UNITED STATES

NUCLEAR REGULATORY COMMISSION

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MEETING

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THURSDAY,

APRIL 20, 2023

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The Commission met in the Commissioners' Hearing Room, One White Flint North, 11545 Rockville Pike, Rockville, Maryland, at 9:00 a.m. EDT, Christopher T. Hanson, Chair, presiding.

COMMISSION MEMBERS:

CHRISTOPHER T. HANSON, Chair

JEFF BARAN, Commissioner

DAVID A. WRIGHT, Commissioner

ANNIE CAPUTO, Commissioner

BRADLEY R. CROWELL, Commissioner

ALSO PRESENT:

BROOKE P. CLARK, Secretary of the Commission

MARIAN ZOBLER, General Counsel

NRC STAFF:

DANIEL DORMAN, Executive Director for Operations

JOHN LUBINSKI, Director, Office of Nuclear Material Safety and Safeguards (NMSS)

CARRIE SAFFORD, Deputy Director, Division of Fuel Management, NMSS

YAWAR FARAZ, Senior Project Manager, Fuel Facilities Licensing Branch, Division of Fuel Management, NMSS

LINDSEY COOKE, Fuel Facility Inspector, Division of Fuel Facility Inspection, Region II

BECCA RICHARDSON, Deputy Director, Division of Physical and Cybersecurity Policy, Office of Nuclear Security and Incident Response

JACOB ZIMMERMAN, Deputy Director, Division of Fuel Management, NMSS

NORMA GARCIA SANTOS, Project Manager, Storage and Transportation Licensing

MARK HENRION, Health Physicist, Decommissioning, ISFSI, and Reactor HP Branch, Division of Radiological Safety and Security, Region I

JOHN MCKIRGAN, Deputy Director, Division of Engineering, Office of Nuclear Regulatory Research Production and Utilization Facilities, NRR

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PROCEEDINGS

9:01 a.m.

CHAIR HANSON: Good morning, everyone. I convene the Nuclear Regulatory Commission's public meeting for the purpose of discussing NRC strategic programmatic considerations associated with the Fuel Facilities and the Spent Fuel Storage and Transportation business lines.

As always, it's important to keep the public informed, and I look forward to a good discussion this morning.

We'll hear from two NRC panels, the Fuel Facilities Business Line panel will present first, then we'll take a short break, and we'll hear from the Spent Fuel Storage and Transportation panel. With each panel, we'll hold questions to the end and then we'll hear questions from the commissioners to the panelists.

Before we start, I'll ask my colleagues if they have any comments they'd like to make?

(No audible response.)

CHAIR HANSON: No? Okay. With that, Dan, it's over to you.

MR. DORMAN: Thank you, Chair. And good morning Chair Hanson and Commissioners, it's the staff's pleasure to provide you an update today on the Fuel Facilities and Spent Fuel Storage and Transportation Business Lines.

The NRC's Fuel Facilities Business Line provides for public health and safety and protection of the environment through our regulation of the sole uranium conversion facility in the United States, enrichment facilities,

nuclear fuel fabrication, non-reactor licensees possessing greater than a critical mass of special nuclear materials, and through leading NRC's efforts on fulfilling international safeguards and domestic material control and accounting obligations.

The Fuel Facilities Business Line continues to see growth in work related to new fuel fabrication, and enrichment for advanced reactors, and accident-tolerant fuels of higher enrichment for existing reactors.

Today you'll hear about our continued efforts to risk-inform processes to meet the Agency's mission, our efforts to meaningfully engage stakeholders, and the ongoing efforts to ensure that the NRC has a talented workforce to meet the demands of the future. Next slide, please.

For this panel, John Lubinski, Director of the Office of Nuclear Material Safety and Safeguards, or NMSS, will provide you with strategic insights for supporting the Fuel Facilities Business Line.

Carrie Safford, Deputy Director for the Division of Fuel Management in NMSS, will discuss current and future considerations for the Fuel Cycle program, and share an overview of the evaluation and effectiveness of the oversight program.

Yawar Faraz, Senior Project Manager in the Fuel Facilities Licensing Branch in the Division of Fuel Management in NMSS, will give an update on the Fuel Facilities Licensing program and significant licensing activities, and an overview of the New Fuels Atlas.

Lindsey Cooke, Fuel Facility Inspector for the Division of Fuel Facility Inspection in Region II, will discuss oversight for current and under-construction facilities.

And lastly, Becca Richardson, Deputy Director of the Division of Physical and Cyber Security Policy in the Office of Nuclear Security and Incident Response, will provide an update on activities related to security of special nuclear material and our efforts to establish a more graded, risk-informed approach to regulatory oversight.

I'll now turn the presentation over to John.

MR. LUBINSKI: Thank you, Dan. And good morning, Chair and fellow Commissioners.

I am very proud of the individuals who support the Fuel Facilities Business Line activities and I am happy to report that the Business Line is performing very well, meeting its mission and providing reasonable assurance of adequate protection in safety and the environment. Next slide, please.

I will use my time this morning to discuss the NMSS focus areas, which apply to all the NMSS business lines. Our definition of a focus area is areas that require additional attention, the three areas in short are People, Trust, and Workload.

You will notice that the words mission, safety, metrics do not appear in the focus areas. This is because the folks supporting the business line have and continue to understand their importance and are continuing to meet the mission and ensure safety.

People includes hiring, training, and retaining great people. Absent an immediate safety issue, hiring is our number one priority and we have aggressive goals.

Regarding training, our folks are outstanding at supporting

each other through on-the-job training. I am happy to report that I'm hearing from our new folks that we bring into the organization, during meet and greets, that they are seeing that as well and getting the support they need, as part of on-the-job training.

We are increasing our focus on ensuring effective knowledge management through other means, such as formal training and qualification programs.

Trust includes increasing trust between all internal folks, including confidence of our external stakeholders, as noted in the NRC's new strategic goal to inspire stakeholder confidence in the NRC.

Internally, we are focused on our leadership model and behaviors to strengthen our organizational culture, accounting for all feedback we receive, including feedback from the Federal Employee Viewpoint Survey, or FEVS.

Most importantly, senior leaders are ensuring we are living the values, implementing the leadership model, communicating effectively, and encouraging an inclusive culture. We are discussing our decision-making, including the basis for our decisions and how all views are considered.

We are living up to our commitments, such as meeting deadlines to support our folks and adhering to previous alignment agreements. We have asked our folks to continue to provide us feedback on how we as senior leaders can do better.

Workload is identified because we have seen increases in our work, coupled with less than a budgeted staff with newer folks in different stages of training and qualifications. I am confident that folks are continuing to

ensure safety and high-quality reviews over schedules.

In this area, we are ensuring that we have appropriately prioritized our activities. Our organizations have identified certain activities that can be deferred or shed and are appropriately communicating these to our stakeholders.

We are strategically utilizing contractors in areas that are sensitive, to increase work until more staff are hired. Going forward, we anticipate the planned web-based licensing enhancements, combined with the use of data analytic dashboards, will yield efficiencies in our work planning, prioritizing, and monitoring of activities.

We recognize that deferred activities are important and we will ensure that they are addressed once we see the successes of our hiring and training activities. Also, we continue to think innovatively to make processes more efficient, which will result in shedding of certain activities.

I believe continuing to improve in our focus areas will improve the culture in the organization, and a great culture is key to retaining great people.

This concludes my remarks, and I will now turn to Carrie. Next slide, please.

MS. SAFFORD: Thank you, John, and good morning. Good morning, Chair Hanson and Commissioners. It's a pleasure to be here today to talk to you about the Fuel Facilities Business Line.

Over the last year we've had a number of significant accomplishments, a few of which I'd like to highlight here to acknowledge the hard work of the staff of the Division of Fuel Management as well as our partner

offices.

Last August, we issued a renewed license and final environmental impact statement for the Westinghouse Columbia Fuel Fabrication Facility in Hopkins, South Carolina that authorized operations for an additional 40 years. This was a major activity for our business line and represents the culmination of a significant amount of effort.

We issued two renewed special nuclear material licenses, one to Oregon State University and one to Idaho State University, each for an additional 10 years. We completed three licensing reviews for existing fuel facilities, with plans to increase uranium enrichment and manufacture fuel with high-assay low-enriched uranium, or HALEU fuel and and we regularly engaged with multiple international counterparts.

And this slide, that was up previously, contains a photo of the Westinghouse facility in South Carolina. Next slide, please.

Pictured on this slide is a photo of the America Centrifuge Plant, Centrus, located in Piketon, Ohio, and a photo of one of our newer staff in the Division of Fuel Management, Nicole Cortez, who is a Chemical Safety Scientist.

As John mentioned, recruitment and hiring are high priority focus area for us, the EDO has set a goal for the NRC to hire more than 400 people by the end of calendar year 2023.

In the Division of Fuel Management, we've been applying strategic workforce planning to hire the right number of people to support our existing work activities, the budgeted workload for future years, and to account for attrition.

To support our staffing goals, we're focused on recruiting the expertise needed to continue to support current fuel facility licensing activities, and ensuring staff readiness as the future of fuel production continues to evolve.

We're employing creative solutions to employ stopgap measures while hiring is underway. For example, we're leveraging internal rotations, the Nuclear Regulator Apprenticeship Network, or NRAN, apprenticeships, contractors, and more importantly, we're cross-training within the division to utilize our own resources to the maximum extent possible by training our division staff in both the Fuel Facilities and the Spent Fuel and Transportation programs.

We're also placing a high priority on developing our people and capturing institutional knowledge.

Staff is increasingly using Nuclepedia, a useful part of our day-to-day practice. In the past year, staff in the Division of Fuel Management have created over 13 pages on topics, such as applying the Be riskSMART methodology in NMSS, a consolidated list of questions and answers in NMSS, a detailed page on nuclear material control and accounting, and many more.

One example I'd like to highlight is a new Nuclepedia page that one of our NRANers, Miranda Ross, put together on reprocessing. It's a comprehensive resource on the history of reprocessing, including an overview of international efforts, MOX fuel, Department of Energy and commercial efforts, and what the NRC can do to prepare to review an application for a reprocessing facility. It's already been used to our staff, as public interest in reprocessing has increased in recent months.

We're also bringing back the weeklong training course on the fuel cycle processes. The course provides an overview of the nuclear fuel cycle for mining through conversion, and enrichment to fabrication. The first session is scheduled in May and will be open to internal participants, and a second session will be held this fall and will be open to our federal partners, states, and tribes. Next slide, please.

Pictured on this slide is a photo of the EDO Dan Dorman, our Senior Physical Scientist and NMSS International Program Coordinator Shawn Smith, and our Division Director Shana Helton, at an international workshop on the management of spent fuel, radioactive waste, and decommissioning that was held in Ottawa, Canada last November.

Our staff is prepared for workload associated with new fuels. To understand and be better prepared for anticipated licensing requests, we conduct outreach directly with potential applicants and partner with staff in the Office of Nuclear Reactor Regulation, and the Office of Research.

Communication, early and often, is a key component to an effective regulatory review. Engaging in pre-application meetings allows us to generate a shared understanding of what's required for a successful licensing review; this also contributes to a higher quality application submission. Past experience has taught us that when applicants have a well-defined scope of review, combined with a high quality submittal, it results in a more efficient licensing process.

Our biannual Fuel Facility Stakeholder Meeting is another example of a public forum for healthy dialogue with our stakeholders. There we focus on technical and regulatory issues, we discuss ways to increase

communication, and other areas of mutual interest.

Additionally, we regularly engage our international and interagency counterparts. For example, last July we signed Addendum Five to a Memorandum of Understanding with the Department of Energy on the Nuclear Energy Innovation Capabilities Act.

The MOU allows the NRC and the Department of Energy to coordinate technical readiness and facilitate the sharing of technical expertise and knowledge on advanced nuclear reactor technologies and nuclear energy innovation. The latest addendum addresses technical coordination regarding research activities related to the safety of advanced fuel technologies.

And on the international side, our staff participate on committees and working groups at the International Atomic Energy Agency, the Nuclear Energy Agency, and in various bilateral meetings. We're building relationships with the future in mind. Next slide, please.

In this slide is the picture of the Honeywell Uranium Conversion Plant located in Metropolis, Illinois, and a picture of DFM staff Tilda Liu and NRC staff Mark Lesser at a site visit at Honeywell.

Inspection and oversight are important components of the business line activities. Over the past year, we completed all core inspections for fuel facilities, two special inspections in response to safety-significant events, and began development of a comprehensive construction inspection program for new types of facilities licensed under 10 CFR Part 70.

While our existing regulatory framework has demonstrated its flexibility in licensing new technologies and is ready for novel designs, we're working on evaluating the existing inspection and oversight programs to be

prepared for new Category Two facilities.

I'll conclude by mentioning that, in 2021 we implemented the Fuel Cycle Smarter Inspection Program, this was the result of several years looking for areas to risk inform our inspection program.

Last year we conducted an inspector pulse survey to gauge implementation, the results showed that our inspection program provides reasonable assurance of adequate protection for fuel cycle facilities. Since most inspections are on a three-year frequency, the Fuel Cycle Smarter Inspection Program self-assessment will be completed once a comprehensive set of data is available, which is anticipated to be in 2024.

And that concludes my remarks, and I'll turn it over to Yawar.

MR. FARAZ: Good morning, Chair Hanson and Commissioners. The overview photo you see on the slide is of the Global Nuclear Fuel - Americas, or GNF-A's fuel fabrication facility in Wilmington, North Carolina. I'll be presenting four slides on our Fuel Facility Licensing Activities. Next slide, please.

The Fuel Cycle Business Line regulates the possession and use of source and special nuclear material, or SNM, for a broad range of facilities, including uranium conversion enrichment and fuel fabrication.

In addition, the Fuel Facilities Business Line licenses the possession and use of SNM at facilities, such as university and research centers, typically referred to as Greater Than Critical Mass, or GTCM, facilities.

The Business Line continues to successfully review and complete a large number of both routine and complex licensing actions, to support these and new fuel cycle facilities. Over the last few years, the

business line has been processing just over 40 fuel cycle licensing actions per year; this includes reviews, amendments, and renewals.

In addition to last year's accomplishments that Carrie mentioned in her presentation, the Business Line completed and published NUREG-2159, which applies to Category Two Material Control and Accounting, or MC&A, plans.

The Business Line approved Framatome's amendment request to possess and use SNM at a high enrichment, Global Nuclear Fuel - America's Criticality Computer Code Validation Report for high-assay low-enriched uranium, or HALEU, enrichments, and Centrus Energy Corp's subsidiary American Centrifuge Operating LLC's, or ACO's, request to extend its HALEU approval.

We also supported Honeywell's UF6 conversion facility, which is restarting operations this month. There were no amendments required for Honeywell to go from its idle to operating state. Next slide, please.

The Fuel Cycle Business Line is aware of, and responsive to, the increase in importance and complexity of review requests from licensees and applicants.

Last year, TRISO-X, a subsidiary of X-energy, submitted an application for a new fuel fabrication facility for TRISO Fuel enriched to 20 percent in Oak Ridge, Tennessee. The 32-month review is scheduled to be completed in June 2025.

In February of this year, American Centrifuge Operating submitted an amendment request to produce 1,400 kilograms of HALEU in the form of UF6 by the end of 2024.

Last December, the NRC published for comment in the Federal Register the draft NUREG-2212, which is the standard review plan for Greater Than Critical Mass facilities. The comment period ended on March 31; the comments are currently being reviewed by NRC staff.

In June 2022, Global Nuclear Fuel - Americas submitted a license amendment request for an enrichment increase to eight percent. We anticipate completing the review in October of this year.

Finally, the NRC staff anticipates completing its review of Sensor Concept's and Applications license renewal request by the middle of this year. Next slide, please.

The Fuel Cycle Business Line strongly encourages potential applicants and licensees to hold pre-application discussions with the NRC so that we can establish a shared understanding of the licensing pathways, timelines, and resources that will be needed for the NRC's regulatory process. The engagement also facilitates completeness and quality of submittals.

Later this year, the NRC staff anticipates an application from American Centrifuge Operating to address its contract with DOE, which includes three three-year production cycles of the 16 centrifuges in a cascade with a production rate of 900 kilograms a year of HALEU from 2025 through 2033.

Last month, Global Nuclear Fuel - America submitted a supplemental environmental report for fabricating metallic Natrium Reactor HALEU fuel in a new facility to be built -- a new process to be built at the Global Nuclear Fuel - America site in Wilmington, North Carolina. The NRC staff anticipates the safety portion of the application to be submitted this year, in

October. The NRC is contemplating a 24-month review.

