

U.S. Nuclear Regulatory Commission
Chair Christopher T. Hanson
Remarks for the
Low-Level Radioactive Waste Forum Fall 2022 Meeting
October 12, 2022

Good morning, everyone. Thank you for the inviting me to engage with you today. I always appreciate the opportunity to connect and have a dialogue, especially on issues that are near and dear to my experience. The goal of this forum is to foster a discussion among stakeholders who have common goals to develop national policy and seek solutions on emerging and legacy issues. And I am excited to part of it. It's my pleasure to share my insights on some NRC initiatives with you this morning, as the agency is preparing for a range of possible futures.

While most of the attention and enthusiasm in the nuclear industry right now is focused on new, advanced nuclear, it is so important for our nation to set an example with regard to every aspect of the safe and secure handling of nuclear materials. Today my focus is on promoting the safe and efficient disposal of low-level radioactive waste and I look forward to your questions and having a comprehensive discussion.

INTRODUCTION

Let me first tell you about myself. My experience with nuclear is largely on the waste and materials side. I started my career as a consultant to state agencies in their collective interactions with the Department of Energy on cleanup of the Cold War environmental legacy sites.

I later served as a consultant for several government and private clients, focusing mainly on strategy, governance, and finance. For government clients, I oversaw the life-cycle cost estimate and developed financial and governance models for the Global Nuclear Energy Partnership, which dealt with closed fuel cycles.

In 2009, I joined the Department of Energy's Office of the Chief Financial Officer. I migrated to working for then Secretary Steven Chu, handling the Department's relationship with the Appropriations Committees on Capitol Hill.

I later had the privilege of working for Assistant Secretary for Nuclear Energy (and former NRC Commissioner) Pete Lyons as a senior advisor on waste and fuel cycle issues.

In 2014, I moved to Capitol Hill, where I handled all things nuclear on the Senate Appropriations Committee—cleanup and waste, nuclear energy and fuel cycle, and national security programs.

I started my tenure at the NRC in June of 2020, and I have embraced the efforts on risk-informed regulation, agency transformation, and diversity and inclusion. With these concepts in mind, I am focused on laying the groundwork for the long-term future of the agency. I want to make sure the NRC has the analytical tools and culture to regulate the evolving landscape.

GENERAL AREAS OF INTEREST

It's a very exciting, dynamic time for the agency and industry. We now have a full complement of commissioners. We recently welcomed Annie Caputo back to the Commission on August 9th and new Commissioner Bradley Crowell joined us on August 26th. The agency is currently adjusting to our new normal of a hybrid work environment. I won't enumerate the challenges of the pandemic here, but I want to acknowledge the NRC staff's efforts to make necessary adjustments to licensing, oversight, enforcement, and other activities throughout the pandemic. We made changes in a deliberate manner that preserved safety, openness, transparency, and public engagement as part of the agency's decision-making process. And we continue to leverage technology to advance our safety and security mission.

With the mission at the forefront of everything we do, I continue to believe that maintaining momentum on risk-informing our approaches is essential for the future of the NRC. It is more important today than ever. The NRC needs to be able to respond to the changing needs of our stakeholders. And we are doing so, in part, by risk-informing our licensing and regulatory approaches and focusing on agency culture to effectively respond to the evolving nuclear landscape, while making sure safety and security mission come first.

With that said, the NRC is preparing for advanced technologies in its reactor and materials programs as well as reactor decommissioning and waste safety. We have an aging existing fleet, some are entering decommissioning and some are continuing to optimize their operations and seeking to extend their licenses out to 80 years. Advanced reactors have the potential to greatly expand the economic-use cases for nuclear power. And we recently completed a design certification for the first Small Modular Reactor. With developments in fuels and materials, we have seen increased engagement on uranium enrichment, fuel fabrication, and transportation. And there is fusion on the horizon. There are also advances in nuclear medicine, with an expanding array of radioisotopes and treatment modalities. Agency preparations for the future must address all segments of the nuclear fuel cycle including unanalyzed waste streams from advanced reactors, as well as the full cradle to grave cycle of radioactive sources.

Finally, the security and incident response situation is constantly shifting, especially with regard to cyber security, international events, and domestic political polarization. Our partnerships across government—federal, state, tribal, local—are crucial to our security awareness and posture, emergency preparedness, and incident response.

