UNITED STATES

NUCLEAR REGULATORY COMMISSION

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MEETING ON STRATEGIC PROGRAMMATIC OVERVIEW OF THE FUEL FACILITIES AND THE SPENT FUEL STORAGE AND TRANSPORTATION BUSINESS LINES

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WEDNESDAY,

DECEMBER 4, 2019

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ROCKVILLE, MARYLAND

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The Commission met in the Commissioners' Hearing Room at the Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, at 9:00 a.m., Kristine L. Svinicki, Chairman, presiding.

COMMISSION MEMBERS:

KRISTINE L. SVINICKI, Chairman

JEFF BARAN, Commissioner

DAVID A. WRIGHT, Commissioner

ALSO PRESENT:

ANNETTE VIETTI-COOK, Secretary of the Commission

MARIAN ZOBLER, General Counsel

NRC STAFF:

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

ANDREA KOCK, Director, Division of Fuel Management, NMSS

JACOB ZIMMERMAN, Chief, Fuel Facility Licensing Branch, Division of Fuel Management, NMSS

ROBERT WILLIAMS, Chief, Projects Branch 1, Region II

CHRISTOPHER REGAN, Deputy Director, Division of Fuel Management, NMSS

JOHN MCKIRGAN, Chief, Spent Fuel and Transportation Licensing Branch, Division of Fuel Management, NMSS

LINDA HOWELL, Acting Director, Division of Nuclear Materials Safety, Region IV

P-R-O-C-E-E-D-I-N-G-S

9:03 a.m.

CHAIRMAN SVINICKI: Well, good morning everyone. I call the Commission's meeting today to order.

And we are convening in a public session this morning for the purpose of hearing about two of our business lines. This is our, all of our important activities are organized in a business line.

So the two that we're going to hear about today we tend to meet on the two topics at the same time because there are a number of interrelated topics that are being carried out, but the two that we'll be discussing today are the fuel facilities and the spent fuel storage and transportation business lines.

And for the Staff it's convenient because it tends to be some of the same individuals and supporting organizations. And then I know it's always noteworthy when people tune in or come in and they see, wait a second, it looks different on their side of the table.

Commissioner Caputo had an unexpected need to be absent this morning, and of course, takes a great interest in these topics. It's in no way a reflection of that, as we all do. And I'm sure that she'll review these materials subsequently, but she expresses her regret in not being here this morning.

And so, we will have a little bit more abbreviated questioning time. That works out well for the presenters, I think.

And again, I think these topics, I always look forward to hearing presentations from these business lines because this is a lot of, kind of important backbone to other programs we do that might get a little bit higher attention and visibility.

But I think that a lot of the work that we're going to discuss today are the activities that enable a lot of other things that we regulate to occur. So, I know that I always take a very strong interest.

We will hear from the Staff in a serious of two panels. And I believe we're taking a very short break in-between. Yes, we are.

So, the first panel will be the fuel facilities business line. But before we begin, do the two colleagues present have any opening comments? Okay, hearing none, then I will begin by turning it over to Mr. Lubinski. Please proceed.

MR. LUBINSKI: Good morning, Chairman and Commissioners. I'm John Lubinski, I'm the director of the Office of Nuclear Material Safety and Safeguards, or NMSS.

Today's briefing will be provided in two panels, as the Chairman stated. And we will begin with the fuel facilities business line.

For that panel I have at the table with me today, to my right, Andrea Kock, who is the Director of the Division of Fuel Management.

To her right is Jake Zimmerman, who is the Chief of the Fuel Facilities Licensing Branch in NMSS.

And to my left, I have Robert Williams, Chief of the Projects

Branch 1, Division of Fuel Facility Inspection in our Region II office.

We appreciate the opportunity to provide the Commission with an overview of both the fuel facilities and the spent fuel storage and transportation business lines. We will discuss workload drivers, building a 21st century workforce and how processes are improved through innovation and transformation.

Both business lines are led by NMSS. Both business lines are proactively preparing for changes in the industry.

These preparations include ensuring that we are prepared to effectively evaluate applications for new technologies. Which include high assay low enriched uranium, or HALEU, and accident tolerate fuel, or ATF.