In addition, GLE anticipates submitting an application to enrich depleted uranium purchased from DOE to natural levels, at a new laser enrichment facility to be built in Paducah, Kentucky.

Since early 2022, the NRC staff has conducted pre-application engagement with Niowave for its planned for commercial molybdenum medical isotope facility in Lansing, Michigan. For the NRC, Niowave's application will be the first-of-a-kind review of a large medical isotope facility entirely under Part 70.

Finally, Framatome plans to submit an application to possess and use uranium enriched to above five percent in mid-2023, and a criticality computer code validation port for HALEU up to 20 percent later this year. Next slide, please.

The New Fuels Atlas, previously referred to as the Advanced Fuels Roadmap, consists of a regulatory planner and communication tools. The goal is to use the Atlas to identify the needed actions and activities to ensure the NRC's readiness to regulate new fuels.

The regulatory planner will consolidate information on what we are doing and what we expect will need to be done. It will cover programmatic areas, such as licensing, oversight, and research activities associated with enrichment, fabrication, and transportation of the different anticipated fuel technologies such as TRISO, metallic, and molten salt fuels.

You'll hear more about this regulatory planner in the next panel's discussion on the back end of the fuel cycle.

The Atlas is also intended to enhance our stakeholder

communications through use of an infographic, part of which is pictured here, and a new HALEU public website. We hope to enhance public confidence in our abilities to effectively regulate these new fuel technologies by showing how our existing regulatory framework is able to accommodate them.

This concludes my remarks, I now turn it over to Lindsey Cooke. Next slide, please.

MR. COOKE: Good morning, Chair and Commissioners. I'm Lindsey Cooke, a Fuel Facility Inspector in the Division of Fuel Facility Inspection, or DFFI, in Region II.

Region II has the inspection oversight responsibility for all the fuel facilities across the country. I will briefly speak about the year we've had and years to come. Region II realigned our focus areas this year to represent who we are and what we value more adequately.

To that end, we call our focus areas MVP, which signify our mission focused, value centered and people driven philosophy. In keeping with these areas I will describe how we meet our mission, live our values and intentionally support and develop our people.

Next slide please. Our mission has remained our top priority. In terms of time, this past fiscal year we've conducted over 4,800 hours of direct inspection, spread out over 93 inspections to ensure our core program is complete. We've accomplished this through the hard work and vigilance of 21 traveling inspectors, from four divisions, and two resident inspectors, who have applied their knowledge, skills and abilities at all ten of our operating facilities.

Beyond our core inspection program, DFFI analyzed 27 event reports at licensed fuel facilities last calendar year and conduced special

inspections at two facilities as a result. These events warranted increased inspection and we sent teams to the sites to evaluate the circumstances and the licensee's actions.

Shifting to the future, DFFI's work appears to be increasing. Over the next few years, we expect several new applicants to apply for licenses, and existing licensees have signaled that they plan to build new fuel facilities, as you've heard from others during this meeting.

Some of these facilities will supply advanced fuel to the next generation of nuclear power plants. Others will provide medical isotopes to support nuclear medicine. And some may supply other aspects of the nuclear fuel cycle.

With this increased workload Region II and DFFI remain focused on developing and executing construction and operations oversight programs to reasonably assure public health and safety and common defense and security at these novel facilities.

Next slide please. In Region II, our values serve as our compass on our journey to mission success. Our seven values continue to guide our actions and interactions.

We serve our stakeholders with integrity and openness, exemplified in our interactions with the public during our licensee performance review meetings and fuel facility stakeholder meetings. Specifically, we ensured that the location and format of our LPR meeting for Westinghouse's Columbia Fuel Fabrication Facility was amendable to underserved residents in Hopkins, South Carolina. Similar, we engaged with the local government of Metropolis, Illinois as Honeywell began their restart efforts.

We stay committed to our mission and each other. We leverage our technical and nontechnical excellence to improve ourselves and focus on what matters. To that end, we've continued invoking risk insights through our use of Be riskSMART tools to make timely decisions at all levels, from inspection to budget.

We stay committed to each other by mentoring new hires, streamlining qualifications and ensuring that we are purposeful in our presence in both our physical and virtual environments.

Finally, we work cooperatively and respectfully within our region and with other organizations inside and outside the agency. We've fostered an environment where all individuals have a seat at the table in resolving concerns. This is seen in our thoughtful and frequent discussions with OGC, OE and NMSS through various unique and challenging issues.

We've continued to welcome the diversity of thoughts and opinions from inside, and outside the Agency, by encouraging participation from external stakeholders, including industry, NEI and the public, for various interactions. In all, our Region, and our Agency, keep our core values centered in our minds and exhibited in our actions.

Next slide please. Our mission is not achievable, and our values are not expressible without knowledgeable, skillful and talented staff. To that end we've taken our signpost and markers from our mission. Both what it is today, and what it may become, and acted on it.

We've used strategic workforce planning to assess present and near-term gaps and harmonized that with our attrition, utilization and budget to manage our staffing needs. We recognize the potential growth in

new and novel facilities, and the skills needed to become and remain an effective regulator.

As shown in the chart on this slide, to accommodate for this potential growth, as of today, DFFI currently has 14 qualified inspectors, five individuals in training and two openings to meet our near-term staffing needs. We determined that growth today would facilitate technical competency in the future.

Focusing on our people, wevre removed barriers and built scaffolds to support development. We've updated our guidance for inspector qualification, increased flexibility in getting material control and accounting courses for our staff, actively participated in leveraging and growing our Agency's knowledge management, and instituted an ambassador program to ensure that new hires are paired with seasoned and welcoming senior inspectors who can help them navigate and acclimate to our culture and expectations.

While we cannot predict the future of our mission with the exactness one may desire, we remain confident that by building and supporting our staff we will grow and maintain the expertise needed for whatever the future may hold.

This completes my portion of the presentation. I'll now turn it over to Becca. Next slide please.

MS. RICHARDSON: Thank you, Lindsey. Good morning, Chair and Commissioners. I'll be providing an overview of security activities supporting fuel facility licensing and oversight, with a focus on staff activities related to security of special nuclear material, or SNM, and evaluation of a

graded risk-informed approach to regulatory oversight.

Next slide please. As an overarching message, fuel facility reviews are both complex and diverse. This has required NRC security regulatory framework, which includes the regulations, along with any additional supplemental security measures and orders, which are made part of the license, to remain flexible and adaptable as licensee and applicant security programs evolve.

The current regulatory framework ensures adequate protection of public health and safety and the common defense and security. The staff is evaluating the effectiveness of this framework, to include strengthening stakeholder confidence in accordance with the NRC's strategic plan goals.

With HALEU coming and fuel aging, it is important to ensure we continue maintaining adequate protection. The staff has been actively seeking opportunities to optimize the security regulatory framework. This includes taking a risk-informed graded approach to the security regulatory structure. Like applying material attractiveness and the grading of physical protection requirements for fixed sites and transportation of SNM.

This approach allows the Staff to focus physical protection on the material itself, as opposed to on the facility that possessed it. Thereby promoting a consistent level of protection regardless of its location.

The staff has used the Be riskSMART framework in a matrix that uses the principles of good regulation in a structured manner to assess options under consideration in commission papers.

Next slide please. As I mentioned, we are evaluating

potential changes to our regulatory framework for security for SNM to provide more regulatory stability, predictability and clarity. The combination of risk insights and changes in the types of facilities and materials being regulated by the NRC since 1979, when the NRCs current regulations for physical protection of SNM were revised, has led the Staff to consider the benefits of using a more risk-informed material attractiveness approach for physical protection of SNM.

Simply put, the more dilute the material and correspondingly the more difficult the acquisition and processing of the SNM, the less attractive it is to an adversary. Specifically, Staff is developing a commission paper with potential options for enhancing security requirements for SNM in response to Commission direction in SRM-SECY-19-0095.

To support this paper, Staff have been engaging in focused, technical discussions with stakeholders through a series of public meetings on the following five topics. Topic Alpha, security for Category 2 quantities of SNM. Topic Bravo, self-protection limit for security of spent nuclear fuel. Topic Charlie, security for spent nuclear fuel. Topic Delta, security for alternate nuclear material, or ANM. And this includes fissile nuclides, such as americium and neptunium, which can be produced through reprocessing activities. And topic Echo, security for Category 1 and Category 3 quantities of SNM.

Staff is doing this both to understand if regulatory gaps exist, and to assess whether the current and potential future regulatory burden is reasonable. These public meetings were widely attended, and stakeholders provided feedback on a number of important topics.

Specific issues that were mentioned or discussed in detail included, the Staff rationale for thresholds among proposed dilution levels, the

use of separability and the definition of SNM attractiveness, the types of facilities to which potential changes in the regulations would apply, the extent to which NRC Staff can provide the public an understanding of security requirements, the need for regulations to combine performance-based and perspective requirements, and ensuring analysis provides the justification for changes to the regulations. This SECY paper is due to reach the Commission in October.

Next slide please. NSIR Staff have supported many of the licensing and oversight projects that Yawar and Lindsey discussed in the area of physical protection. I'd like to highlight a few of those today.

First, after the Department of Energy informed the NRC that it would no longer serve as the authorizing official of classified networks for NRC licensees of Category 3 enrichment facilities in late 2020, the NRC demonstrated adaptability of NRC security framework when it took on the authorizing official function. This was made possible by Staff from a number of offices across the NRC coming together to develop a framework that ensures programs, such as communication security, foreign ownership controller influence, and counterintelligence are appropriate addressed.

As a result, all licensee systems are authorized to operate and are continuously monitored for compliance with federal policy for the protection of classified information information systems.

Second, Staff is also increasing efficiency of licensing reviews through effective early engagements to understand the unique aspects of the different facility design features and operations. Once license applications are received, Staff will leverage the knowledge gained through these early

pre-licensing engagements to perform analyses that consider the material attractiveness that is the forms, dilution and quantities of material as it relates to improvised nuclear devices and proliferation risk in order to establish appropriate security requirements for the facilities.

Third, on March 14th, a final rule implementing commission preemption authority under Section 161(a) of the Atomic Energy Act was published. Section 161(a) authorizes the Commission to designate those classes of licensees eligible to apply for permission to use certain firearms, weapons, ammunition or devices notwithstanding local, state, and certain federal firearms laws and regulations prohibiting such use.

Under the fuel facility business line staff have received inquiries from more than one licensee on potentially holding a pre-application engagement meeting regarding a possible license amendment to obtain combined preemption authority and enhanced weapons authority under the Commission's new regulations in 10 CFR 73.15 and 73.17.

It is efforts like these that highlight the Staff's continued application of risk insights, as well as the importance of assessing new and emerging technologies and materials and engaging with stakeholders. This concludes my part of the presentation. I'll now turn it over to Dan.

MR. DORMAN: Thank you, Becca. And I want to thank all the panelists today, the Staff who supported the preparations for this Commission meeting, and all of the headquarters and region staff working to support the fuel facilities business line. This concludes our presentations for this panel, and we welcome your questions.

CHAIR HANSON: Thanks, Dan. We'll begin questions this

morning with Commissioner Baran.

COMMISSIONER BARAN: Well thank you for your presentations. It's a busy time in the fuel cycle area of our work because we're seeing applications for new facilities for the first time in quite a while.

Yawar, I think most of my questions relates to the topics you cover, but anyone on the Panel should feel free to chime in. You mentioned the TRISO-X application for a new fuel facility, which was submitted last year. This would be for a Category 2 fuel fabrication facility, which NRC hasn't licensed before. How is that review going so far, and are there any particular challenges the Staff sees for that review?

MR. FARAZ: Commissioner, the review is currently on schedule. We recently reviewed responses to a set of RAIs that we had issued on the environmental review. We plan to be issuing the safety of the RAIs soon.

In our acceptance letter we had identified that we would need additional information on electrical and digital instrumentation and control, I&C, by August of 2023. So that's something we are expecting from TRISO-X. Any kind of delay in receiving that information could challenge the schedule that we have provided in our acceptance letter.

COMMISSIONER BARAN: Okay. And you also briefly discussed the American Centrifuge amendment request to produce 1,400 kilograms of HALEU. How is that review going so far?

MR. FARAZ: On April 13, the Staff accepted the amendment request for a detailed review. The Staff anticipates issuing any requests for additional information, RAIs, in May. And then completing the review ahead of

the requested February 2024 completion date.

COMMISSIONER BARAN: Okay. And if the American Centrifuge application to do more or longer term HALEU production comes in as anticipated later this year, how will that review compare to the current review? Will some of the key technical issues be resolved? Are there kind of links between those two applications?

MR. FARAZ: Yes. So the basic review that was completed was in June of 2021. That was for the demonstration project.

And so these amendments that we are receiving for ACO are essentially extensions of that demonstration project. So it's basically the same, 16 Centrifuge Cascade that would be used for these additional time periods.

COMMISSIONER BARAN: Okay. And so, I take it then that the technical issues around that cascade are resolved and now we're --

MR. FARAZ: Most of the technical issues are resolved, correct.

COMMISSIONER BARAN: Okay. So --

MR. LUBINSKI: Excuse me, Commissioner, if I could --

COMMISSIONER BARAN: Sure.

MR. LUBINSKI: -- add to that?

COMMISSIONER BARAN: Yes.

MR. LUBINSKI: For the current review, and Yawar may be able to expand, as he said we just received the application for the current review. We are looking at us being ahead of schedule.

There is one issue that I'll say is a bit unique, and it's with respect to the emergency preparedness, or emergency planning and what

they're looking at there. So they have provided us some information looking at their hazard analysis and their consequences of the most, you know, worst case credible accident.

That's a bit unique in review. We are definitely working with our technical reviewers in NSIR. It's too early to tell whether or not what they provided is acceptable or not since we've only had it for one week now.

COMMISSIONER BARAN: Okay.

MR. LUBINSKI: We do believe that we're able to address that issue adequately with respect to the current review, that would be addressed in the subsequent review as well.

COMMISSIONER BARAN: Okay, thanks. Global Nuclear Fuel - Americas has submitted an application to build a new facility to fabricate Natrium reactor HALEU fuel. How is the environmental review going so far, and are there any particular challenges the Staff sees for the safety review that's expected to begin later this year?

MR. FARAZ: So yes, we received the supplemental environmental report to possess and use 20 percent U-235, which would support the Natrium fuel in March of 2023. So our environmental review is just beginning at this point.

As part of a safety review, we will need to appropriately consider the complexities involved with addressing the requirements for Category 2 and Category 3 material under one license. So that's one issue that we might confront. We have addressed similar issues before and we will leverage lessons learned from those reviews in this case.

COMMISSIONER BARAN: Okay. Can I ask just kind of a

broad question? It sounds like things are moving along pretty well, in all these reviews you're not really anticipating major challenges. Given that we hadn't done Category 2 facilities before, are we finding it challenging to do those types of reviews? Are there issues coming up that we weren't expecting?

MR. FARAZ: In the case of ACO we did do a Category 2 review. So the ACO's demonstration program is for a Category 2 facility.

COMMISSIONER BARAN: Right.

MR. FARAZ: But that's with UF6. With fuel fabrication, we haven't done Category 2 reviews. And again, as they, as we review the application I think we'll address the issue as they come up.

COMMISSIONER BARAN: John?

MR. LUBINSKI: Thank you, Commissioner. If I can add one other reasons I think that it has been positive and why we have not seen the issues is the outreach we've had with the community and the pre-applications meetings they've had with us. That's a very important aspect to understanding before they come in.

Understanding which issues may be more challenging. We've been out to the sites, and pointing toward Becca's folks in NSIR in the security area, they were out for pre-licensing application visits. We're continuing to work with them, not just on the security side, but the information handling side at some of the Cat 2 facilities. And being able to identify some of the technical issues early so that we can provide some expectations, whether it's formal guidance or informal guidance to them.

One of the areas that we did provide more formal guidance was on the MC&A area for Cat 2 facilities. So being able to provide that

information out through guidance has helped to facilitate addressing those technical issues early.

COMMISSIONER BARAN: Great. The Honeywell Metropolis Uranium Conversion Facilities restarting this month, that was mentioned earlier. Any issues or challenges expected with that restart or inspection activities there?

MR. FARAZ: Um, yes, go ahead.

(Simultaneously speaking.)

MR. COOKE: I can take this one. Thank you, Commissioner Baran, for your question. DFFI, the inspectors, we do not anticipate any issues or challenges with the restart of Honeywell. No issues or challenges have been incurred thus far with restart activities.

Following Honeywell's announcement in 2021 to restart the facility, the NRC commenced frequent startup and coordination meetings with Honeywell. And starting in 202s and going forward, the core inspection program was restored to a nominal conversion facilities inspection frequency from the reduced inspection frequency that it had been at.