I think the proper use of risk information complements safety and security. Sometimes risk-informing is associated with deregulation. I don't see it that way. From my perspective, it's about what is most safety significant. My perspectives on agency projects in the low-level waste arena are no different, and I encourage the staff to take a risk-informed approach on these initiatives.

WASTE SPECIFIC TOPICS

As mentioned, I have spent a significant portion of my career on nuclear waste issues and looked at waste from multiple angles—from both the executive and legislative branches of the Federal government as well as from the States' perspective.

The NRC is the safety regulator. Our mission is to regulate the nation's civilian use of radioactive materials in a way that protects public health and safety and the environment. In executing its mission, the NRC safeguards its independence and assures that the mission remains its most important priority.

As initiatives associated with low level waste continue to increase, it is important that the NRC maintain an open and transparent dialogue with all interested stakeholders. Let me touch on some of the waste initiatives ongoing at the NRC. Steve Koenick will update you on these in greater detail during his update on NRC activities.

Part 61 & GTCC rulemaking

I was pleased with Commission direction on the Part 61/GTCC rulemaking earlier this year. The NRC promulgated its original LLRW regulations in 10 CFR Part 61 nearly 40 years ago. I am sure you would agree, the low-level waste disposal needs have changed significantly since Congress passed the Low-Level Waste Policy Act in 1980. The waste streams generated today differ in quantity and concentration from those initially considered when the Part 61 regulations were first codified.

For instance, under the existing regulations, it is assumed that GTCC will be disposed of in a deep geologic repository for adequate protection of human health and the environment. However, NRC staff evaluations demonstrate that most GTCC waste streams are suitable for near surface disposal. Consistent with my vote on this issue, I believe that updating the overall LLRW regulatory framework to account for these evaluations while ensuring the protection of the public health and safety is warranted. Ultimately, my colleagues agreed, and the Commission directed staff to issue a proposed rule that consolidates integrated criteria for the licensing and disposal of GTCC waste with the ongoing Part 61 rulemaking effort.

The authority of Agreement States to regulate GTCC waste streams was one part of the larger rulemaking effort that garnered particular interest among stakeholders. The Commission approved staff's recommendation to allow for Agreement State licensing of those GTCC waste streams that meet the regulatory requirements for near-surface disposal. I am confident that with clear regulatory requirements, Agreement States can establish adequate and compatible

programs for GTCC waste streams and institute a consistent approach to LLRW disposal across the National Materials Program.

Another area of interest in the proposed rule concerned the performance objective and the use of data to make better risk-informed regulatory decisions. The Commission directed staff to take another look at the technical basis for the performance objectives for the post closure period and not assume an arbitrary compliance period, but a compliance period based on scientific data appropriate for the significant amounts of depleted uranium, GTCC, and TRU waste that are affected by this rulemaking. I look forward to seeing stakeholder feedback and the proposed rule package, which I expect to see in late 2023.

End of Life Management of Disused sources

The adequacy of planning for disposition of sealed sources has been a subject of discussion for decades. I know progress has been made in addressing commercial sealed source management and disposal challenges. Disposal options for most sealed sources classified as Class A, B, or C low-level radioactive waste are available, and there has been progress in addressing the lack of transportation and disposal options for the highest activity sealed sources.

But as your Disused Source Working Group noted, numerous obstacles to sealed source disposal remain, including high disposal costs, limited availability and high costs of Type B packaging, and inadequate planning for the full life cycle costs associated with sealed sources.

The Radiation Source Protection and Security Task Force (Task Force) evaluated this issue and recommended that action be taken to address the need for financial assurance or some other incentive mechanism for timely disposition of Category 1 and 2 sealed sources. Last December the Commission directed staff to initiate rulemaking to address financial assurance requirements for the disposal of Category 1 and 2 sealed sources.

Promulgating financial assurance requirements that address disposal of these high-risk sources will ensure 1) licensees are financially prepared for the costs of end-of life disposal, 2) safe and secure management of these sources by facilitating timely disposal when they are no longer needed, and 3) disposal costs are borne by those who received economic benefit from use of the sources. Codifying financial assurance requirements assures that the agency's regulatory requirements address the full life cycle for high-risk sealed sources. The Commission also recognizes the costs of disposal and directed staff to develop a risk-informed basis of the overall risk and total cost of disposal when determining the requirements. I look forward to seeing the results of the staff's work on this rule.