As the Chairman stated, some of these issues are backbones of other parts of our organization. ATF is definitely one of those when you consider the, before the fuel makes it to a reactor, it has to be enriched, fabricated and transported. And that all falls within these two business lines.

We're also evaluating applications for new facilities, such as consolidated interim storage facilities. We merged the two business lines recently into one division, the Division of Fuel Management. And that occurred on October 13th.

This is expected to result in efficiencies, which will support strategic workforce development by combining functions and cross training of Staff. The reorganization maintains the same number of direct technical staff

and did result in a reduction in supervisors as well as management support positions.

Next slide, please. I will now provide an overview of the fuel facilities business line. The business line continues to be successful in regulating the countries fuel cycle facilities.

The scope of the activities in the business line includes the licensing and oversight of ten fuel cycle facilities in the United States. Six of these are currently operating, three are licensed with construction pending and one facility is idle production. The location of the facilities are shown on this slide.

The business line supports additional broad areas, including material control and accounting, export licensing, special nuclear material security and the implementation of international safeguards that comes from US-IEA agreements and bilateral agreements with nuclear trading partners.

These activities are accomplished in close coordination with our partner offices. These include Region II and the Office of Nuclear and Incident Response, the Office of the General Counsel, Office of International Programs and the Office of Research.

Next slide please. We are effectively implementing strategies to prepare for emerging technologies, including receipt of license amendments and new applications for HALEU and ATF.

We have been conducting assessments of the current regulatory framework to identify and resolve any licensing challenges. We

are ensuring that our workforce is equipped to review the new applications for both HALEU and ATF.

We are engaging early with our stakeholders to prepare for anticipated applications to support these new technologies. In the spring, we anticipate Centrus submitting a license application to amend its American Centrifuge plant license for a HALEU demonstration cascade.

In anticipation of receiving that request, the Staff is holding pre-application meetings with Centrus and the Department of Energy. We are also meeting with X-energy to prepare for a potential application to fabricate pebble bed reactor fuel.

Next slide please. We are also making progress and becoming a modern risk-informed regulator. We have engaged our stakeholders to make our programs smarter and more efficient without compromising our goal of safety.

For example, we are building smarter licensing and inspection programs through extensive engagement with stakeholders and evaluation of where we can utilize risk insights, operational experience and agency best practices to improve our programs.

We continue to provide additional information to support a shared understanding of expectations on what constitutes reasonable assurance of adequate protection. We are determining the scope and focus of reviews based on safety significance of the activities.

Also, we are reaching conclusions by understand

performance at a system level, instead of an individual component level. And understanding that new technologies may be safer although they lack the operating experience.

We are communicating the importance of becoming a modern risk-informed regulator with all the Staff in NMSS and our partner offices through direct conversations with our executive team and through Skype side chats.

The graphic on this slide is one that we developed for a recent Skype side chat. I would like to turn to Andrea for her part of the presentation.

MS. KOCK: Thank you, John. Good morning, Chairman and Commissioners. I'll be providing you with an overview of the fuel cycle current environment, including an update from our last Commission briefing last spring.

During the presentation I'm going to highlight a few of our significant programmatic activities that demonstrate our focus on preparing for new technologies, making progress and becoming a modern risk informed regulator and optimizing our program so that we can find a smarter way to safety together.

Next slide please. We are effectively implementing strategies to prepare for new technologies by amplifying our engagement with both internal and external stakeholders. This will facilitate a common understanding of these new technologies, as well as the timelines that are

needed to support the proposed deployment of these new technologies.

For example, in late August we issued a letter to the Nuclear Energy Institute notifying them of when we need to receive applications for the use of ATF and HALEU fuels. This letter defines the schedules and the time frame of fuel enrichment, fabrication and transportation licensing actions that will be needed to support the industries plan for batch loads of ATF by 2023.

To support the 2023 deployment of ATF, for example, for higher enrichments, NMSS must receive an application to increase fuel enrichment by June of 2020. And in fact, we have received our first license amendment requests related to higher enrichment applications from Global Nuclear Fuel Americas and Louisiana Energy Services.