Additionally, we established milestones for inspections of various functional areas of the facility prior to restart of operations.

Regional inspectors have completed a 100 percent validation of the safety controls prior to restart, resumption of a functional areas operation. In addition, regional inspectors have conducted supplemental inspections throughout 2022 and 2023 to verify that staffing, training, security and the emergency response organization, were restored as required by the license application.

In addition, the site's post-9/11 security order was reinstated to its full effect. And full operation of the facility is expected to resume around early May.

COMMISSIONER BARAN: Excellent. Thank you. Thanks, Chair.

CHAIR HANSON: Thank you, Commissioner Baran. Commissioner Wright.

COMMISSIONER WRIGHT: Thank you, Chair. And good morning. Yes. Yes, this is one of my favorite Commission meetings because of what you all do. It's very interesting to me.

And I know that there is a lot going on. And I recognize and appreciate very much what it takes to prepare and what it takes your staffs to prepare you for these meetings, so thank you for that. And that also goes for my team as well.

John, I'm going to start with you. You know, you mentioned that hiring is the number one priority for this business line. And in your opinion, this is your opinion, okay, does our process take too long?

And as a follow-up on that, you know, are you using or are you able to use all the tools in your toolbox? I mean, everything maybe from like relocation flexibilities all the way to direct hire authority.

MR. LUBINSKI: Thanks. If I could start, before answering the question, thank you for recognizing the folks that not only support the business line but support us today. We're here at the table doing the presentations, but it was really the hard work helping them prepare, and so thank you for that.

Overall I would love to see the processes go faster. And if you're asking my opinion, yes, overall we are taking longer than we should in moving forward.

With that said, as we continue to try to speed up our processes we needed to make sure that they continue to ensure we hire high quality people, ensure equity and fairness in our hiring, and making sure that we're getting diverse and highly inclusive candidate pools. So we need to keep that insight as we make changes. And we can't put speed and efficiency ahead of that.

Overall I don't have statistics on how quickly hiring goes in NMSS compared to in the past. But I know OCHCO is starting to look at that, with the purpose being, if they find areas where there are any bottlenecks or hangups that we can make those more efficient to help those processes. And I'm really glad the team is working across the Agency together to do that.

I will say in NMSS, while I don't have statistics on how fast we hire, I have looked at last year to this year. For the first half of last year NMSS hired 12 folks into the organization. This year in the first half of the year we've hired 29. So that's more than double the amount of folks at the rate of hiring this year.

As a subset of those, last year at this point we only hired three people external to the NRC into to NMSS. This year the number is 21. So it's a factor of seven more that we're hiring external to the Agency. So I'm very proud of those numbers in what we're doing to bring people in.

While there are still challenges, and I'm cautiously optimistic, I do think we need to speed up the process. With respect to tools, we are using

all the tools in our toolbox across NMSS right now. And in some of those I think we need to do a better job of using them more often, if you will.

In direct hiring, we have done direct hiring of folks of veterans, persons with disabilities, grants recipients, selected occupational series, such as general engineers and scientists, as well as converting summer hires and co-ops into permanent staff members, which has really helped.

We are going to be part of the May 11th hiring fair that we're having at the Marriot across the street. For those online, if you're interested, please be there. If you have friends, please encourage them to attend.

We also put together tools such as Tiger Teams to look at hiring folks and use our over-hires in areas such as areas in administrative assistance where we've seen a continued growing need. And we over hired in that area because we find that they're continuing to internally get new positions in the agencies. So we're keeping a good backfill there. So over-hires is another tool we've used.

Finally, with respect to relocation, that's probably been one of our biggest challenges. While we have put some flexibilities in place to allow people to maybe do short-term telework as they're trying to work into the organization, we have been challenged financially to support all of the requests we've gotten for relocation and paying relocation costs to move people to our offices.

And we have, while we've posted positions as Rockville location only, we've had people apply who have said, okay, I'll take the job but I want a full-time telework and I don't want to move, and we have not been able to accommodate that in all cases because we've seen the importance of having

folks in the building.

COMMISSIONER WRIGHT: Thank you so much. That was more than I thought you were going to be able to come back with.

(Laughter.)

MR. LUBINSKI: With it being our number one priority there is a lot of interest in this area.

(Laughter.)

COMMISSIONER WRIGHT: That was very complete. Thank you so much.

I'm going to turn to FEVS scores for a second. You know, you mentioned that the senior leaders are doing, what you're doing to focus on the leadership model and behaviors and stuff like that. Looking at the data though, it appears that first-line supervisors are really outperforming the senior leaders in these scores. And how can senior leader, or senior managers, right, build upon the continued success that the NRC's first-line supervisors have been experienced in over maybe the last five years or so?

MR. LUBINSKI: Yes, thanks. Before I go into your positives there I'm going to say, when the FEVS scores came out I took it very seriously and I took it to heart. Maybe even went through the stages of grief and acceptance of those as we went through that.

But as you said, what we looked at is the positive of our first-line supervisors, our branch chiefs and our team leaders. I've always said they have the most difficult job in the agency being our line supervisors. And they do an outstanding work. And that's reflected in the FEVS scores.

We've reached out to them to ask them what's the secret,

give us the tools. They brought up a couple of things. Number one is trust. And there is a high trust between them and the folks in our organization. And they believe that is because of the amount of interaction and the relationship building they have.

How are they building that trust is continued communications and nurturing those relationships. They've advised us to continue to increase our communications. We've done that in a formal way by having chats, open doors across the office, allowing people to bring up any topics, any discussion points.

We've had meet and greets with all the new staff coming into the organization so that we, again, can help build a relationship with folks as they come in. And make it more comfortable that they can come down and talk with us about issues.

We've heard from folks in the branch chief saying, explaining our decisions is probably the most important. We want diversity, we want to hear diverse opinions, but how are we making sure that we're communicating our decision making, why we made the decision, so that people can learn from that going forward.

And then finally, my last part on workload is not workload just from the standpoint of getting our mission done, but it's the impact it has on people and the trust that they have with us. We've implemented a philosophy in our office called 80/20.

What we've determined is, with about 20 percent of the effort you get 80 percent towards the solution you're trying to get to. And we've learned that with our branch chiefs, that's where most of the folks have that

conversation. They put 20 percent of the work in, they communicate with the branch chiefs to say, here's where I'm going, are we aligned, where are we going here.

But many times that doesn't happen with the senior leaders until later. And they have to put in extra time and effort. They feel they need to come in with polished presentations and be perfect in those presentations. And we're trying to say, no, as you do that, let's have those engagements early so that we can make sure before we're spending too much time and effort on an issue, we have full alignment. And I think that helps build the trust so that someone doesn't come in at the end with what they believe is a very perfect polished product, and then we have to course correct at the end.

COMMISSIONER WRIGHT: Okay, thank you. This is an important area, so I'm glad you're paying attention to it.

Carrie, I want to come to you a second. So first off, you mentioned in your testimony there that, or your comments, that you had a weeklong course coming up in May and again in the fall. Is that something Commissioners can do too?

MS. SAFFORD: Absolutely. Absolutely. We encourage Commissioners, your Staff. if you'd like to participate it will be offered hybrid as well.

COMMISSIONER WRIGHT: Yes.

MS. SAFFORD: Yes.

COMMISSIONER WRIGHT: I'm going to see if we can't fit that in my calendar.

MS. SAFFORD: Look forward to it.

COMMISSIONER WRIGHT: Now, you spoke about this pulse survey that you did and conducted last year. Can you give me a little bit more detail about, maybe the findings and maybe what you really ask in that, what you're looking for, and what did you pulse, and are you planning to do another one?

MS. SAFFORD: Sure. Okay. I'll start, and then might look over, I'm not sure if anyone else in the panel has more details on it. But basically we were looking to get some risk-informed insights to make sure that the appropriate focus is applied in our inspection activities. The areas that are most important for safety.

And some of the feedback that we got from the pulse survey was that the smarter inspection program is helping focus inspections on safety and risk significant issues at fuel cycle facilities. So it's doing its job. It's helping to focus in.

And a lot of the respondents also felt that it was useful to have during the COVID pandemic environment. So it helped them to, it didn't impact, it didn't impact the inspections any more than any other inspections going on at the Agency.

Obviously if anything that was of any significance in the safety or public health arena came up, that would have been addressed immediately, and that wasn't the case. So that's the good news that's coming out of it.

My understanding is that a couple of the areas that we're going to be looking at going forward are going to be inspection resources estimates, inspection frequencies and the scope of inspections. But again, that's all preliminary information. And as I indicated, it's going to be a, it's a

three-year cycle. So once that three-year cycle is complete we'll take a look at the entire program.

I don't know, I don't know if anyone on the panel, are you aware if we're going to do another pulse survey? But we certainly can if we need to.

MR. COOKE: I'll add maybe just a little bit. We did, yes, we wanted to do that one-year review just to make sure that we felt comfortable that we were still completing our core inspection program, kind of like before.

And then we deliberately wanted to get, some of our inspections are triennial, so we wanted to make sure we got at least one of each kind of inspection at all of our facilities before we worked with our program office to do a more holistic assessment of the smarter inspection program in 2024.

But that we are still capturing feedback from the Staff to identify, you know, where we have challenges. And so, one example of where that occurred was in the material control and accounting inspections. Specifically at the Category 1 fuel facilities.

Some inspectors identified that they had needed some additional time to complete the inspections and so we stood up a working group and are currently looking at the inspection procedures to make sure there is adequate guidance and sufficient flexibility within the inspection procedures to execute the program effectively and efficiently.

And then just adding, as an inspector, we recognized that the inspection procedures for the smarter inspection program, the resources are estimates. And I have never gotten any push back from my management if I'm

at a site and I need more time to look at something to complete my inspection, I'm able to do that. So we are confident that we continue to complete our program.

COMMISSIONER WRIGHT: Great. Thank you so much.

CHAIR HANSON: Thank you, Commissioner Wright. Commissioner Caputo.

COMMISSIONER CAPUTO: Good morning. I'll just add my compliments, thank you very much for all preparing and being here today.

I'm going to start with Ms. Safford. Discuss the strategies the business line is employing to recruit and do knowledge management.

I'm going to start with one question. Is Miranda here today?

MS. SAFFORD: I don't think she's --

COMMISSIONER CAPUTO: No?

MS. SAFFORD: -- in the office.

COMMISSIONER CAPUTO: Okay. All right.

MS. SAFFORD: She might be on line, but I'm not sure. But I did give her a heads up, so I do believe she's listening on line. I told her --

COMMISSIONER CAPUTO: Well I sure hope so. Miranda, thank you for your efforts on the reprocessing page. I look forward to giving that a review and refreshing myself on the things that I haven't looked for awhile and learning everything else that's probably quite a treasure trove in that Nuclepedia page. So thank you for your work, Miranda.

So, Ms. Safford, when looking at the types of applications that are coming in, do you think we have the workforce and the skill sets that we are going to need to review these applications?

MS. SAFFORD: Yes. So I think we do have the skill set, for sure. It's a factor of, do we have experienced skill set, yes, we do. We're also bringing on additional people so the skill set is being developed at the same time. And I think that plays into whether we have the workforce at the moment.

Right now if everything came in the door all at once, no. Right? But everything is spaced out across the next year, year and a half.

COMMISSIONER CAPUTO: Well, the good news is it doesn't all come in the door at the same time, and the good news is you finished that whole tranche of work, given the list of accomplishments. So theoretically, that frees up time for people to move on to the next task.

But, you know, I have to admit, I've got a question here. Obviously there are statements in here about potentially having some delays in some of the work and not having the manpower, or people power, necessary to meet what's going on now.

So I have sort of a broader question. And this is going to be for Dan, because I think this potentially effects the whole Agency.

You know, when I look at the fee recovery rule, we're going to have 650,000 hours of work that we will bill to licensees and applicants for licensing reviews and inspections. So I'm going to focus on inspection for just a minute because I think that's potentially where the challenges are that you're looking at.

You're hiring, you're bringing people in. If they're new, obviously then there is a fair amount of run time that they need to get and training they need to get before they're really ready to be useful and take on, you know, what is fairly technical, fairly challenging work. What ability do we

have to reassign people that are currently in the Agency that are not necessarily doing this work?

Because this 50, this 650,000 hours of work, this is our mission. Right? This should be our focus is making sure that that is a priority for staffing. And if we have a sector of expertise that ends up being somewhat of a training ground that people do this for a while and develop expertise and are then recruited away to other areas within the Agency, that kind of becomes a struggle.

So, Dan, I want to understand, to what extent are we able to keep or attract people to actually doing the mission direct work, because if we have people have shifting from mission direct into mission indirect, that's a challenge.

MR. DORMAN: Yes, thank you, Commissioners. So, sure, that's a management challenge that at any time in the organization's history, but I think the mission direct work is the priority and we will do what we need to do to make sure that that's appropriately staffed.

I think part of the, perhaps the nuance to that challenge in the period that we're in, and you touched on it in your question is, we are experiencing higher attrition than we have historically because of the demographics that we've built over time. And combined with that, you know, offsetting that, we're bringing in new staff.

And so the new staff, as they come in and get qualified, are not, as they're developmental work, until they're qualified, is not charged as that direct work. So we need to have the experience people walking with them through that as they get qualified.

COMMISSIONER CAPUTO: Well, good --

MR. DORMAN: So --

COMMISSIONER CAPUTO: -- because our licensees and applicants shouldn't be basically a training ground --

MR. DORMAN: Right.

COMMISSIONER CAPUTO: -- across.

MR. DORMAN: Right. Well it's -- yes, let me qualify that. I need to get those up and coming inspectors in the field with seasoned inspectors. The seasoned inspectors are doing the core inspection. The inspectors under development are alongside them, but their time, when it's developmental time, is not getting billed hourly to the licensee as the direct inspector is.

COMMISSIONER CAPUTO: But when it comes to licensing, what's our ability to reassign people that are elsewhere in the Agency that might have the expertise that Ms. Safford needs to keep up with her workload --

MR. DORMAN: Yes.

COMMISSIONER CAPUTO: -- because that's our primary mission.

MR. DORMAN: Yes. So it's, we obviously have the ability, management has the ability to direct work so we can pivot resources as we need to.

And that's part of our, John alluded to it in some of his remarks, is our add, shed, defer process. As we look at the work that's in front of us, we want to make sure we've having, the highest priority work is getting accomplished first. And if that involves reassigning people among projects then

management has the ability to do that.

COMMISSIONER CAPUTO: So are we going to do that here to make sure that we don't have to defer work?

Because this is a growing portion of our portfolio, and if we are at this point in time in a position where we have to defer and delay licensing work because we don't have adequate manpower, we're going to end up behind a curve that's going to progressively get steeper over the next few years.

And I get it that you're hiring, you're bringing people on --

MR. DORMAN: Yes.

COMMISSIONER CAPUTO: -- but we need to make sure we don't fall behind the ball or we're going to have a hard time catching up.

MR. DORMAN: Yes, agreed. That's the urgency behind the hiring. It's also, you know --

COMMISSIONER CAPUTO: Yes.

MR. DORMAN: -- there are --

COMMISSIONER CAPUTO: You're coming back to the hiring --

MR. DORMAN: Yes. But --

COMMISSIONER CAPUTO: -- but my question is about the reassigning.

MR. DORMAN: Yes. So yes, we can reassign people. Also, part of our human capital strategies can include bringing back people to support the knowledge transfer and to support projects as needed through rehired annuitants, various, a couple different authorities that we have in the toolbox in that area as well. So there are a number of tools available to the managers to

make sure that we get the right talent on the high priority work as we go.

COMMISSIONER CAPUTO: I have to say, I struggle as a Commissioner, when we get, certainly questions externally, like yesterday, and there are constant discussions, constant comments about, are we ready, yes, we're ready, or we will be ready, we're preparing, you know, et cetera, et cetera, and yes, we are hiring to develop the skills that we need. But when we are at the same time trying to convey a sense of confidence that we can handle the challenges that are coming, but at the same time in a position where we're deferring work, that tells me that our strategic workforce planning really hasn't been strategic enough to anticipate where we are today. Which then gives me pause about whether it's adequate going forward.

So what are you looking at in terms of strategic workforce planning to make sure that if that is a tool and a process that we are supposed to rely on to ensure that we have the right people in the right place at the right time, that that strategic workforce planning is actually up to the task?

MR. DORMAN: So, I think one of the areas that we're looking at in our evidence building plan is to do an assessment of our strategic workforce planning. So I think that's an opportunity we have to make sure that that's serving us in the best way.

