place. This does not align with Idaho's position with respect to the requirements for treatment and disposition of certain waste streams currently located at the Idaho National Laboratory (INL). More specifically, Idaho will point out that DOE cannot "reclassify" wastes that are defined in in the 1995 Settlement Agreement and were the subject of that Agreement. This vagueness and the inherent risks it poses generate a significant, and unacceptable, level of uncertainty for the State.

DOE has also not provided sufficient detailed information concerning the process by which each individual waste stream will be evaluated for categorization as HLW and non-HLW. The State of Idaho is concerned regarding the lack of objective criteria for making waste determinations and, again, is concerned that DOE will make such determinations unilaterally. Additionally, documentation of technical requirements governing the conduct of performance assessments necessary to adequately characterize affected waste streams to ensure the protection of human health and the environment is also lacking at this time.

Based on the items identified herein, the State of Idaho is unable to fully evaluate the proposal outlined in the Federal Register.

Assistant Secretary White
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January 9, 2019

Prior to a decision to move forward with the proposed interpretation of the existing HLW definition, the State formally requests that DOE provide the information described above, followed by collaborative dialogue to address all State of Idaho concerns.

Sincerely,

John H. Tippets
Director

c: Brad Little, Governor of Idaho
Lawrence Wasden, Idaho Attorney General
Sam Eaton, Director of Policy / Assistant Legal Counsel
Darrell Early, Deputy Idaho Attorney General
Mark K. Clough, DEQ INL Settlement Agreement Coordinator

The City of Idaho Falls' Public Comments

OFFICE OF THE MAYOR

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IDAHO FALLS

January 9, 2019

Ms. Theresa Kliczewski
U.S. Department of Energy
Office of Environmental Management
Office of Waste and Materials Management (EM-4.2)
1000 Independence Avenue, SW
Washington, DC 20585

Via Email: HLWnotice@em.doe.gov

RE: Idaho Falls Comments on the October 10, 2018, *Federal Register Notice* - DOE's Interpretation of High-Level Radioactive Waste based on actual radiological characteristics and risk to human health

Dear Ms. Kliczewski,

The City of Idaho Falls appreciates the opportunity to provide input on DOE's consideration of high-level waste. As an active community member and leader, I am a strong proponent of the INL Nuclear Energy mission as well as the Idaho Clean-up Project. Mine is a community of scientists and data matter to us. This is why using a science-based measure, i.e. "risk," *makes far more sense as a waste disposition management tool than point of origin*. It strikes me that use of that particular categorization strikes me as a crude shorthand for risk that is no longer sufficient for a leading science-based entity like DOE.

My community supports DOE's efforts to study the impacts of making high-level radioactive waste (HLW) disposal decisions based on actual radiological characteristics and risk to human health rather than the current policy standards based on origin.

And further, my understanding is that this approach stands to benefit the entire DOE Complex by potentially allowing more waste to be placed on the slow-but-certain a WIPP path rather than on some other, stalled-and-uncertain path. Emplacing waste at WIPP reduces public risk sooner and that saves precious federal dollars. These are dollars that could be put to better use tackling the backlog of other EM-based radiological waste that DOE has yet to address across the country. My constituents also support that.

I do understand that additional capacity at WIPP may need to be developed and I am willing to stand up in support of this and add my voice to the proponents. Significant education is needed, but that is relatively inexpensive and everyone benefits when it occurs.

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Page 2. Comments on DOE's Interpretation of High-Level Radioactive Waste

Going forward, I look to DOE to be transparent and to engage the right officials in Idaho Falls and across the State of Idaho. This would include the Governor's Office, the Attorney General's Office, the Shoshone Bannock Tribes, and other state actors such as LINE and the DEQ. I also encourage you to work with my office and the CAB. We all have an excellent relationship with the DOE Idaho Operations office and anticipate that we will be kept on the same page at all times throughout this HLW definition conversation.

You will happily find that we all want what DOE wants—to move the waste to the smartest and best resting place possible as quickly and efficiently as possible. Yet, we do have the Idaho Settlement Agreement to consider in all of this. So timing is key and communication is essential as changes are contemplated.

As you determine next steps, I also encourage DOE to address the key details, such as clarifying how much quicker a site can be cleaned up based on the change in interpretation; the near and long-term benefits to a site; and how existing DOE/state regulator/EPA agreements will be changed (such as the ISA). Knowing these DOE estimates and expectations will enable us to have a more informed statewide conversation.

In the public's mind, leaving waste in place is tantamount to stranding it. This is a source of ongoing cynicism, distrust and frustration for all concerned. It would be so very welcome to see the Department undertake intelligent, cost-conscious actions that speed up the timeframe and ensure a path to disposal. This kind of action-oriented leadership, in my experience, is rare at EM and I both applaud and encourage it.

I appreciate your office taking the time to receive and consider these comments. You may feel free to contact me at 208-612-8235 or rcasper@idahofallsidaho.gov should you have questions or wish to talk. Respectfully submitted,

Rebecca Casper, Mayor
City of Idaho Falls

P.O. Box 50220 | 308 Constitution Way | Idaho Falls, Idaho 83405-0220

Additional Sources Consulted

1. Idaho High-Level Waste & Facilities Disposition Final Environmental Impact Statement
2. Independent Analysis of Alternatives for Disposition of the Idaho Calcined High-Level Waste Inventory Volume 1 – Summary Report
3. Energy Communities Alliance (ECA) Report – Waste Disposition: A New Approach to DOE's Waste Management Must be Pursued
4. Environmental Management Site-Specific Advisory Board Chairs Recommendation Regarding the ECA Report
5. Assistant Secretary for Environmental Management's Response to Chairs Recommendation Regarding the ECA Report
6. Request for Comment on the U.S. Department of Energy Interpretation of High-Level Radioactive Waste
7. Natural Resources Defense Council (NRDC) et al. Comments on Energy Department's Request for Public Comment on the Interpretation of High-Level Waste