We received an amendment Global Nuclear Fuel Americas to increase their enrichment limit to eight percent in October. And just in November we received an amendment from the Louisiana Energy Services to increase their enrichment limit from five to five and a half percent.

Since the last Commission meeting, our Staff worked with NRR to issue a burn up enrichment extension to the ATF project plan that identifies our strategy to prepare the agency to review future licensing actions.

The draft extension to the project plan went out for public comment in August and September. We held a public meeting in early September, and then we finalized and issued the project plan in October.

To date, we have not identified any significant regulatory or technical challenges with regard to HALEU or ATF for fuel cycle facilities. We

are engaging in early training, research requests and continued dialogue with internal and external stakeholders as new information becomes available, with the goal of ensuring that our Staff are equipped with the knowledge and skills that are needed to support this workload.

We have evaluated our regulations to determine if review of these new technologies will require rulemaking.

For fuel facilities, no changes to our regulations are needed to accommodate these new technologies. We will, of course, engage the Commission if we determine that rulemaking is necessary.

We've also not identified any new technical issues that are vastly different from the technical issues that are associated with existing fuel facilities.

Externally, we're utilizing our various forms for engaging our internal and external, stakeholders.

Most notable we are going to have a fuel management track at the 2020 Regulatory Information Conference. Where we will have a session on licensing, storage and transportation for fuels for advanced and non-light water reactors.

Through these different forms and communication with industry, we're working to identify and address any challenges early. We're also actively participating in the industries ATF working group that was formed to discuss regulatory and technical initiatives that are needed to support ATF and HALEU.

Next slide please. As John mentioned, we are making progress in becoming a modern risk-informed regulator. We continue to enhance and revise our licensing practices.

For example, last November we issued a comprehensive update to the licensing handbook for fuel facilities that enhanced our licensing practices by providing clearer roles and responsibilities and expectations for conducting licensing reviews.

We're also integrating licensing procedures for the two business lines, with the goal of adopting best practices from across the business lines and further risk informing our approaches.

In April we proactively initiated efforts to further enhance licensing and inspection programs for fuel facilities. Two working groups were formed to holistically assess the programs and to make recommendations on where we can further integrate best practices and risk-informed insights.

As we make progress in these areas, we've been coordinating across business lines to share any insights.

Since the briefing in April, the business line has held several public meetings, which involve the wide-range of stakeholders, to discuss improvements to the licensing and oversight programs.

The working group on inspection oversight is developing its final recommendations. Based on the numerous public interactions we've had, we are confident that changes can be made to risk-inform our oversight

process while maintaining safety.

During our most recent meetings, our stakeholders expressed optimizing in the progress we've made, and that we have alignment in several areas. Including identification of the areas where inspection procedures may have overlaps, the overall risk ranking of the areas that we inspect, and the level of effort required for these areas and accounting for the effectiveness of approved corrective action programs in the inspection program.

There are other areas where we do not have alignment, and we're still considering these. Such as, whether and how we should incorporate flexibility into the level of inspection effort, the degree to which we should utilize evolving information on safety margins to guide our inspection program and the areas that should be inspected by regional and resident inspectors.

The working group on licensing is expected to provide its report this month. The working group is evaluating the recommendations received, which include enhancements in the areas of communication, issuance of requests for additional information and early alignment on the focus areas for our licensing efforts.

We're evaluating these recommendations. We plan to finalize them in the near future. And we plan to implement these recommendations by Fiscal Year 2021.

Next slide please. To promote transparency and clear

communication, the business line has taken significant steps to move forward with implementing recommendations from the self-assessment report on non-fee billable work that was mentioned during the last Commission briefing.

In July we met with management from across the major offices, our partner offices, to present the results of the self-assessment and our plan for corrective actions.

Key recommendations from the assessment include creating and reviewing easily accessible reports on non-fee billable charges to the business line, maintaining closer oversight about resource management on non-billable projects and conducting an annual review of the mapping of cost activity codes to business line products.