I think you're aware that our strategic workforce plan is built around an environmental scan that's conducted every year to look out five years and make our best estimate of the workload that's coming before us over that period of time and to identify the critical skills associated with that work and to incorporate that into our staffing strategies.

So I think, right now I think our biggest challenge is getting up

to our authorized FTE and getting those people in and qualified in support of our strategic workforce plan. So it's really, at this point, I think our biggest challenge in executing the strategic workforce plan is getting the talent in the door.

COMMISSIONER CAPUTO: I get it with the hiring, and I agree with the 400. I think we have known for a very long time that we had a significant component of extremely experienced people who would, at one point, head into retirement. We're definitely seeing that in our attrition.

MR. DORMAN: Yes.

COMMISSIONER CAPUTO: So the hiring that's being done I think is necessary. And I share your sense of urgency there. But I do have a note of caution.

Because at some point the mission direct work that we're looking at is such a small portion of our budget, and a small portion of our FTE. And if that is where we don't have people adequate to meet that workload, then I struggle with the nature of the other 79 percent of the budget and the number of people that are doing mission indirect.

Who is in that mission indirect mess of people who could be helping here with the mission direct work that needs to get done and needs to not slip?

MR. DORMAN: Yes. We can certainly take that back and --

COMMISSIONER CAPUTO: I hear you that we're --

MR. DORMAN: -- get you some additional insight --

COMMISSIONER CAPUTO: -- focusing on priorities --

MR. DORMAN: -- on that.

COMMISSIONER CAPUTO: -- but when I hear licensing work like this in a critical area is going to slip, that's a sign to me that we're not focused on priorities.

MR. DORMAN: So I think what I heard here from our responses is a number of key projects that are moving ahead on schedule. I think we see similar things in some of the applications that we actually have before us in the new reactor arena. But we'll continue to focus on that and make sure we're supporting those activities.

COMMISSIONER CAPUTO: All right.

MR. DORMAN: Thank you.

COMMISSIONER CAPUTO: Thank you.

CHAIR HANSON: Thank you. Commissioner Crowell.

COMMISSIONER CROWELL: Thank you, Mr. Chair. Hopefully, that's stops. I have a squeaky chair and a bad microphone today. Okay, we'll see.

So, I have more questions than I'm going to be able to get through for the panel, so I may follow up with folks afterwards. And I'll just warn Carrie and Becca that I'm probably coming to you guys first with questions. But before that, I going to not ask a question to John and Dan, and just make a comment.

The morale and culture and workforce issues, John, that you've answered questions about already, I just want to say thanks for your commitment to that and dedication to trying to get it right.

In terms of a strategic workforce plan, my personal feeling is that the most important precursor to a successful hiring or retention policy is

having a culture and morale that is of the highest quality; that it's a place where people want to be.

And so, we heard this at the hearing yesterday, and I think that's the most important thing we need to solve, to the extent it needs solving, and where it needs solving within the Agency, because our hiring efforts are not going to be successful unless we solve that riddle first. So, I appreciate your efforts in that regard.

All right, let's talk about spent fuel and waste. Well, actually, recycling first, Carrie.

You mentioned that there's been interest in recent months in reprocessing. Can you elaborate on that?

MS. SAFFORD: Sure. There have been some discussions in the past, I don't know, maybe four to six months, with a potential applicant who wants to come in for preapplication discussions on submitting an application for a reprocessing facility.

COMMISSIONER CROWELL: And you're not going to want to answer this, but what's your gut on whether we need to revisit a rulemaking in this regard, or whether we continue to do it under our current guidelines?

MS. SAFFORD: So, my gut is, based on everything that I know and all the information I have available to me, is that we don't need a rulemaking at this time; Part 50 can handle it. It's going to be specific to the technology that comes in in the application. So, we can handle any deviations or Commission orders and exemptions.

COMMISSIONER CROWELL: Okay, thank you. And then, switching gears, how have you or your staff been engaged with the Canadian

nuclear waste management organization on the siting of a high-level repository in Canada?

MS. SAFFORD: I'm going to pass that to you.

MR. LUBINSKI: Thank you. So, our second panel is more on the waste side. So, we're on the front end of the fuel cycle.

But I can say that I've personally met with folks up in Canada. Shana Helton, who is the director of Division of Fuel Management and has met with folks to understand where they are on siting.

We had a really good meeting about where they are in looking at a consent-based siting-type activity.

We believe most of the technical issues they're dealing with are the same type of technical issues we had with respect to a deep geological repository here in the United States.

The issues are some of the same issues that I'm going to say are in the Department of Energy's roles and responsibilities in site selection, from the standpoint of consent-based licensing.

I believe they're down to two sites at this point that they're looking at, and they still haven't made their decision yet on where they are in moving forward with those sites.

But really, it's on the consent-based licensing, and I think the technical issues are very similar to ours and are not insurmountable.

COMMISSIONER CROWELL: I know we’re in second panel territory here, but one of those two sites along Lake Huron obviously got some attention at the hearing yesterday, and there's interest from elected officials on that and something we need to take into account.

You don't need to address it necessarily, but would you say that we're more engaged with our Canadian counterparts on their consent-based siting efforts than we are with DOE and their efforts?

MR. LUBINSKI: No. We continue to work with DOE to understand -- again, it's their role and responsibility in determining consent-based process.

We have not looked at, in working with Canada or DOE, in trying to get into the definitions of what's consent-based and where they go. It's up to them to make the decision on where the siting goes.

We are coordinating with them to understand schedules, processes they're in, so that we can understand where it comes to have our interactions with DOE.

Because, again, we do have to with DOE to make sure we could be in a regulatory role. I'm going to say, from the standpoint of Yucca Mountain, it was very clear that we had a regulatory role. We continue to have a role.

It's unclear in the future where we'll be, depending on where DOE comes out. So, we do need to make sure we understand, depending on what Congress does, whether we have a regulatory role there.

Again, with Canada, most of our conversations are on the technical side. But from a scheduling standpoint, understanding where they are in consent-based licensing is important.

With respect to the Great Lakes area, I will respond that we've continued to have communications with in the area of the Great Lakes. It looks like that at this point the siting their looking there for is not going to be high-level

waste, it's going to be low- to intermediate-level waste, which is a little different.

We are continuing to share, again, our technical expertise with them. As the Chair responded yesterday at the hearing, is we do want to continue to share our expertise with them as well.

Regarding policy decisions, policy decisions are within the country's decision.

COMMISSIONER CROWELL: Thanks. Carrie, on the course that Commission Wright asked you about, is it pass/fail?

MS. SAFFORD: There is a test at the end, but you don't have to take it.

COMMISSIONER CROWELL: Okay, noted. More importantly, for the course aimed at external stakeholders, what is the appetite or interest in that course at this point, and how are you doing outreach, and is there more effort needed to get people interest in doing it?

I'm particularly thinking about state, local, and tribal-type entities.

MS. SAFFORD: Yeah. Yeah, we're right at the outset of that, and that was a little bit of a late-breaking confirmation with my colleagues, that I knew we were going to open the course up to federal agencies. For example, Department of Energy.

That have some other staff that it might be beneficial for them to come over and take the course. And the question was asked, well, what about states and tribes? And we said, of course, there's no reason they couldn't come.

So, I think that's a great idea, and we are going to be making

sure we're advertising it, engaging with them so that they're aware of it.

So, the second course isn't geared towards external stakeholders. It's just going to be a replay of May's course. And then we can open it up. May is sort of the test run, for example.

COMMISSIONER CROWELL: As a former state regulator, I can tell you that it would be incredibly valuable to state folks to participate in that course.

Oftentimes, even the more sophisticated states only have a couple of people who really know this stuff well.

So, if you want to talk about how to expand outreach and get people interested, just let me know. I'm happy to help in that regard.

MS. SAFFORD: Thank you.

COMMISSIONER CROWELL: Becca, so you're overseeing a topic that's of great interest to me and I didn't really fully appreciate until recently, in preparation for this Commission hearing.

But the issue of aging in spent fuel, and special nuclear materials security, has your staff assessed when and where existing aged spent fuel will become a security concern?

MS. RICHARDSON: Thank you for the question. So, I'm going to be careful what I say here in an open forum, but if you want to talk more about it after, we can.

There have been studies that have been completed, where there's estimates on fuel that may no longer be self-protecting.

Some of those studies, we think we would need to do additional analysis, just based on the way the methodologies that were used

and whatnot.

But we are working with our partners and our interagency folks to understand studies that have happened in the past, and kind of try to understand where we're at now on the issue.

Obviously, this issue just gets worse over time. So, trying to understand where we are today is important in figuring out how to move forward on the security.

But one thing that we look at, the threat we look at, the vulnerabilities, the consequences and the mitigation.

And when you look at spent fuel, the packages that the spent fuel is in is part of the consideration. Is it all of the spent fuel? Is it only portions of it? Are all considerations on the risk for that for somebody to do something with that fuel?

So, we are actively looking at it as part of the paper that we will be putting up in October. One of the discussions.

COMMISSIONER CROWELL: Yes. It's a somewhat ironic or different way of thinking about, over time, as the health risk diminishes, the security risk increases.

MS. RICHARDSON: Yes.

COMMISSIONER CROWELL: And that's a different dynamic than we're used to in most cases.

On the enhanced security requirements that you're evaluating and looking at, how do those compare to, say, DOE's requirements and protocols for special nuclear material?

MS. RICHARDSON: Yeah, so it is different. We're both

looking at material attractiveness.

When we look at material attractiveness, we've tried to make it simple, and we're looking at just the dilution factor is what we're proposing.

So, it simplifies it a little bit, looking at non-dilute, moderately dilute, or highly dilute. DOE has, I think, four or five different ranges. So, we're looking in a more simple form.

But we do work closely with them to understand how they do it and how the material is protected, understanding there's differences in the material that we're looking at protecting, versus what they protect.

COMMISSIONER CROWELL: Thanks. And if I may, with no more time left here, but really quickly, just to – Yawar. For the Paducah laser enrichment process, would DOE continue to own the uranium tails?

MR. FARAZ: That's a good question, Commissioner. I don't know the answer to that, but I can get back to you on it.

COMMISSIONER CROWELL: Great, thank you. Thank you, Mr. Chair.

CHAIR HANSON: Thanks, Commissioner Crowell. I think Carrie and Yawar, I'd like to start with you guys this morning, and kind of dive in a little bit on the TRISO-X facility review.

Can you discuss some of the outreach with X-Energy, in terms of kind of pre-application engagements on TRISO-X, and how are we incorporating lessons from those pre-application engagements?

MS. SAFFORD: Okay, sure. I can kick it off. And, Yawar, if I leave anything out, fill in for me.

MR. FARAZ: Mm-hmm.

MS. SAFFORD: We've done a lot of outreach with them, I think just from the get-go, pre-application meetings, trying to understand what the scope of the project was going to be, timelines, what their plans were for the application -- timing, as you know, with the TRISO application that came in, in sort of a bifurcated manner.

CHAIR HANSON: You mean in terms of the safety and the environmental side?

MS. SAFFORD: Yeah, yeah. So, the environmental came in first on TRISO, and the safety piece came in after that. In November, we did issue an acceptance of the complete application. Right? So, that kicks off the timeline moving forward.

I think what we've said here, and what I know I've said repeatedly and a lot of our stakeholders here repeatedly, is that these pre-application meetings are really important, to the extent there's any novel approaches, or maybe, not necessarily disagreement, but a difference of opinion, on certain aspects of the application and the technology, and what needs to be included, and timing of things.

So, those issues are really important to hammer out early on. It not just helps get a good application in the door, it sets expectations, it helps us in budget space, it helps us with staffing, and all of those lessons learned can be applied for future applications with other applicants and other facilities.

CHAIR HANSON: Okay. The environment report was submitted just about a year ago now, right?

MS. SAFFORD: Exactly.

CHAIR HANSON: So, how close are we then to completing

the review of the environmental report? Or is that something where it has to get kind of synched up with the safety review at some point, or can those be separate?

MR. LUBINSKI: Yeah. Actually, it was, in this case with TRISO-X, it was the safety report that came in first.

CHAIR HANSON: Oh, I'm sorry. Right, because it was the --

(Simultaneous speaking.)

MR. LUBINSKI: And then we had a current one that came in for GNFA, where we've received the environmental and it was flipped.

CHAIR HANSON: I see. Thanks, John. That's for that clarification.

MS. SAFFORD: My apologies in that. Sorry.

MR. LUBINSKI: So, we were just completing the acceptance review of both at the same time. But that was just this fall.

MS. SAFFORD: And to answer your other question, they don't have to be, over time, synched up, necessarily. And there's no requirement for that. The environmental process typically takes longer, with the public engagement and the outreach.

CHAIR HANSON: Ah. Okay, thank you. I guess, you know, I think we heard last fall about the time for the acceptance review on the TRISO-X facility, and the sense, I guess, at least on X-Energy's part that that maybe took longer than they had anticipated.

Did that schedule incorporate these pre-application engagements? And, if so, how? And I think part of the discussion that happened around that time -- John, it may have been with you -- was, well,

yeah, the acceptance review took longer, but we're going to kind of see the benefit on that in the overall review.

And so, I guess part of my question is, in terms of that acceptance review, how did that benefit from the pre-application engagements? And then, does that 32-month schedule actually incorporate what I understood to be some of the advance work that was maybe done as part of the acceptance review?

MR. LUBINSKI: Yeah, thanks for the question. I'll go back a little in history before --

CHAIR HANSON: Yeah, please.

MR. LUBINSKI: -- on why some of the bifurcation happened as well between the safety and environmental.

CHAIR HANSON: Okay.

MR. LUBINSKI: We had been working with TRISO for pre-application meetings before the safety part of their application came in.

We felt we were dealing with many of the technical issues associated with that. The reason that they had a delay was they changed sites where they were going to actually build the facility.

So, that changed our environmental review. But they wanted to get the safety review in-house, and they did that. And they came in last April time frame, Yawar, if I'm remembering correctly. So, it was last April when they came in.

From a technical standpoint, we think they hit all the technical marks that they started along the way.

Where the confusion came during part of that review was the

level of detail needed in an application, because they still weren't completing their design process yet.

As part of the review, they needed to do an ISA, an integrated safety analysis. They needed to identify all of their items relied on for safety -- IROFS.

And they had a misunderstanding -- maybe a disagreement -- with us that the level of detail that was needed to be provided in the application, vice what was needed to be provided later when we were going through the process.

So, once we reached that, not only do I think we're in a better place with them, we're also in a better place with the industry, from a lessons learned of, for brand new applications, how much detail is needed in an application, with respect to an ISA, as well as the IROFS.

It also identified, as Yawar said, one of the areas for electrical and instrumentation and control, where that was an area that we felt we needed a little more detail on the review than they had on the front end, and they've agreed to provide that by next August.

So, to say we're taking advantage of it. I think we did have a bit of an advantage on the major technical issues.

The ISA and the level of clarity in the application I think is something that we learned after we received the application, and it's going to benefit others.

But I think our review of the technical issues as we go forward, is going to benefit from those pre-application reviews we had beforehand.

It'll be a real question to raise next August, when we get the electrical and the I&C part, of whether or not that continues to be the case.

CHAIR HANSON: I see. Yeah, thanks, John. That's very helpful.

From our side of the house, I've been really interested in the lessons-learned, our own lessons-learned assessment from the NuScale review. Right?

And there were a couple of things really about the management of these reviews that I think seems portable or applicable to kind of other ways of doing this. Right?

One was about having a core team. So, you've got that core group of people. Another one is that integrated review of the application up front. Another one is kind of management vetting of RAIs.

So, I guess my question is, how are we taking some of those lessons learned from the reactor side of the house in terms of the management of those reviews, the focus on the most safety-significant aspects, and applying them to fuel facilities going forward?

MR. LUBINSKI: I'm going to start, and then ask Yawar, who's leading this a bit, but I wanted to get the compare-and-contrast to the other side of the house as well.

So, from a NRR perspective, most of the organization is very matrixed, from a project management standpoint, on the technical side.

Doing teams like that really is a benefit as you continue to move forward.

We do have a benefit that we're in one division. So, it's not

just even one office. One division has all of the technical people, as well as the project management people, that have worked on, not just these applications together, but other applications together. So, we already have a little bit of that team approach.

The other part is, we have benefitted from having a reorganization we did of NMSS back in 2019, where we combined the two divisions together, of the fuel facilities, as well as the spent fuel storage and transportation, where we have the ability to reach across to the other business line and bring people in as needed.

If we need structural engineers from that side of the house, we can bring them in on specific reviews.

But Yawar can talk a little more how that we see any benefits the way we put the team together now on some of those reviews.