As a side note, I have taken a special interest in international activities since I was appointed as Chair. In 2018, the International Atomic Energy Agency issued its "Guidance on the Management of Disused Radioactive Sources." The guidance calls on member states to establish a national policy and strategy for the management of disused sources and the

implementation of management options such as recycling and reuse, long-term storage pending disposal, and returning disused sources to a supplier. The US supports the guidance and provides assistance to the IAEA activities on disused sources.

But lack of end-of-life management options for radioactive sources is an unsolved problem in many countries. Some countries lack the regulatory framework, infrastructure, and resources for end-of-life management of sources. There is also a lack of knowledge and experience for some countries. I don't have the solution or answers today, but it is something that has my interest and I plan to look into how the NRC can provide more assistance. I think we all agree that when sources are no longer needed or wanted, they need to be safely and securely disposed.

Spent Nuclear Fuel/Consolidated Interim Storage Facilities/Transportation

Let me shift gears and offer a few comments on Spent Nuclear Fuel.

Currently, SNF from commercial nuclear power plants is stored at 80 locations in the United States, primarily at operating or decommissioned plant sites in 36 states. This equates to more than one third of the U.S. inventory of SNF being in dry storage in approximately 3,300 casks at independent spent fuel storage installations or ISFSIs. Until an end-point strategy decision on final disposal is made, the NRC oversees licensees' management of spent fuel pools, ISFSIs, and consolidated interim storage facilities to ensure spent nuclear fuel is safely stored.

As I am sure you are aware, the NRC received two applications for Consolidated Interim Storage Facilities for spent nuclear fuel. These consolidated interim storage facilities are similar to existing ISFSIs providing dry storage of spent fuel with integrated shielding structures.

NRC issued a license to Interim Storage Partners in September 2021, which authorizes storage of 5,000 metric tons of uranium of spent fuel and 231.3 metric tons of GTCC for 40 years at the site in Andrews, TX.

The Holtec application was submitted in 2017 and requested approval to construct and operate the HI-STORE facility located in Lea County, N.M. Holtec requested a 40-year license to initially store 500 canisters of commercial spent nuclear fuel (containing up to 8,680 metric tons). The NRC has not yet made a licensing decision on this application.

While these proposed projects are separate and distinct, the same regulations and safety, security, and environmental review processes apply to both applications.

The NRC is the lead agency for regulating the packaging and transportation of spent fuel. The regulatory framework provides oversight for the safe and secure transportation of SNF. We have completed a transportation regulatory readiness review to ensure the NRC is prepared for the oversight of the potential large-scale commercial transportation campaign of spent nuclear fuel to possible future CISFs when the time comes.

Decommissioning Rule

Finally, last November, the Commission approved publication of *Proposed Rule on Regulatory Improvements for Nuclear Power Plants Transitioning to Decommissioning*—aka the Decommissioning Rule. Current NRC regulations establish safety requirements for the commercial operation of nuclear power plants. However, they do not reflect the lower safety hazards following removal of nuclear fuel from the reactor during decommissioning.

Several nuclear power plants have begun decommissioning over the past decade, and several more reactors are expected to cease operations within the next few years. This proposed rule incorporates lessons learned from plants that have already transitioned to decommissioning and seeks to establish, for the future, clear and transparent requirements commensurate with the reduced radiological risk associated with things like emergency preparedness, decommissioning funding, environmental impacts, and spent fuel management.

The Commission directed staff to develop the rulemaking and gather feedback on, among other things:

- a graded approach to emergency preparedness,
- the advisability of requiring a licensee to obtain NRC approval for its post-shutdown decommissioning activities report,
- the appropriateness of maintaining the three existing options for decommissioning and the timeframes associated with those options, and
- the appropriate role of State and local governments and nongovernmental stakeholders in the decommissioning process.

I am convinced that this rule will provide adequate protection while improving the effectiveness and efficiency of the decommissioning regulatory framework. The comment period ended on August 30, 2022, with over 2000 comments received. The Commission expects to receive the final rule for consideration around October 2023.

CLOSING

In closing, waste and decommissioning are quickly evolving sectors that warrant attention from the Commission. I believe recent Commission decisions have placed emphasis on these issues as a priority for the agency. Thank you and I am happy to take questions.