Since the last Commission briefing, we've taken actions to improve our ability to track projects associated with non-billable hours. We will be using this information in the future to ensure that we're spending efforts on the most important areas.

For example, we had a meeting with our partner offices and then we issued a memo which provides guidance on tracking non-billable work. We're also developing tools and practices to better track and monitor non-billable hours for better accountability and transparency.

We will be completing an annual review of the charges toward non-fee billable work, and then we will identify any additional actions that are needed based on this assessment.

Although we're still in the early phases of implementing

these actions, we're optimistic that they will help to provide better planning, prioritization and management of future initiatives within our business line and increase in the transparency of our annual fees, potential opportunities for our stakeholders to weigh in on the priority of initiatives and tools that demonstrate consistency with the NMSS, adequate protection memo and NRC's principles of good regulation.

This concludes my presentation. I will now turn it over to Jake. Next slide please.

MR. ZIMMERMAN: Thank you, Andrea. Good morning, Chairman, Commissioners.

I'll be providing you an overview of the fuel facilities licensing and activities with emphasis on our continued worked to safely license fuel facilities, actions to prepare for new applications and workforce readiness.

Next slide, please. We continue to effectively and efficiently conduct our fuel facility licensing reviews. While there has been an overall decline in the number of licensing actions over the last several years, as shown by the chart above, we continue to effectively implement our licensing program by performing timely reviews and successfully achieving our performance metrics. While also implementing program improvements.

We continue to successfully navigate the unique aspects of fuel cycle licensing through applying technical expertise in the areas of complexity, openly considering alterative views in our decisions and focusing on effective and risk-informed licensing processes.

In Fiscal Year 2019 we completed a total of 46 licensing actions, an increase of 18 percent over Fiscal Year 2018. While completing these reviews with approximately 19 percent less resources.

A significant accomplishment that I attribute to, one, and most importantly, our knowledgeable and dedicated Staff. And many of them are here in the audience. And I thank them for their efforts.

An implementation of enhancements that we've made to the program. Most notably our licensing review handbook that include increased focus on the use of document templates, detailed schedule and resource estimates for our reviews and tracking of milestones throughout our review.

Notable examples of our accomplishments include expedited reviews associated with security requests. And several first of the kind requests for medical devices that would be used in classified areas.

We also made significant progress on the review of two license renewals. Specifically the Westinghouse, Columbia Fuel Fabrication Facility and the Honeywell Metropolis Facility.

As reported to you in April, the environmental assessment for the Westinghouse license renewal was reopened in June of 2018 because of new information on a number of leaks at the facility and public concerns about contaminated groundwater.

We recently completed the draft Environment Assessment and made it publicly available in October for a 30 day comment period. The Staff is currently evaluating the public comments.

For Honeywell, the Staff has completed its safety and environmental review and anticipated issuing a final decision by the end of the month.

Currently, we continue to manage our licensing program, meet the needs of our licensees and deliver licensing actions in a timely manner. Moving forward, based on the known and anticipated workload, we expect that the volume of licensing actions will remain near today's levels.

Next slide please. We are ensuring that we are prepared for new applications expected through proactive communication. Given the evolving environment, we are emphasizing the importance of communications with our licensees and applicants.

Frequent and early communications on future plans allow us to create a more accurate budget, ensure we have the required technical skills and allocate sufficient resources.

For example, we gather information on potential licensing actions during site visits, routine management calls, and in our discussions as part of the biannual cumulative effects of regulations meetings that we hold.

We reach out to anticipated applicants for upcoming projects and are coordinating internally on several applications. For example, we are providing substantial support to the Office of Nuclear Reactor Regulation for the review of the Part 50 operating license for SHINE, a medical isotope product facility.

We are also preparing to license and inspect fuel, facilities

with new fuel types and higher enrichments. We are conducting pre-application meetings with X-energy for their expected application in Fiscal Year 2021 for a new facility for pebble bed reactor fuel.

And similarly, we are preparing for the application from Centrus for construction and operation of the American Centrifuge Plant at higher enrichments. We are enhancing our communications to reach a great external audience.