MR. FARAZ: That's a very good question, Chairman. So, I can give you an example of how we're using the NuScale experience, I can't say for Niowave, because I'm not directly involved in that.

CHAIR HANSON: Mm-hmm.

MR. FARAZ: So, we've looked at how we did the pre-application engagement with NuScale, and we're trying to apply that same model to Niowave. We've got a review team already set up.

We've had multiple engagements with Niowave. We plan to have site visits of the technical reviewers to the site to look at the equipment, and maybe even to Argonne, because Argonne is helping Niowave in that regard.

So, clearly, it's not at the same level as NuScale, because I

think Niowave is a fuel that's going to be under Part 70. It's a simpler facility.

But clearly, we're using the NuScale model to apply in this case. And as far as TRISO-X is concerned, our pre-application engagement was a fairly long engagement, and one of the reasons was, is that they changed sites. So, it was like almost two years of pre-application engagement.

So, there was sufficient time for us to visit the site and engage with them. So, that helped.

CHAIR HANSON: Okay. Yeah, thank you. In terms of the 32-month schedule, at the end of that they get -- I think of it as a combined operating license. I know that's not really what it is, but they're good to go. There isn't any additional hurdle at the end of that, right?

MR. FARAZ: So, the licensing aspect ends whenever we complete that review.

However, following that, we have these operational readiness reviews, or inspections, to ensure that the facility is built as described in the application, and the programs are as described in the application.

So, then it goes over several months. And then after that, the region would issue, if everything is okay, then they would issue the go-ahead to accept, receive material.

CHAIR HANSON: Okay, thank you. Just real quickly, that 32-month schedule, I mean, is that fully staffed? Is that fully resourced? Is that sensitive to additional resources, or additional shifting of staff?

MR. LUBINSKI: Right now, as Carrie responded earlier, we do have right now that 32-month schedule assumes the other applications that we have coming in. So, we have looked at that from the standpoint of what the

other impacts are.

It also has made some assumptions about our continued workforce and our continued hiring, as we continue to move forward.

To say fully staffed, are there 100 percent full-time people of a team working on it? No. But have we accounted for all the other work?

Again, as we continue to move forward, if other priorities were to come, we would look at those. But we have kept at the top of our list of prioritization, inspection is number one, inspection overall.

And I really have to give compliments to Region II in this area, who has all the fuel facilities to make sure that we're keeping up and make sure we have qualified inspectors out and completing our inspection programs. So, thank you for that.

We're also making sure we're cross-training our folks to help in that area. We also are making sure that any licensing actions that are supporting continued operations are high on the list. And we continue to have full funding of those.

Then, we're looking at applications that are supporting other areas, such as, like, a TRISO-X is an example. It's going to support advanced reactors as we continue to move forward. So, we've kept that at a high priority.

So, I really have difficulty envisioning anything that would change a prioritization that would delay us by not having staff to do this work.

We would definitely be looking at much lower things, like additional infrastructure work that we're doing on guidance documents and preparing for that. And doing delays in those types of activities instead.

CHAIR HANSON: Okay, great, thank you. Thank you very

much. That's very helpful. Thank you for the first panel. We'll take a ten-minute break, and let's say we'll reconvene here at 10:40. Thank you all.

(Whereupon, the above-entitled matter went off the record at 10:30 a.m. and resumed at 10:38 a.m.)

CHAIR HANSON: All right, we're back for the second half of our meeting this morning. We're going to be talking about the spent fuel and transportation business lines. Dan, I'll hand it over to you.

MR. DORMAN: Thank you, Chair, and good morning, once again, Chair Hanson and Commissioners.

As you said, our second panel is featuring our Spent Fuel Storage and Transportation business line.

This business line continues to make strides with risk-informing our regulatory approaches. And in addition, we continue to maintain an appropriate focus on our mission for the safe and secure management of spent nuclear fuel, while also maintaining effective external communication, transparency and stakeholder engagement, as we prepare for the use of new technologies.

I'd like to note that this past February, two months ago, the NRC's Office of the Inspector General issued a special inquiry report on the inspection of independent spent fuel storage installations, or ISFSIs, at operating reactors in NRC's Region II.

In 2019, the staff had initiated an effort to evaluate and enhance the NRC's existing ISFSI inspection program, by developing a clear, more risk-informed, comprehensive and consistent approach to ISFSI inspections across the four regions, focusing on those areas most important to

safety.

This resulted in an enhanced ISFSI inspection program that was implemented in January of 2021.

The staff has looked at the recent OIG report and has not identified a concern or safety issue that would require the NRC to take immediate actions on prior inspections conducted.

Based upon a detailed review of actual inspections performed, the NRC has reasonable assurance of the long-term safe storage of spent fuel at ISFSIs.

The staff is evaluating the findings from the OIG's report and plans to respond next month, and I'm confident that the IG's findings associated with the inspection program implementation have been addressed through the enhanced ISFSI inspection program that was implemented in January of 2021. Next slide, please.

On this panel, John Lubinski, director of the Office of Nuclear Material Safety and Safeguards, or NMSS, will provide you with strategic insight supporting the Spent Fuel Storage and Transportation business line.

Jake Zimmerman, Deputy Director for the Division of Fuel Management in NMSS, will discuss the Spent Fuel Storage and Transportation Program environment, how we are leveraging risk insights in licensing reviews, and share an overview of the evaluation and effectiveness of the oversight program.

Norma Garcia Santos, a project manager in the Storage and Transportation Licensing Branch in the Division of Fuel Management, will give an update on the Spent Fuel Storage and Transportation Licensing Program, its

significant accomplishments and licensing activities, and an overview of the new Fuels Atlas application for the back-end of the fuel cycle.

Mark Henrion, a senior health physicist in the Decommissioning ISFSI and Reactor HP Branch in the Division of Radiological Safety and Security in Region I, will share insights on how we are maintaining inspector bench strength, maintaining openness, and engaging with stakeholders, and the recent success in applying the very low safety- significant issue resolution, or VLSSIR, process.

Finally, John McKirgan, Deputy Director for the Division of Engineering in the Office of Nuclear Regulatory Research, will provide an update on spent fuel research activities, and our engagement with external stakeholders on new and advanced fuels.

This concludes my opening remarks, and I'll now turn the presentation over to John Lubinski.

MR. LUBINSKI: Thanks, Dan. And good morning again, Chair and Commissioners.

It's my pleasure to be here today to discuss the great work and people contributing to the Spent Fuel Storage and Transportation business line.

Our coordination and partnership with the regions and other headquarters offices is demonstrated by the participation on our panel today.

The business line ensures the safety and security mission of transportation of radioactive materials, and the storage of spent fuel, including fuel for current and new reactor designs.

The business line is responsible for licensing and inspection

of approximately 100 transportation package designs, and fifteen spent fuel storage system designs.

As of today, the business line has licensed, and continues to provide oversight, to more than 3,900 dry casks across the nation.

The business line is focused on ensuring an effective framework for transportation of fresh and used nuclear fuels, including current fuel designs, accident-tolerant fuels (ATF), and advanced reactor fuels.

The business line has successfully reviewed and approved seven transportation package designs to support use of ATF and advanced reactors.

It is also focused on understanding and addressing any differences with the eventual safe storage of those reactor fuels. Next slide, please.

During the previous panel, I introduced our focus areas, which were people, trust and workload, and that applies to this business line as well.

While these areas need more attention, the business line is continuing to meet safety and security mission by continually assessing and prioritizing our licensing and inspection activities, to ensure they are safety-focused, and support timely regulatory decisions commensurate with industry operational needs.

Regarding people, we are recruiting, developing, and retaining, a highly skilled and engaged workforce. We continue to promote an organizational culture that focuses on knowledge management and staff training, and qualifications, and embraces cross-training programs and career development.

We are also ensuring strong knowledge management through our internal business line dashboards and use of Nuclepedia.

Regarding trust, we are enhancing public outreach and inspiring stakeholder confidence though openness and transparency with our regulatory decisions.

A particular success in this area occurred just this past December. We held a public meeting with the industry, representatives of the Nuclear Energy Institute, and members of the public, to discuss current fuel facility activities, and we jointly addressed prioritization of work areas in the business line.

This proved to be a vital and meaningful exchange between staff and industry, and demonstrates our continued efforts to increase stakeholder confidence, and make more informed regulatory decisions.

Regarding workload, we are leveraging technology to inform data-driven decision-making. The business line continues to expand its use of web-based licensing, to track work and plans for licensing activities.

This concludes my remarks, and I'll now turn to Jake Zimmerman.

MR. ZIMMERMAN: Thank you, John. Good morning, Chair Hanson and Commissioners.

It's a pleasure to be here today to brief you on the programmatic aspects of the current and future environment for the storage and transportation business line. Next slide, please.

As has been said, the business line ensures the safe and secure storage and transportation of spent fuel and radioactive material

transportation.

The budget for this business line in fiscal year 2023 is approximately $27 million. Of that, 75 percent of it is on licensing and oversight activities.

The budget reflects an emphasis on our safety-focused, cost-efficient and timely regulatory reviews and inspections.

The major workload drivers include reviews of transportation packages and dry storage cask designs, ISFSI licensing, and oversight to support the safe transport of NRC-regulated radioactive material, and then the transfer and storage of spent fuel to storage at reactor sites, and then also standalone ISFSIs.

We also began activities in support of Project Pele, a project of the U.S. Department of Defense to deploy a prototype mobile nuclear reactor.

We proactively plan and prioritize and adjust our activities and our resources to effectively manage our workload.

We frequently use the add/shed/defer process. This process is used to balance existing planned or emergent higher priority work, or just resources to accomplish the work.

For our people, we are focused on attracting, developing and maintaining a high-performing, diverse, engaged and flexible workforce, with the skills needed to carry out our mission now and into the future.

Over the past two years, the business line has had a strong focus on managing its resources.

During this time, the Division of Fuel Management -- and as

indicated in the previous panel, is responsible for both business lines, so that's why I'm speaking about it that way -- has lost 21 staff members due to retirement or taking other positions, either internal, or external to the NRC.

Being understaffed brings new challenges on how we manage our workload, as we need to allow time for new staff to be fully qualified, and experienced staff to train them.

Notwithstanding, progress has been made by onboarding new staff and hosting several NRAN participants, which I'm personally very excited about. I'm a Class of 1993 reactor engineer intern.

We have increased our hiring in headquarters and the regions in the last year, to support our inspection and oversight programs. Many regional inspectors are cross-qualified and support various business lines, to help with the scheduling challenges.

In addition, our headquarters staff supports the regions as needed with those activities.

For outreach, over the last year we've received several inquiries from stakeholders that serve to better understand their concerns associated with our business line.

We've participated in various technical and regulatory knowledge exchanges with the International Atomic Energy Agency, the Nuclear Energy Agency, and our regulatory counterparts, which were discussed in the earlier panel of the Canadian Nuclear Safety Commission.

Our participation in the Transport Safety Standard Committee, and other transport activities, have also helped to raise awareness and promote coordinated approaches related to transportable nuclear reactors.

These forums serve for keeping awareness on progress in international programs, identifying cooperation activities and mutual interest, and building connections between organizations.

We continue encouraging early engagement with our applicants and licensees, and most notably, pre-application meetings seems to be a continuing theme, and I think we've been successful.

In other formal or informal communications, they serve to identify possible cross-cutting issues that impact our overall schedules, if not timely addressed. The next slide, please.

We apply risk insights, lessons learned, and a variety of regulatory tools, to perform reviews more consistently and efficiently, resulting in early identification of cross-cutting issues, improve review schedules, and resource predictability.

Last year, we provided the Commission a high-level overview of our efforts of developing a risk tool.

The staff used this tool to focus the acceptance reviews of dry cask storage systems applications. The tool includes risk insights, based on extensive knowledge collected over several decades of certifying these systems.

Based on the pilot, the staff found that the tool and the job aid enhanced staff's awareness regarding risk significance of each component.

The staff also found that the technical basis needed to be strengthened to facilitate the use of the tool, and better support knowledge management for risk-informing dry cask storage reviews.

This year, we plan to extend implementation of the tool to

acceptance reviews on amendments received from May through October of this year.

We plan to periodically evaluate the tool to determine whether its use enhances staff's practices that support risk-informed review prioritization, and decide if further revisions are necessary, as more insights are gained. Next slide, please.

We meet our safety and security mission through implementation of the inspection program for spent fuel storage and transportation.

We are in the process of completing a self-assessment of the enhanced ISFSI inspection program that, as Dan indicated, was implemented in January of 2021. So, we're two years through our triennial cycle.

The interim findings, so far, have confirmed that enhancements made to the program were effective in appropriately focusing on the most risk-significant activities, and are being implemented consistently across the four regions.

Revisions in inspection procedures and priorities described in associated manual chapters, facilitates focusing on higher-risk activities, and should benefit newer inspectors.

This year, the staff also completed an annual operating experience assessment to inform future inspections and licensing reviews that informed our annual Agency Action Review Meeting paper to the Commission.

This assessment validated the staff's actions to address the issue of licensees applying administrative controls during short duration outdoor cask storage operations.

There were no identifiable trends that warrant a change in the oversight and inspection program.

Another area where the staff continues to focus is aging management of dry cask storage. More ISFSIs are reaching the period of extended operations.

The staff developed a new aging management inspection procedure. This was informed by lessons learned from a temporary instruction that assessed licensees' activities for managing age-related degradation.

The lessons learned provided the staff with operating experience to assess and adjust some of the acceptance criteria for important safety systems, structures, and components, due to credible aging mechanisms and effects during the period of extended operation.

The procedure is the final piece to an operation focused to manage the potential age-related degradation for dry cask storage systems. We plan to issue the new inspection procedure this summer.

This concludes my part of the presentation. I'll now turn it over to Norma Santos Garcia.

MS. GARCIA SANTOS: Thanks, Jake. Good morning, Chair Hanson, Commissioners.

I appreciate this opportunity to provide an update on activities, accomplishments, and the New Fuel Atlas, as this relates to the Spent Fuel Storage and Transportation business line.

I started my career in NRC as a chemical safety reviewer for fuel facilities, and I'm currently a Storage and Transportation project manager. Next slide.

The pictures shown in this slide represent some of the many people across the agency that support the licensing business line. Next slide, please.

The business line continues to receive and process a large number of licensing actions. In fiscal year '22, we completed 63 reviews.

During this period, the staff deferred some lower priority licensing actions, including reviews of some decommissioning funding plans, or DFPs, for independent spent fuel storage installations, or ISFSIs.

These were necessary to support higher-priority actions, such as the HI-STORE Consolidated Interim Storage Facility, or CISF, application.

So far this fiscal year, we have completed 64 licensing reviews within the established licensing matrix.

This is the largest completion rate this year, since we have completed some of the deferred work in fiscal year '22, as well as incoming work.

Examples of significant licensing reviews include issuing a package amendment authorizing transfer of accident-tolerant fuel assemblies, with up to seven percent enriched uranium.

We also issued subsequent renewal of the GE-Morris waste storage independent spent fuel storage installation license for an additional 20-year term, for a total of 60 years of license period. The renewal also incorporated aging management programs. Next slide, please.

This pie chart depicts the inventory of all ongoing licensing actions in our business line. We currently have 49 licensing and certifications actions, which approximately 28 are scheduled to be finalized this year.

Ongoing actions include the HI-STORE CISF application, and three applications related to advanced reactor fuel assemblies, up to eight percent enriched uranium, or TRISO fuel.

Another activity includes the review of the first topical report in the shielding area, which, if approved, will streamline the process of approving future amendments to certificate of compliance for storage system designs.

The projection of our workload includes an increase in Department of Transportation review requests of foreign approved package designs or re-validations, packaging applications to support advanced fuels, or ATF, and dry cask storage amendments to support decommissioning facilities.

If we complete the ongoing work scheduled to be closed in fiscal year '23, the trend of our workload is increasing. Next slide, please.

The licensing program ensures safety by leveraging our risk-informed performance regulatory framework, and engaging with applicants, licensees, and vendors, early in the licensing and certification process.

We have routine engagements with major vendors and other federal agencies, to discuss expectations, future work, and status of current licensing reviews, as well as encourage using pre-application meetings for review of new or complex designs. For example, in the review of the packaging design to transport high-assay, low-enriched uranium, or HALEU, the staff conducted multiple pre-application meetings and used Tiger teams. This approach made the review more efficient and resulted in only one round of requests for additional information. It is relevant to know that the feedback provided by the staff during pre-application meetings could result in a better quality of applications.

In terms of risk-informing in calendar year '22, we received two additional applications implementing a methodology similar to the graded approach pilot, to increase clarity and use a certificate of compliance.

One application has been accepted for review, while the other is in the acceptance review.

Lastly, regardless of the workload challenges, there have been improvements in our data collection and analysis capabilities in the Web-Based Licensing System.

The data gathering is used in reports and dashboards, increasing our capability to manage and monitor licensing reviews, to better inform us about the status of our licensing metrics. Next slide, please.

In the previous panel, Yawar introduced the New Fuel Atlas. The atlas consists of communication tools that include the infographic and the HALEU website.

The atlas also consists on the regulatory planner, as shown in this slide. To create this planner, the staff is working to consolidate a large amount of information related to the New Fuels into a central location, and then accessing information technology needs to help develop useful user interface.

This data varies and will include information on different anticipated advanced non-light water reactor fuels at different phases of the nuclear fuel cycle, and programmatic areas, such as licensing, oversight and research.

As you can see on this slide, the atlas is organized in a matrix manner. This format will help us to better plan and adjust to new and unexpected developments of advanced fuels activities, by providing the

capability to develop multiple roadmaps.

For example, as you can see in the orange rectangle, we could use the planner to develop a roadmap of research across the molten salt fuel cycle, or as you can see in the blue arrow, to identify oversight needs associated with spent fuel transfer for different types of fuel.

The planner will help us to focus on the appropriate things at the appropriate time.

This concludes my presentation. Now, I'll turn it over to Mark.

MR. HENRION: Thank you, Norma. Good morning, Chair, Commissioners. I very much appreciate the opportunity to speak with you all this morning. Next slide, please.

One of our main areas of focus is staffing. We are working hard to get new ISFSI inspectors onboard and qualified.

Limited resources, balancing multiple business lines within our branch, which includes operating reactor health physics inspections, which are a part of the reactor oversight process, and constantly changing schedules and ISFSI loading campaigns and dry runs, leads to challenges in inspection coverage and resources.

Despite these challenges, the diligent work of our inspectors, and support from the Division of Fuel Management, has allowed us to effectively implement the ISFSI inspection program according to the guidance in the NRC Inspection Manual 2690.

We are focused on hiring new staff and building our roster of qualified ISFSI inspectors, by placing our new inspectors in the field earlier in the training process, to gain experience and familiarity with the ISFSI program

objectives and inspections.

Currently, I am serving as ambassador and mentor to two new inspectors whose first qualification with the NRC will be in the field of ISFSI.

We are partnering with the program office to conduct robust training, coupled with in-field experience, led by qualified senior inspectors.

The regions work closely with the program office by holding monthly counterpart calls and annual counterpart meetings, to discuss how we manage schedules and evaluate issues, how we face challenges, and successes, to ensure consistency throughout the business line, and ensure that our people are properly engaged and prepared. Next slide, please.

Our stakeholders in Region I, which encompasses the Northeast United States, are very engaged and active in following our inspection efforts.

This makes open and transparent communication with the public especially important.

We try to alleviate concerns and apprehension by engaging with the public via live presentations and webinars, in concert with our partners in NMSS.

This is illustrated by a recent joint effort by headquarters and Region I, where a webinar was held to engage with the public on aspects of emergency preparedness and security requirements for reactor facilities undergoing decommissioning.

Approximately 90 members of the public participated in this meeting, and the staff answered a number of questions associated with spent

fuel storage, and risks associated with ISFSIs.

This was supplemented by an in-person public meeting held approximately one week later, near Indian Point, where Region I and headquarters staff presented information associated with spent fuel and the process of loading ISFSI canisters.

Approximately 110 members of the public attended this meeting, both virtually and in person, and the combined effort between headquarters and regional inspectors resulted in open communication and engagement with our local public.

One of our goals is to take the mystery out of spent fuel storage by speaking in plain language when directly answering the public's questions.

We believe that engagement with the public on ISFSI issues allows the staff to provide more information and focus on concerns and questions from external stakeholders. Next slide, please.

Members of the ISFSI inspection program regularly work together to disposition complicated issues. In fall of 2021, Region I identified a violation related to tornado missile hazards.

During counterpart calls with other regions and NMSS, it quickly became apparent that similar issues were identified at other sites across the nation.

Headquarters partnered with the regions to better understand these issues and worked diligently to separate aspects that differed from plant to plant.

This effort was reflected by great communications among all

the inspectors and the program office, where the staff was able to discern the nuances of each issue, while avoiding the application of a one-size-fits-all approach to each individual site.

This enabled the staff to glean relevant information and, with assistance from the Office of Enforcement, carefully evaluate each unique situation.

The staff applied the ISFSI program's first use of the very low safety-significance issue resolution, or VLSSIR process to an ISFSI, as it was warranted at a site and separately applied enforcement discretion at several sites where the VLSSIR process was not deemed appropriate.

This concludes my presentation. I will turn it over to John McKirgan. Thank you.

MR. McKIRGAN: Thank you, Mark. Good morning, Chair and Commissioners. It's a pleasure to be here today on behalf of the Office of Nuclear Regulatory Research, and I'll update you on the status of the activities we've been conducting to support the business line.

In my talk today, I'll touch on two topics, the spent fuel research activities and how we're engaging with external stakeholders on new and advanced fuels.

Be Ready is our mantra in research and we want to do that by providing the right data, tools, and training to prepare the agency for both the current fuel challenges as well as new and advanced fuel issues to ensure the continued safe and secure transport and storage of these materials. Next slide, please.

So, in discussing data, I want to talk about how we in

Research support the program office. The staff takes a systematic approach as it relates to data, such as identifying any new data needs or assessing new data that becomes available.

We commonly use Phenomena Identification and Ranking Tables or PIRTs, along with operating experience, and modeling and simulation tools, as well as experiments to focus our research efforts on the most significant safety issues for storage and transportation of spent nuclear fuels.

An example of this is our research activities in obtaining data on how fuel cladding behaves in storage. It is crucial we understand key phenomena such as fission gas release, hydride reorientation, and creep rates, as these have been shown to be important.

The data to understand and confirm our existing knowledge of these phenomena will better position the staff to review industry requests as these fuels move into dry cask storage.

Research leverages its international and domestic partners. For example, with creep rates, the staff, together with partners, are participating in multilateral programs like the Studsvik Cladding Integrity Project or SCIP, to obtain creep rate data on high burnup fuels.

This data will be used to validate our fuel performance code FAST and enable decision making by the program office. Next slide, please.

Another item I want to touch on is building tools to better risk inform the reviews. Here, the staff has developed a risk tool for storage reviews that enables the technical reviewers to focus on the most risk and safety significant items.

In developing the tool, the staff ranked the phenomena with

respect to which particular review items warrant greater attention based on their significance and which items might not need as much attention.

Of particular interest here is with new reviewers. The risk tool can enable them to come up and be more efficient in their reviews quickly.

Now, the tools that we've developed to date have really focused on storage, but we're also thinking about transportation. The Office of Research is supporting the business line in the review of a risk-informed approach on the transportation of microreactors.

You've heard that the Department of Defense's Strategic Capabilities Office is working on a transportable microreactor, Project PELE. Pacific Northwest National Laboratory, in support of the DoD, is developing a risk method tailored to the transportation of microreactors, and with the expertise and skill sets available to us in the Office of Research, we're able to provide support to that activity.

Staffing for risk and reliability analysts has been a challenge, and so we're working very closely with the program office to make sure we're applying these highly valued staff where they are most needed. Next slide, please.

So, we talked about data and I talked about tools. Next, I'd like to talk about training, which is an essential component to keeping our staff ready.

One of the activities that we've completed recently is a series of training modules in the area of computational fluid dynamics or CFD. This is an important tool that's been used in the thermal analysis of spent fuel storage.

Increasingly, industry is looking to put hotter fuel into canisters and that's required a close look at the heat transfer characteristics. It is a complex set of phenomena and the tools require specialized training.

Our senior level advisor in this area has been working with some of the senior staff in the program office to produce a series of training modules. These modules were recorded and are available on the Nuclepedia page.

These are available to both current staff that want to sharpen their skills in CFD and also very importantly to new staff coming on board so we can get them up to speed quickly.

These are just some of the data tools and training the Office of Research has been developing to support the business line. I could go on, but let me pivot and talk about some of our outreach activities. Next slide, please.

So, the Research resources in the business line are modest, but that's not an indication of their importance, and we want to make the most of these resources by engaging with stakeholders. An example of this is the High Burnup Demonstration Program at North Anna and the Sibling Rod Project.

This is an effort sponsored by the Department of Energy and the Electric Power Research Institute, or EPRI, looking at higher burnup fuels in storage. With every project, we seek to leverage where we can and coordinate our activities so we don't duplicate research.

In the North Anna demo project, there is an instrumented cask containing high burnup fuel assemblies. This ongoing effort will yield a

tremendous amount of data. The outcome we're looking for is ensuring safe storage of high burnup fuels as these materials move into dry cask storage.

In the thermal analysis area, the instrumented casks provided valuable validation area. Further, as part of the program, a number of high burnup rods were taken for extensive nondestructive and destructive testing.

The DOE and EPRI are putting up the vast majority of the resources, on the order of $20 million all told, and the NRC is achieving a great return on our modest investment. Through our memorandums of understanding with DOE and EPRI, we were able to engage with these stakeholders and express our interests and data needs to gain the maximum benefit from the program.

Data from this program will provide additional validation data to enhance the staff and industry's criticality codes. The additional data will enable reduced uncertain in thermal and criticality analysis and enable additional flexibility for the licensees in moving high burnup fuels to storage while maintaining safety.

Another area I'd like to touch on involves our readiness for advanced reactor fuels and their storage and transportation. The staff has previously developed a series of reports to identify technical information needs for advanced reactor fuels, and that work has helped guide our research and positioned us to engage with stakeholders like the Advanced Research Projects Agency for Energy or ARPA-E.

I believe the Commission heard from Jen Shafer at a prior meeting and I'd like to follow up with that on a discussion with some further talk on one of those programs, ONWARDS, which is Optimizing Nuclear Waste and

Advanced Reactor Disposal Systems.

So, through this program, ARPA-E is funding a number of universities and industry entities to research some of the specific waste forms that will be produced by advanced reactors, including molten salt and TRISO fuels.

One of the programs is looking at identifying improved processes that will be used to treat the spent fuel, as well as looking at different storage and transportation considerations.

By observing these activities as they are proceeding, the NRC staff have been able to get a very early look at the technologies and prepare for any issues that may impact safety. In return, the staff were able to point to current regulations and guidance that the staff would rely on to evaluate these technologies.

Engagements such as these will enable the staff to be ready for what lies ahead, and with that, I'll turn it back over to Dan for some final words.

MR. DORMAN: Thank you, John. I want to express my appreciation to all of the NRC headquarters and regional staff that continue to make the spent fuel storage and transportation programs successful. I also want to thank the people here at the table today and the whole team who helped us to prepare for the briefing, and we look forward to your questions.

CHAIR HANSON: Thanks, Dan. We'll start again with Commissioner Baran.

COMMISSIONER BARAN: Thank you for your presentations and your work. Dan, you mentioned early in the presentation the Inspector

General's report that raised concerns about how ISFSI inspections were being performed in Region II. Can you walk us through the specific changes that have been made that address the IG's findings and concerns?

MR. DORMAN: Yeah, thank you, Commissioner. I'll start and the team can add as needed. I think the root of the concern that initiated the IG's review was concern from some of the inspectors in Region II that were being assigned work on ISFSIs that they had not been appropriately trained and qualified to do those inspections, and I think that was substantiated to a degree.

So, then the question then is so the work that was done during that period, you know, does anything additional need to be done to address that? But I think the work that was done to build the program from 2019 until its implementation in January 2021 got at those issues and revised the program to make sure that we're applying it consistently.

Part of the challenge there was that in, I think it was 2003, the Commission consolidated the fuel facilities inspection program in Region II and moved the materials inspection program under other parts of the materials safety program to Regions I, III, and IV.

And so, ISFSI inspectors were in the DNMS division, the Division of Nuclear Material Safety in our former structure in Regions I, III, and IV, but there was no comparable division in Region II, so Region II was drawing on other skilled inspectors and perhaps had not given them the full set of training that was needed.

So, I think part of the focus of the transition and the implementation of the revised program in January of 2021 was looking at the

procedures and making sure we're risk informed and focused on the most important things, but also looking at the qualification program for the inspectors and making sure that we caught that up.

MR. LUBINSKI: Thanks, Dan. The only things I'll add to that, as Dan said and repeating what part of it is, part of it was the qualifications of the inspectors in Region II and the other was the level of effort being put towards each of the inspections.

We were looking at that and had identified in 2019 and put a group together to do that. So, in parallel, while the IG was looking, we did that. And as the IG referenced in its May, or February report, they had looked and recognized our program, and believed it addressed many of the issues.

We appreciate the IG looking at this because we always like to have another set of eyes on it. We also have the benefit that we have now been through two years of implementing the new program. Most of the inspections before were on a triannual type schedule and we implemented this a third of the way into that, so we're through one cycle of that program.

We're doing a self-assessment at this time, so it's really great that it parallels with getting the IG report so we're looking at our own self-assessment results as well as what's been noted by the IG.

We think the issues noted by the IG were issues that we were aware of and were part of our development of the new program, so now it's looking at whether we adequately implemented those changes and addressed those.

COMMISSIONER BARAN: Okay, well, I'll be interested in the results of that. Jake, you mentioned the Project PELE prototype demonstration

of a mobile nuclear reactor. My understanding is that this is a first-of-a-kind application because it will involve transportation of the entire reactor. What does that review involve and how is it going so far?

MR. ZIMMERMAN: Okay, so thanks for the question. So, that's a high-priority review for us. There's two main roles. There's the review of the risk-informed methodology, and as you indicated, that's a novel approach for us, and then there's also the review of the application from BWXT to transport the package containing the microreactor.

So, right now, we're focusing on the risk methodology. We just issued an RAI last week and we expect the Strategic Capabilities Office with the Department of Defense will have a response to us by mid-June.

We've been also holding pre-application meetings. So, as far as PELE, it's going very well. We don't expect the application for another year, the full application, the submittal, but all of these pre-application engagements are going well.

And then again, we're having pre-application discussions with BWXT and their contractor over the next month or so, and we're trying to identify best practices in our licensing and making sure we have a shared understanding of the regulatory approach that we're going to ultimately be looking to license this to.

COMMISSIONER BARAN: Thanks for that update. Norma, you talked a little about revision, or reviews rather, associated with certifying transportation packages for fresh and spent advanced reactor fuels. Can you give us some additional detail about the current and expected workload in that area?

MS. GARCIA SANTOS: We currently are reviewing three applications for advanced fuels. And in terms of what do we expect, I will defer that to Jake, but currently, we are doing three applications. We recently just received what we call a re-validation that's also with advanced fuels from a package from Japan. So, Jake, do you have anything to add for the expected ones that we may have?

MR. ZIMMERMAN: I don't have actual numbers, but, you know, we've been keeping our pulse with many external stakeholders, but I can't give you an exact number.

But I can tell you that we, you know, I'm going to the Used Fuel Conference next week. You know, we talk about, I'll be talking about pre-application engagement, making sure you know our plant, your plans, giving us the early heads-up. I don't have specific statistics to answer your question, but I can get that for you.

COMMISSIONER BARAN: My sense is, just kind of thinking back to maybe two or three years ago, this was kind of, or four years ago, it was really coming down the pike we were going to be having to think about these issues. It seems like there's been a fair amount of progress made. We're getting submittals, and reviews are happening, and it's becoming pretty concrete.

MS. GARCIA SANTOS: Yes, we are ready to review about seven different packages, some for ATF, some for advanced fuels, so there is some mix there.

MR. LUBINSKI: If I could add to that, as Norma said with those packages, what we're finding is, again, there's a finite number of

packages we've approved, but they can be used in many different areas as well.

So, when you think about many of our fuel vendors, they may be using similar-type vendors for shipments even though you have nine different fuel manufacturers out there as well as different enrichers.

So, the package has a lot of flexibility based on its content, so that helps as well, also from the standpoint of business decisions by licensees when they start to look at the enrichment of whether or not they can use current packages with maybe different levels of fuel and enrichment within the package as well.

Now, that creates a little bit of inefficiency on their part on how much they can ship, but from an early standpoint, that provides them some flexibility, and then in the longer term, we may see them coming up trying to gain efficiencies by coming up with new designs to the packages.

COMMISSIONER BARAN: Okay, thanks. John on the other side, thanks for the discussion of the high burnup demonstration program at North Anna. It sounds like that's going to produce valuable data on higher burnup fuels in dry cask storage. Can you talk about the time frame associated with the program and when you expect the staff to see results and data?