In October of 2019 we issued a *Federal Register* notice announcing the creation of the fuel facilities correspondence Listserv. The new Listserv will allow stakeholders, including members of the public, to register their email, which will then allow them to receive notification of NRC public documents.

You may be familiar that this is something that the power reactors have also used over the years. This will be used by both Headquarters and our Region II counterparts for the fuel facilities.

We are also coordinating with the federal government to share information. Most notably, we continue to engage the Department of Energy to ensure we'll be ready for future reviews of new fuel types for existing and advance reactors.

We are working with the Office of Nuclear Regulatory Research and National Laboratories to conduct research on different fuel types, such as metal fuel or molten salt, so that we are prepared for the future and applications for operations with different fuel types.

We contracted with Pacific Northwest National Laboratory to identify hazards associated with metal fuel fabrication and methods for controlling those hazards.

Similarly, we contracted with Oak Ridge National Laboratory to identify hazards typically associated with fuel salt processing. As well as methods for controlling these hazards.

The reports from these efforts are available to help reviewers assess future applicant's identification and management of fuel fabrication hazards for their specific operation.

We also contracted with Oak Ridge National Laboratory to consider how metal, material, control and accounting of special nuclear material would be applied at a pebble bed reactor. As the fuel type and fuel reloading cycle are quite different than at current light water reactors.

The Oak Ridge National Laboratory report provides a model, material, control and accounting plan for a pebble bed reactor. Including areas such as management structure, measurement control system, material balance areas and item control areas.

The draft report is currently being reviewed by the Staff. When finalized, the report will help inform future guidance on material, control and accounting for review of advance reactor applications.

Finally, we are also working with Research to assess availability of criticality code benchmarking data for higher enrichments. This assessment will determine if new criticality experiments are necessary or if

existing experiments can be extrapolated to higher enrichments or otherwise be demonstrated to be applicable for benchmarking higher enrichment criticality code calculations.

And this is for the, in the area of storage and transportation.

Next slide please. To ensure our workforce is prepared to license the technologies of the future and to enhance knowledge and management, in Fiscal Year 2019 we had a series of licensing seminars to enhance and promote knowledge management across the business line.

Topics included draft requests for additional information, writing safety evaluation reports, understanding the licensing metrics and Staff's roles, counterintelligence, and the use of web-based licensing to manage and monitor our licensing workload.

Recently we expanded our licensing seminars to talk about individual fuel facilities to deepen our Staff's knowledge and understanding of those fuel facilities. And that's been a really great initiative as we've merged into the division of fuel management, where we'll be cross training individuals so those people that hadn't worked on fuel facilities in the past, this is a good overview to start them with.

We also anticipate providing licensing seminars on process improvements identified during our smarter licensing effort in new technology and working groups.

The newly merged division allows for sharing technical experts between the spent fuel and fuel facilities business line. We are

encouraging Staff in key technical areas to complete cross qualifications to enhance their agility and enable their review of future license applications.

To ensure we can support the expected new applications for medical isotopes in the X-energy application for fuel facility, we factored the skills necessary to support these reviews into the strategic workforce planning process so we have the correct Staff to meet the workforce demand.

We will rely on mentorship from senior staff, qualification programs and other in-house training opportunities to train new hires. This concludes my part of the presentation, I'll now turn it over to Robert Williams.

MR. WILLIAMS: Thank you, Jake. Good morning, Chairman, Commissioners. My presentation will focus on the fuel cycle inspection program. I will highlight several accomplishments, enhancements and ongoing activities.

Region II has oversight of the nation's fuel cycle facilities and plays a crucial role in ensuring safe and secure operations at the sites. The safe oversight of fuel cycle facilities continues to be our primary focus. Next slide please.

We are focused on effective implementation of an inspection program that concentrates on those areas that are most important to safety and safeguards.

We completed the fuel cycle facilities core inspection program for Fiscal Year 2019, which included conducting approximately 65 core inspections, a program adjustment review and two supplemental

inspections, which ranged in scope from follow-up activities at the BWXT facility due to previous escalating enforcement actions involving a desiccant vessel, to inspections centering around safety culture issues at the Westinghouse facility.