MR. McKIRGAN: Sure, yeah, thank you. Thank you for that question, Commissioner. It is a major program for the Department of Energy, and for the industry, and for us as well, and so I'm very appreciative of the collaborations that we've had with DOE. They've been very open to hearing our data needs and our interests, and so thank you for the question.

So, there has already been some really good data generated

by the program. The thermal analysis data that I mentioned has been key in really benchmarking a lot of our thermal analysis codes and it's really demonstrated the value of our predictive capability.

Really, the biggest item that people are looking forward to is opening the canisters after a certain period of time. The original plan called for a ten-year period for the canisters to sit on the pad and age as they would, and then open it up.

During the loading of the package, what was found was that the temperatures weren't quite as high as they had hoped for or had planned for, and so the Department of Energy with EPRI and other stakeholders are thinking about whether ten years is still the right time frame to open that package, so those dialogues are ongoing and no decision has been made yet, but that will really yield a great deal of data.

The other piece of that overall program, of course, is the Sibling Rod Program, and you might have heard about that in other talks. That has already produced some very good data, and we'll continue comparing those sibling rods to the data that's generated once the cans open will be incredibly valuable.

COMMISSIONER BARAN: Great, very interesting. Thank you, thanks.

CHAIR HANSON: Thank you. Commissioner Wright?

COMMISSIONER WRIGHT: Thank you, Chair. So, again, thank you for your presentations, and I renew my earlier comments to you and your staffs for getting you ready for today. It's been a good meeting so far.

Jake, I'm going to come to you first. So, thank you for your

answer to Commissioner Baran's questions about what the staff's doing in regards to, you know, PELE. Is there anything more going on there with PELE that you haven't mentioned?

MR. ZIMMERMAN: Nothing that I think I could expand on. I don't know if John wants to add anything.

MR. LUBINSKI: The only thing I will expand on on PELE is I really appreciate what our folks are doing looking at the PELE application, working with the applicant, working with BWXT, and the prioritization of the work. We will, as we continue to move forward, keep the Commission informed because we're talking about novel ideas.

COMMISSIONER WRIGHT: Right.

MR. LUBINSKI: Closely related to this is also what's gone on at NRR with respect to --

COMMISSIONER WRIGHT: That's where I was going.

MR. LUBINSKI: -- the microreactors. We have definitely engaged with them, and in fact, our key technical reviewer, Bernie White, is on both projects, for the PELE as well as working on what we're looking, for the transportable reactors in NRR, to making sure that, number one, we're addressing the same issues, but number two, that if there's any lessons learned out of this, generic issues, that they can be factored into what NRR is looking at overall for the transportable reactors, and we are working right now on providing information to the Commission on what we're doing on those reactors.

If I can also, while this is a business line briefing on more of the spent fuel pool side, or spent fuel side and the transportation side, that paper also looks a lot at the environmental side, which, as you know, NMSS

has the Environmental COE.

So, we're definitely looking at the environmental impacts as well when we start to look at those microreactors and working very closely with NRR on that.

COMMISSIONER WRIGHT: Yeah, that was exactly where I was going.

MR. ZIMMERMAN: Just something else, thank you, John, I thought to mention is that, you know, with reviewing of the risk methodology and I mentioned the risk tool in my presentation, the risk tool is applicable to the storage reviews that we do, and so a natural question might be, you know, well, what are you doing in the transportation area?

We think that there's going to be a lot of knowledge gained from looking at the risk methodology, continuing to apply the risk tool in our storage reviews, but taking lessons learned from what we're getting with PELE and then ultimately other potential microreactors, for example, the eVinci, and then seeing how we can apply lessons learned from that and feed it back into our licensing and our oversight program.

COMMISSIONER WRIGHT: Very good. Thank you for that. I'm going to stay with you a second here. So, I believe I've been told you're kind of fairly new really as it goes to this particular position, but you're not new to the NRC, right. You've been around. You've experienced things.

So, talk to me personally about what you might see as the most important areas for success in the spent fuel storage and transportation business line.

MR. ZIMMERMAN: So, thanks for that. Yes, 25 years in

reactors, six years in fuel facilities, six months in storage and transportation.

(Laughter.)

MR. ZIMMERMAN: So, I think there's six important areas personally for the business line, and it's people, it's process and procedures, it's the technology, both what we use to manage our work but also the technology that we're responsible for regulating, our budget and our resources, our products, and then performance management. That's kind of been my personal leadership focus on different positions that I've had.

Right now, I believe, in the current environment with our staffing and our hiring, the most important, the three most important areas for me are people, connecting with the staff, making sure I understand, you know, their knowledge, skills, and abilities, what we need, employing training and knowledge management, strategic workforce planning, communication and collaboration.

And then on process and procedures, just making sure that we have, and I think some of my fuel facility staff will probably be chuckling about this, but clear expectations, guidance, roles and responsibilities, and then, you know, making sure we understand what we do, how we do it, and why we do it.

And then the last one, budget and resources. It's fiscal responsibility for FTE and contract dollars, making sure that we have the tools that we need to appropriately review our FTE utilization and our contract expenditures, and we're looking for indicators when you apply that to other metrics of where we need to take action, and that all relates to our current and our future workload, which obviously ties into staffing.

And then a big focus for me is just balancing our workload. We've talked a lot about, in the previous business line, about our staffing challenges. We have a wonderful staff. On average, our staff work more than what an FTE, we budget an FTE for.

Our staff are working 1,600 to 1,700 hours per person versus what we budget for, and because they're doing that, we're able to do, keep up with the work that we have going on.

So, for me, work-life balance is really important, but again, the other areas are too, but those are the three that I'm primarily focused on right now, especially hiring.

COMMISSIONER WRIGHT: Thank you, very good. I agree with the work-life balance thing for sure. Norma, good morning.

MS. GARCIA SANTOS: Good morning.

COMMISSIONER WRIGHT: So, I'm going to ask you this question because you referred to it in your presentation --

MS. GARCIA SANTOS: Yes.

COMMISSIONER WRIGHT: -- right, but I would understand if you want to like phone a friend here on the panel as well.

MS. GARCIA SANTOS: I will phone a friend if I can.

COMMISSIONER WRIGHT: So, you said that last year, you completed 63 licensing --

MS. GARCIA SANTOS: Yes.

COMMISSIONER WRIGHT: -- reviews, and this year, you've already done 64 --

MS. GARCIA SANTOS: Yes.

COMMISSIONER WRIGHT: -- right? And I know you said in your comments that the completion rate was larger this year because you're finishing up some stuff that was --

MS. GARCIA SANTOS: Yes.

COMMISSIONER WRIGHT: -- delayed, right, from the previous year, but, so explore this with me a little bit because it seems like you found something here maybe, all right. I don't know whether it's --

I guess, first, are all the reviews you do exactly the same or are they, you know, basically, are they -- because if they are, you know, maybe you've found some efficiency here, and you've found some things that work that you're able to just repeat and get done.

And, you know, if not, what's the driver of the apparent increase in success that you've had here with these reviews? I mean, is it were they not as complex or was there some other issue?

MS. GARCIA SANTOS: Thanks for the question. None of the reviews are the same. We have some that are more complex than others. Last year, we completed 63, this year, 64.

For this year, we have one of the applications that we finalized, there were 11 revisions of one COC, so that one that one, we counted as 11, yes, and that didn't require a lot of complexity.

We have received more of what we call re-validations, which are requests from the Department of Transportation to review foreign packages. That's part of our memoranda of understanding. They can do that. So, we are receiving more of that, like we used to receive three, five - we are at ten right now and we may be receiving 12 this year.

The other is we also are counting our decommissioning funding plans reviews. This year, we have completed about 21 or so. Last year, there were maybe eight or ten, so that's building up into that.

The other is, yes, your questions about efficiencies, yes, we are trying to do that, like if we see a review that, let's say it's a spent fuel package, same changes and they are similar, we are trying to have the same team reviewing all of those applications.

I have three cases like that, like we call cases actions, and they are spent fuel. They are doing like the IAEA regulations, the same 2018. They are removing contents, kind of similarities. So, for those three reviews, I tried to have the same team because their knowledge is common and they can apply their lessons.

They can streamline the processing of generating the documentation, the SER and everything. So, yes, we are trying to really look at the efficiencies because of the work that we are having.

COMMISSIONER WRIGHT: Very good. Thank you so much. And I got one last question. I don't think it will take you much to answer it, I don't think. I hope not. But I noticed in your slide in the New Fuels Atlas, there's a space for rulemaking.

MS. GARCIA SANTOS: Yes.

COMMISSIONER WRIGHT: Can you tell me more about what, if any, rulemaking the NRC staff currently thinks might be necessary in order to be ready for these advanced fuels, if one is necessary at all?

MS. GARCIA SANTOS: Yes, our understanding is our current regulatory framework is adequate at this point and it's enough to just

review the applications that we have.

However, we want to use that Atlas or what we call the planner to identify areas that we may need to improve or may need more work on, like rulemaking, if we need to revise regulations or our regulatory framework. So, that's kind of the idea of having this planner, but, Jake, do you want to add something?

MR. ZIMMERMAN: I'll just add that we have all of the, I call them the buckets, and they're aligned to --

COMMISSIONER WRIGHT: Right.

MR. ZIMMERMAN: -- the budget, and so the point behind, even if there's no rulemaking, we want to make sure that we've at least highlighted it so we're thinking about, at each one of the phases I call it in the fuel cycle, hey, is there anything in licensing we need to do? Is there any research we need to do? Is there any rulemaking?

So, that, you know, there's a lot of great people that worked on developing this and coming up with, you know, how do we make sure going forward, the things that we've thought about, hey, don't forget that, and so we want to make sure that the model or the Atlas would include that.

So, there may not be any rulemaking that's needed, but we want to make sure there's that constant reminder in each one of those areas that we're asking ourselves and we're questioning, and when you look back, is there something we're doing at the end that we need to make a decision on the end, at the back end that we should be doing things, you know, hey, we're going to have to start working on that six years ahead in order to get to that point.

COMMISSIONER WRIGHT: Great. Thank you so much.

CHAIR HANSON: Thank you. Commissioner Caputo?

COMMISSIONER CAPUTO: Good morning. Thank you all for coming. Mr. Zimmerman, I'm going to stick with you. I have a question. So, you mentioned the risk tool in your comments and a few minutes ago with Commissioner Wright. Why wouldn't we implement that tool in all of our storage reviews?

MR. ZIMMERMAN: So, we did the pilot, and the pilot was on two applications, which two pilots is not enough data, but we learned a lot of good lessons from that. I see Ms. Diaz over there. She wrote the assessment report that was issued last summer.

And so, coming out of that, when I joined the group and as I'm coming up to speed on this, I felt that we needed to reinvigorate our use of it, make sure that we've captured the lessons learned from that, and then I wanted to make sure that we've got more data on the staff using it.

So, we're going to use it from May through October, collect information from the staff. You know, as in any change, there's a culture change associated with this. You have some people aren't embracing it and some people are fully embracing it, and we want to make sure that we all are using it and testing it.

I believe the risk tool is more of a knowledge management tool, and I think there's things that we can do to further enhance it. It's not the silver bullet that, if you use the risk tool, you automatically have a six-month schedule and it's only going to take 200 hours to do the review. That's not the purpose of the risk tool.

There is information on that that would help to guide your level of review, but it's just, I look at it from my reactor experience that it's risk insights that we use when we think about defense-in-depth, safety margin, subject matter expert operating experience.

So, it's an additional insight that we can use, and then through using it, we can go back and we can update it so that it's a living document that, as people leave, we're capturing the senior experience and even the staff newer that are using it, and making sure we'll be successful into the future.

So, I personally believe that it's more of a knowledge management tool. The industry is very interested in resurrecting using it, and so we actually have been talking about them taking the tool independently and using it, and then we're going to get together and we're going to talk about, you know, the things that they learned from it and how we can enhance it and improve it going forward.

COMMISSIONER CAPUTO: So, you don't expect to gain any efficiencies from using this tool going forward?

MR. ZIMMERMAN: I do believe there will be efficiencies. I'm not -- I cannot quantify it right now, but naturally, I think that, going back, when you identify the process, the procedure, and you've given people the tools, I think there's a natural tendency.

So, for example, I think our newer reviewers will be more efficient because they won't have to go and sit -- without this document or without capturing this knowledge, they have to go and sit with a senior person.

That doesn't mean we don't do that because there's

tremendous value in on-the-job training and direct presence with a purpose, but it gets them further faster by having tools like this.

So, I do think there's going to be efficiencies. I think there's going to be effectiveness as far as in our reviews, the quality. I think things could become more stable, consistent, and predictable by using the tool, but enhancing it further.

COMMISSIONER CAPUTO: All right, thank you. Ms. Garcia Santos, I have a question for you as well.

MS. GARCIA SANTOS: Sure.

COMMISSIONER CAPUTO: You mentioned a topical report in shielding which has the potential to streamline storage system licensing reviews, and I understand this business line just recently adopted the use of another topical to streamline, well, using topical reports in general to streamline processes for addressing issues on a generic basis.

You also recently approved a topical report on thermal and are now reviewing one on shielding. Are you seeing efficiency gains by using the topical reports process and benefits from the reports that you've approved?

MS. GARCIA SANTOS: Thank you for the question. We currently only have one application that has applied the topical report on thermal, so, and that's for heat load pattern. So, the efficiencies that we expect or our applicants will gain is they don't have to come up for an amendment every time that they change the heat load pattern.

In the past, if they just changed the heat load pattern, that will trigger an amendment. So, for this particular case for the thermal topical, it only applies currently to two systems and it's only for one vendor because that was

kind of the parameters of that one.

For the shielding topical, that's broader. The intent is that applies to like kind of across the board to different systems, and when we say streamline, it has to do with the fuel qualification tables that they use to load fuel. It will be made a methodology that will identify like maximum enrichment or burnup and decay heat.

So, if it's within those parameters, then the possibility of -- if they use the methodology to analyze those parameters, they can, it's the same effect. They don't have to come for amendments to, you know, make changes to the certificate. Because currently, if they make changes, they have to come to amend it, so that's the intent of that.

We cannot quantify it right now because we only have one application, but as we receive more, we are going to assess if there are efficiencies gained through that process.

COMMISSIONER CAPUTO: Okay.

MR. ZIMMERMAN: Could I just add something to that? One of the important aspects of a topical report is that the end user applies it appropriately. So, we only have one under review right now, but again, thinking about our reactor experience, when you start to deviate --

And I think it's more of a challenge. There's more diversity over here on the storage and transportation side. It's incumbent upon the applicant to make sure that they explain those deviations from the topical report.

We would love to take advantage of a topical report, streamline our reviews, be able to do it more efficiently, but when people take

exceptions to it without fully understanding and then fully explaining themselves, that can create challenges.

So, I'm kind of giving a plug for anyone in the industry that's listening in that when you're applying these, please make sure that you're applying them appropriately and you're explaining the differences.

MS. GARCIA SANTOS: Yes, and just a little bit more, as Jake was saying, any deviation from the approved methodology then will need to come to us.

COMMISSIONER CAPUTO: So, I'm going to stay with the two of you and maybe John wants to add in. So, between the use of the risk tool and the topical reports, are you doing anything to risk inform certificate of compliance reviews in general?

MR. LUBINSKI: Thanks. If I can, I will say that the bigger project we had there was a graded approach to looking at certificates. That was the intent there, that it would provide some flexibility to folks.

Many times, when they were doing their certificate of compliance, it was coming in. It was very narrowly focused on the design, a little bit as Jake was talking about, even in the topicals, staying very specific. We believe there's a lot that they can broaden which would allow them to do changes on their own without coming in for reviews.

What we're hearing from the industry on that point is that it's a cost to come in and change their certificate for compliance and get it changed, so they're waiting until they get to either a revision to the certificate of compliance or go through a renewal process and are trying to bring a graded approach together at that time.

So, they have not set a plan for us on when these graded approaches will come in, but the ones who have come in so far have seen that it has provided efficiencies overall and has provided much more flexibilities, so it's more of a performance-based.

From a risk standpoint, it also provides a lot of great risk insights because now we're using the knowledge we have already to say where can we expand and provide flexibility to the users that these are low-risk changes and allow that flexibility in certificate of compliance.

That's where I really see the risk informing going on the graded approach. The topical report is more along the efficiency line that I see that.

COMMISSIONER CAPUTO: All right, thank you. Unless you have, do you have anything to add?

MS. GARCIA SANTOS: No, I just was going to say that the first step was the graded approach. The graded approach was to start that risk-informed and performance-based kind of process, and then after that, things that couldn't be addressed through that, then that second step was kind of the topical report.

COMMISSIONER CAPUTO: Okay, wonderful. Thank you very much.

CHAIR HANSON: Thank you. Commissioner Crowell?

COMMISSIONER CROWELL: Thank you, Mr. Chair. Following yesterday's Senate hearing, today is a good reminder of how nice it is to be on this side of the table.

(Laughter.)

COMMISSIONER CROWELL: And Jacob, I want to start with you because you win the prize today for the best tie, and Lindsey, you're now the runner-up by the way.

(Laughter.)

COMMISSIONER CROWELL: But I also have an important question for you, Jacob, which is, you know, you're talking about age-related degradation of dry casks and I'm hoping you can put a little bit more color to that, like what kind of degradation are you seeing that is of concern and that needs to be addressed?

MR. ZIMMERMAN: Yeah, mainly corrosion aspects, and so we've got research going on that I think John's talked about and I'm going to kick it over to him as to -- he can provide more details on that.

But through our inspections, you know, just as we implement the TI, the information that we gathered there, now with the inspection procedure, it will be insightful to see just how much more information we get that could either lead to a new age-related, an age-related degradation that we're not currently focused on.

But right now, there's nothing that's jumping out as a showstopper on age-related degradation. I mean, we have to keep an eye on through our inspections, through the inspections that the licensees are doing, and then feeding that back into our program. Is there more research we need to do in that area? But I'm going to ask my friend, John, over here to talk a little bit more about it.

MR. McKIRGAN: Thank you. Thank you, Jake, and thank you, Commissioner. And it's funny, I'm actually not going to talk about the

research component. I'm going to talk about another piece, Jake, that I'm sure you're aware of is the AMID database, and so, this is a, it's an aging management database.

It's built into our aging management program which was designed to be a learning program so that industry would be feeding in the operating experience, the observations from their inspections, and the staff as well, and then the staff has the ability to look at that database.

And through that, the industry then is able to gather data across the whole fleet, across the universe of data and not only see -- this is a feature of the plan. It's not only to report the bad thing. It's don't only report problems that you find, also report things that you're not seeing. For example, if you're not seeing corrosion, that's actually a valuable piece of information in the database.

And so, we're still relatively early. In the 40-year life span of these systems, we're still kind of relatively early in collecting data into that database, but that will really be the tool for the industry and the staff to figure out if we need to increase inspection frequencies or perhaps there might be areas where we can decrease frequencies.

COMMISSIONER CROWELL: So, either within the, you know, 40-year, you know, hard experience time frame or through models, what's the time frame in which you are seeing corrosion?

MR. McKIRGAN: Let's see, I don't know that we have identified any specific concerns at this time. I don't think we have any observations that would indicate that there's any actions that needs to be taken.

And I do need to differentiate this. I mean, there are wear

marks. There are, you know, handling features on the canisters that we have seen, and I'm not -- I'm trying to differentiate, so I wouldn't call those corrosion.

So, you're using a very, a broad term that applies to a lot of things, you know, rust, for example, that wasn't actually part of the canister, it was part of a handling procedure that loaded the canister.

COMMISSIONER CROWELL: Any degradation of concern. I mean, Jacob, you said corrosion, so I just went with that, but any degradation of concern is what I'm interested in. John, do you want to jump in?

MR. LUBINSKI: Thanks, if I could add to that, so one of the key points of the aging management program is to identify if there is something of a degradation, whether it's corrosion or other degradation, and as John said, even wear marks that may end up being more susceptible.

It's to identify early enough before it becomes a safety issue so that the licensees can take specific action to address it. What we've done is we believe that the numbers we put in place are conservative and looking at many times a five-year time frame for doing much of this.

One of the more burdensome inspections would be actually lifting the canisters off the pad to look underneath the canister, and that's an area that we've gone longer and that's an area where we're really looking at are we seeing degradation underneath the canister at this point? Again, it's important to know and it's important to know early.

As John said, a lot of the findings are not just -- well, it's two parts. One is with the specific canister, are you seeing something that requires action?

And number two, are you seeing trends that tell you either,

one, we need to do these things more frequently, or two, we may not need to do them as often because, again, the databases we have on the degradation mechanisms aren't set up for exactly this exact system, right?

We didn't test the canister being out on a pad in these environments for this period of time, but this is where we're starting to gain the data. So, I think our numbers right now on the aging management are intentionally on the conservative side and we'll learn more as we move forward.

COMMISSIONER CROWELL: I assume that the potential for degradation or management issues of concern are increased with the storage of higher burnup fuels in dry casks?

MR. McKIRGAN: I think it's still very early. I think we're still looking at that. I don't know that I have a definitive answer for you on that today. We do look at high burnup fuels in storage.

If I could make sure I understand the question, you're talking about canister performance, which I differentiate from cladding performance, and so we are doing a fair bit of studies. The cladding is part of the overall defense-in-depth of the system, so we're doing a lot of work monitoring cladding and the high burnup effects there.

I'd have to think a little bit more about how that would propagate out and if there's anything unique to the canister performance that we'd have to think about.

COMMISSIONER CROWELL: Mark, you inspect these things. Do you have anything you want to add?

MR. HENRION: No, I mean, I look forward to when the new inspection procedure comes out and, you know, hopefully on the inspector side,

we get training with what we're going to be looking at.

We do, on the triennial period, even if a site doesn't have an active loading campaign during that period, we still go out and do a program inspection, so, where, you know, we are looking at material conditions and daily logs for temperature checks in the canisters and things like that.

MR. LUBINSKI: If I can clarify, Commissioner Crowell, to make sure from the terminology, many times we use term inspection and it's really used in two ways.

One is the licensee doing an inspection, and as Mark said, the licensee is required to do certain inspections at their facility. Aging management programs are on them to do the inspections, not us. We then do the inspections to verify that they have completed their inspections under aging management programs and verified the results of those inspections that have been done.

So, sometimes when we use the term inspections, we're referring to the licensee doing it under their aging management programs. Other times, it's us inspecting the licensee's implementation.

COMMISSIONER CROWELL: And I appreciate that, and I may get to that point if I have time left. John, going back to you for a second, looking at a different part of the process here, you noted in your presentation some specific technical concerns with the loading of spent fuel into dry casks at high temperatures.

And I haven't passed Carrie's fuel process course yet, so I don't know what hydride reorientation and creep rates are, so can you tell me in like plain language what this is all about?

(Laughter.)

MR. McKIRGAN: Thank you and thank you for reminding me that I do need to work on my plain language.

So, there are a number of phenomena that have the potential to impact the integrity of the cladding, and so now I'm actually going back to the answer I was providing previously about the high burnup fuels.

Some of the alternate cladding approaches that are being used for ATF, there are damage mechanisms that are at play with the cladding, and one of the things we do is we use these phenomena identification and ranking tables and a lot of expert elicitation to identify the specific mechanisms that potentially exist in these material systems, the cladding.

Hydride reorientation is one and the feature there is to make sure we understand the physics, understand the environment, and understand when those issues start to come into play so that we can have an appropriate inspection program.

COMMISSIONER CROWELL: So, I'm going to let you off the hook for now, but I still couldn't repeat to you what hydride reorientation is, so let's -- and I don't want to lose my time here because I have one more question to make. Either Dan or John earn their paycheck today.

You know, after the -- if I may, Mr. Chairman, just a few seconds longer. Thank you. You know, after the rail incident in East Palestine, Ohio, one outcome of that was some suggestions that this is an example of why we can't and shouldn't transport, you know, nuclear waste by rail.

It wasn't necessarily substantiated, those comments. I wanted to give you guys an opportunity to give, you know, a publicly

understandable version of why we feel it can be done safely.

MR. DORMAN: Yeah, thanks, Commissioner, and as you're talking, I'm thinking of the Baltimore rail fire many years ago that we studied closely.

And the bottom line is that the Commission's requirements for the design of these packages with respect to collisions, with respect to fire, with respect to drop, with respect to immersion, conservatively bound what we've seen in these various activities to demonstrate that yeah, there will be rail accidents at some frequency, but the packages are very robust.

And this is not just a theoretical application. There's a long history of full-scale testing of packages under these conditions, so --

COMMISSIONER CROWELL: And that's -- yeah.

MR. DORMAN: -- I think that's --

(Simultaneous speaking.)

COMMISSIONER CROWELL: If it's all right, I'm going to speculate a little bit. Is it maybe fair to say that if the, like in the East Palestine example, if the materials that were released were included in the same style of the packaging that nuclear waste is transported in, they may not have had a breach?

MR. DORMAN: Yes.

COMMISSIONER CROWELL: Okay, thanks.

CHAIR HANSON: Thank you. All right, well, with the acknowledgement that I'm the one standing between everyone and lunch, let me just tackle, I think, one thing.

John, I wanted to kind of get an update on the tornado missile

issue. And, you know, Mark had this great slide of these axes and there were at least two elements of that issue, right, and let me try and kind of summarize them and then you can, I'm going to let you jump in, right.

One was about administrative controls, and we address that, I think, through the VLSSIR process, and I think that was exactly -- you know, my view is that that was the way to go. The other one had to do with an unanalyzed condition and the licensing basis, and that put us into enforcement discretion space.

Now, you know, per Mark's slide, right, there were kind of two ways to address that. One was to change the licensing basis and then one was to do a rulemaking.

So, I guess my question to you is are we still in enforcement discretion space with regard to that issue on, you know, with regard to the unanalyzed condition, and if we are, what's the pathway to get out of that space?

Because I think, you know, as a matter of kind of transparency and reliability, both for the public and for our licensees, I think we have to kind of find out way through that, and so I'd like an update from you about kind of where we are.

MR. LUBINSKI: Great, if I could ask, if we can, as we're talking, if you could pull up the slide, Kelly, that he was referring to that had the VLSSIR on it?

MR. DORMAN: Slide 40.

MR. LUBINSKI: Slide 40. Thank you, Dan. So, let me, in the slide, I'm going to talk a little bit about the difference between VLSSIR, which is

the lower left-hand quadrant --

CHAIR HANSON: Right.

MR. LUBINSKI: -- okay, versus the lower right-hand quadrant, and I'm going to go where Mark was when he was talking and he can help correct me when I go along here.

But we had certain situations where we were in the lower left-hand side that we had, when you say unanalyzed conditions, we may have had an unanalyzed condition, but it was unclear whether or not it was in the licensing basis.

CHAIR HANSON: Okay.

MR. LUBINSKI: And we started to pull the string and we said it is still unclear whether it's there. How far do we want to pull this string? Is it worth the effort? Because we determined it is of very low safety significance for one reason, and that is because the administrative controls were in place.

So, that kept us in that lower left-hand side and we ended up with folks who were, again, unclear licensing basis, but it's very low, so why do we need to deal with it? Because they put the administrative controls in place.

CHAIR HANSON: Okay.

MR. LUBINSKI: Now, I'll go to the right-hand side, which is where you were, you know, words of how do we get to the end fix? Now we ended up with more of those issues, as Mark identified one in Region I, that it was clearly in the licensing basis.

CHAIR HANSON: Okay.

MR. LUBINSKI: And I use that term because I will say that along the way, internally within the NRC and externally, there was

disagreement about whether or not it was clearly in the licensing basis, and I appreciated the differing views that came up and I appreciated the professionalism to get to the point to say yes, these are in the licensing basis, and appreciate the CRGR committee on, well --

CHAIR HANSON: Yeah.

MR. DORMAN: Generic Requirements.

MR. LUBINSKI: Yeah, thank you, Dan, appreciate that.

(Laughter.)

MR. LUBINSKI: So, but, and agreed it was in the licensing basis. So, now we had a clear issue that was in a licensing basis.

CHAIR HANSON: Right.

MR. LUBINSKI: The licensee said well, we could fix this in a number of ways. One, we can go modify the certificates of compliance, a lot of work to do that. Number two, what they said is we could do this under a term in our regulations, 10 CFR 72.48, that allows licensees to make changes to their licensing basis without coming into the NRC for review, and we said, well, you can't do that today because under the regulations, it doesn't allow you to put administrative controls in place under 72.48.

CHAIR HANSON: I see.

MR. LUBINSKI: So, our fix to this is two parts. Number one is we issued a memorandum called an enforcement guidance memorandum, EGM, working with the Office of Enforcement that says as long as you put these administrative controls in place, you can basically work under a 72.48-like framework.

We're going to give you enforcement discretion, not to cite

you, and you continue to do your loadings, but that's only in place until such time as you come up with another fix such as either getting a certificate modified or putting a process in place that allows this under 72.48.

That's the process we're in now. The industry has developed a guidance document. The guidance document says this is a process, a methodology that's acceptable to the NRC. Once NRC approves this methodology, rather than calling it an administrative control, you're calling it a method that's been approved by the NRC. That's where we are now. The industry had provided that document to us. We're in the process of reviewing and going through a final endorsement of that.

CHAIR HANSON: Okay.

MR. LUBINSKI: We expect that endorsement to occur by the end of this year. We're in 2023. I believe, and I can correct this later, but I believe the enforcement guidance memorandum continues into '24, so we have allowed ourselves time to get the guidance document reviewed and approved.

So, once the guidance document's approved, now it would allow users to use 72.48 in that lower right quadrant --

CHAIR HANSON: Right.

MR. LUBINSKI: -- to say yes, it's clearly an issue, but my 72.48 works because I'm relying on an NRC-approved methodology.

CHAIR HANSON: I see, okay. Jake, did you want to jump in?

MR. ZIMMERMAN: I was just going to add from a schedule standpoint, I just reviewed and concurred on the draft Reg Guide yesterday. It's working its way through the process. We plan to issue it in June for comment

for 30 days, and during that 30-day comment period, we are going to have a public meeting, and we're targeting to issue the final Reg Guide by October of this year.

We've also already engaged with ACRS to see their interests, and they've discussed it in their most meeting and they've declined to review it. So, it's moving forward and --

CHAIR HANSON: Okay, well, I appreciate the update, I really do, because I think kind of getting out of this place that we've been in, I think, is, it's really, I think it's really important, right, and getting some of that clarity out there.

MR. LUBINSKI: Thanks, and I would add it does not take the flexibility away from licensees either. Jake, I appreciate what his staff's doing and I'm glad we're going to get the guide out this year. We have had some licensees, as part of their new certificates of compliance or some of their renewals, actually add this change to it that would allow for the use of administrative controls, so they have that aspect as well and we're reviewing and approving those.

CHAIR HANSON: Thanks. I guess my follow-up question to that, and John, you kind of touched on it a little bit, was kind of Norma talking about risk informing the certificate of compliance review process then. You kind of suggested maybe the COC change as maybe a more onerous way to go, but is that ameliorated in some way by these other processes we're putting in place?

MR. LUBINSKI: When I said it was more onerous, I was referring to the fact that if you were to do it solely based on going through a

certificate of compliance change --

CHAIR HANSON: I see.

MR. LUBINSKI: -- to put this place. If you already are going through a new certificate of compliance, it is very easy, very simple to make it part of that because again, we already have the methodology we've approved.

We have approved it for Interim Storage Partners. I mentioned the Consolidated Interim Storage Facility. We've approved that methodology to use these administrative controls, not in the exact same way, but in a similar-type way. So, we have precedent that we could do this as other reviews.

So, it becomes more streamline when they make it part of a current review, but my comment on being more onerous was if you were doing it simply to add this methodology.

CHAIR HANSON: Okay, thank you. Right on time, almost. Well, thanks to everyone this morning for the presentations and for the discussion. You know, look, I appreciated throughout, and I think among the Commissioners, we touched on this in a variety of ways, of kind of incorporating, the importance of incorporating risk-informed approaches into our work, and Jake, I think you hit the nail on the head when you said look, this is a cultural issue as well.

And look, my modest contribution in this area -- my kids gave me a t-shirt a couple of years ago for Christmas, right. In lieu of ties in my house, it's t-shirts, and the t-shirt says your risk of being killed by a bunny is low, but never zero, and --

(Laughter.)

CHAIR HANSON: -- and yet I go about my day-to-day activities not actually trying to mitigate against, you know, trying to address the risk of being killed by a bunny. And, you know, but it does kind of, as we think about taking on risk-informed approaches, I always remember this t-shirt that I have in my drawer.

I don't get to wear it very often. Maybe one of these days, I'll wear it to the office at an all-employee event or something --

(Laughter.)

CHAIR HANSON: -- but, you know, it's kind of a funny thing, but it is kind of maybe a little humorous way of thinking about how we're trying to tackle these issues.

So, with that kind of tangent, I think I'll let us all go to lunch, and thanks again, everybody.

(Whereupon, the above-entitled matter went off the record at 12:03 p.m.)