These activities were comprised of multiple inspection procedures at each of the operating facilities, including information and physical security.

With an eye toward the future, we are actively engaged in efforts to ensure we are ready to support inspection activities at new facilities. As Centrus transitions the American Centrifuge Plant from the decommissioning phase to the operating phase, Region II plants work closely with our partners in NMSS to develop a master inspection schedule.

This will account for the licensee's current plan to commence limited operations with only one cascade and adding addition cascaded as budgeted by the Department of Energy.

In support of the licensee's current plan to submit an amendment request to increase enrichment to 19.75 percent, we will again work NMSS to develop an inspection program commensurate with any additional risk.

The Region has been actively engaged in efforts to modernize our decision-making while implementing the inspection program. In September, the Westinghouse Columbia facility notified us of an issue involving moisture intrusion in their instrument air system, which could have

allowed water into a uranium oxide powder system.

Initial screening of this issue would have driven us to consider immediately launching a reactor inspection team to the site without the benefit of understanding the safety significance of the event. Instead, the Region employed several tenants of integrated decision-making by allowing the inspectors time to engage licensees from the Regional Office and quickly collaborate with subject matter experts.

When eyes-on observations were required, a short two-day site visit by Regional inspectors afforded additional overall understanding of the event. The information gained provided valuable insights that informed recommendations to senior management resulting in a more effective use of resources.

Ultimately it was decided that inspection follow-up on the event during the next scheduled onsite visit would be the most appropriate regulatory response.

As a continuous learning organization, we are proactively making changes to enhance our effectiveness within the inspection program. We are partnering with NMSS in support of this modern fuel cycle inspection program efforts.

As part of the working group evaluation of the program, we are proposing adjustments to ensure we are focusing our resources on the most important issues. For example, we assessed how to best employ the Category 1 facility resident inspectors limited resources by reevaluating how

much time they were spending in areas where specific expertise is required.

We performed an in-depth, holistic review of each inspection procedure currently in use, focusing on right sizing and eliminating overlap of activities and duplicative efforts. We look for ways to better incorporated operating experience at the inspections, both during the planning stages and during their implementation.

These efforts were to ensure that we maintained our focus on areas of risk significance and continued to apply resources commensurate with that risk.

We ensured that our efforts were informed through actively soliciting feedback from both internal and external stakeholders. This included holding nine public meetings at various locations in an attempt to maximize public engagement.

Next slide please. All of these program enhancement efforts will amount to little without continued investment in our people.

We are actively maintaining a focus on knowledge management, Staff agility and emphasizing greater collaboration with other Regional divisions, our partner office and stakeholders.

Presently, 55 percent of our inspectors have pursued cross qualifications in the reactor oversight program, the construction inspection program, the materials business line or as a safety culture assessor.

Our inspectors have provided resident support and initial startup testing report for the Vogtle 3, 4 units currently under construction.

Support of the review of licensee submittals in the area of nuclear criticality safety and participated in resident baseline and problem identification and resolution inspections at operating reactor facilities.

The specific knowledge gained and benchmarking of those programs helps bolster our technical credibility and gives valuable insights to identify trends and best practices that can inform our inspection planning and implementation efforts.

This focus also greatly aligns with Region II's ongoing efforts to both holistically management our future workload shifts and to provide our Staff with more opportunities to develop their skill sets.

We're employing individual and intentional talent development, aligning the specific needs of the inspectors with the opportunities that become available. This win-win environment increased the depth of resources available to the Region and Headquarters, while also giving the Staff greater opportunities in their careers.

Pictures in the top right corner of this slide is our senior resident inspector with BWXT conducing an inspection of licensee activities at that Category 1 facility. The bottom right corner shows one of our regional inspectors performing walk downs at the URENCO facility.

Following NMSS's Division of Fuel Management reorganization, we have a continued focus on collaboration with the program office. As new project managers were assigned to each facility, we developed new working relationships and established routine communications

to reinforce our collaborative work environment.

Our community of practice leads are identifying relevant training and actively conducting knowledge management sessions with Staff and new project managers to ensure and strengthen technical competencies.

The Division of Fuel Facility Inspection recently held a management retreat and integrated key principles of the leadership model. This was the first time we included the senior inspection staff in such an effort.

The focus was to advance the idea of leadership at all levels and empower the Staff the take ownership of their roles as leaders within the agency. Specifically, the management staff actively participated in discussions around innovation, diversity of thought, collaboration and teamwork.

We developed more meaningful communication methods, developed strategies for overcoming barriers to engagement and table topped ways to incentivize Staff to embrace leadership opportunities. Since the best instructors tend to be our peers, the senior Staff then took it upon themselves to inform and communicate these behaviors to the remaining division inspectors by planning their own retreat and incorporating engaging innovative activities.

Next slide please. Enhancing our openness with the public remains a focus for us to ensure we consider diverse viewpoints. We strongly believe that open dialogue leads to broader views being expressed. And this in turn enhances our decision-making process.

We continue to perform outreach and actively engaged with local stakeholders, closely partnering with our government liaison and public affairs officers, we supported joint meetings with the South Carolina Department of Health and Environmental Control and met with newly elected council members to proactively communicate regarding the events at the Westinghouse Facility.

Our inspectors also participated in public meetings for the environment assessment review associated with the Westinghouse license renewal. We held teleconferences with Congressional staff and supported discussions surrounding the URENCO Facility.

To provide more options for in-person participation in NRC public meetings, we also hosted several of the smarter fuel cycle inspection program meetings in Region II. Our residents have conducted extensive outreach to local communities and local officials.

For example, our senior resident inspector at BWXT proactively engaged with Campbell County Sheriff and members of the Campbell County Public Safety Office to identify areas of local concern and cooperatively develop public outreach activities.

We also piloted a poster session at nuclear fuel services this year to encourage more one-on-one participation with the public during licensee performance review meetings.

As seen in the top right picture of this slide, our senior resident inspector at the nuclear fuel facility services is directly engaging with

members of the public in a more relaxed environment.

At this same meeting we also accommodated a public poster session presented by local advocacy groups. These interactions fostered a healthy dialogue of differing viewpoints. And out of this, our Staff was able to directly address more than 20 specific questions related to the NFS facility.

The pictures shown in the bottom right of this slide shows our public affairs officer collaborating with inspectors as they talk with members of the public at a local fair event about the NRC and what we do. It's these levels of engagement that promotes transparency and builds public trust and confidence in our mission of safety, security and environmental protection.

All in all, we will continue to focus on our mission, implement strategies to address current and future challenges, identify innovative ways to continue preparing our Staff for the future and maintain and nurture our relationships with all of our stakeholders.

This concludes my part of the presentation, I'll now turn it back to John.

MR. LUBINSKI: Thank you, Robert. Also, thank you, Andrea, Jake. With that, Chairman, that concludes our prepared remarks this morning and we now entertain any questions.

CHAIRMAN SVINICKI: All right, thank you. Thank you very much for your presentations. We'll begin the questions today with

Commissioner Baran.

COMMISSIONER BARAN: Good morning, thanks for your presentations. Andrea, I'd like to delve into the potential changes to fuel facility inspections in greater detail.

I know that an NRC Staff working group has been developing recommendations in this area. Are those recommendations final or are they still a work in progress?

MS. KOCK: So, right now the recommendations are a work in progress. The working group has some proposed recommendations that were discussed at a public meeting a few weeks ago. And they'll be considering the feedback that we receive before we make any final decisions.

COMMISSIONER BARAN: Okay. I reviewed the working groups presentation for that November 15th public meeting and I think we need some truth in advertising.

The Staff refers to smarter or more risk informed inspections, but to be clear, the Staff is talking about an overall reduction in NRC inspections for fuel facilities, is that right?

MS. KOCK: I wouldn't necessarily characterize it that way. When we started on, down the path of looking at the inspection program, the thought was to do a holistic review of the program. That means risk informing it. Our goal was not necessarily to reduce inspection hours.

I think what you're pointing to is that the proposal that was discussed at the meeting did include a reduction of hours. The important

thing, I some areas. And it also included an increase in other areas.

COMMISSIONER BARAN: Yes, so my question really goes to the effect, not the goal or the intent, but the effect of the changes being discussed as an overall reduction of NRC inspections. Is that right?

MS. KOCK: So, we haven't made any final decisions so I wouldn't say that our, the effect of the changes being discussed is a reduction. Again, we're looking to risk inform the program.

The proposal that was discussed at the meeting did reflect an overall reduction. And that reflected a reduction in some areas and an increase in others.

COMMISSIONER BARAN: Let's look at that in a little more detail. I have the slides here from the November 15th meeting, and as you say, these are not final recommendations, let alone a final decision it's the current state of the recommendations, proposed recommendations.

Based on the slides, the working group seems to be contemplating a ten percent reduction in overall annual inspection hours for the two Cat 1 facilities, a 20 percent reduction in overall annual inspection hours for the Cat 3 fuel fabrication facilities and a 19 percent reduction for the gas centrifuge facility. Is that your understanding of what's being discussed at this point?

MS. KOCK: That was what was discussed at the public meeting. And if I could just give you a little bit of background on how the working group was considering what they proposed at the public meeting.

I think it actually was a good testament to our Staff. And as long as I have been with the agency it never ceases to amaze me what they can come up with you set them on a task.

But they went through a very methodical process to come up with a proposal. Again, it's not final but it was discussed at the public meeting.

They looked at a few different factors in coming up with the original proposal. They looked at the risk of the different areas that we inspect, they looked at ISA insights from the facilities, they looked at operational experience.

They even went so far as to look at, where are our regulations more complex or less complex. And they had a very methodical and objective way to kind of roll that up in coming up with a proposal. So I just wanted to share with you that background.

The other thing --

COMMISSIONER BARAN: I appreciate that. Let me ask about this. So, you mentioned kind of tiering, by risk, the safety issues. And the working group views criticality as a top tier safety issue that warrants, maintain a high level of inspection effort.

But the working group is apparently still contemplating a 37 percent reduction in annual inspection hours focused on criticality safety at Cat 1 facilities. Is your understanding that that's the change that's being actively considered?

MS. KOCK: So you're correct, criticality is one of the high risk areas that we consider in the fuel cycle inspection program.

The reduction in hours that you see on that chart is actually not a reduction, it's a shift of those hours into plant ops.

COMMISSIONER BARAN: Into what?

MS. KOCK: Into plant, I'm sorry, into plant operations.

COMMISSIONER BARAN: Okay.

MS. KOCK: The plant operation procedure. And so, in some areas there is a reduction based on what we view as the risk or the stability of a particular program or the maturity of that program. That is true.

In other areas there's a shift made, and criticality was one of those.

COMMISSIONER BARAN: So, if I look at this chart it looks like the working group is considering a 50 percent reduction in fire protection inspection hours at Cat 1 facilities and a similar 40 percent reduction in fire protection inspection hours for all the other classes of fuel facilities.

Working groups considering a 39 percent reduction in material, control and accounting inspection hours for Cat 1 facilities. Working group is contemplating cutting emergency preparedness inspections for all fuel facilities from once a year to once every two years.

As we heard earlier, environmental protection and groundwater contamination have been an issue at the Westinghouse Columbia facility. But it looks like the working group is thinking about

recommending reducing the frequency of the effluent control and environment inspection from once a year to once every three years. So that would be a two-thirds cut in inspection.

How do you think state and local stakeholders would react to that reduction and oversight if it were made?

MS. KOCK: So, through our efforts in looking at the inspection program, I've heard a wide variety of views from stakeholders.

I think some stakeholders would be, for example, the reduction that we're considering in the effluent area, which was driven by the safety risk in that area as well as the stability of those programs. Some stakeholders would not agree with the reduction that was discussed at the meeting.

I think there are other stakeholders who would think that we aren't taking enough of a reduction in that area. And so that's why we held nine public meetings and really wanted to make sure that we got fulsome feedback from our stakeholders.

And before we make any final decisions, we'll really want to consider all of those views.

COMMISSIONER BARAN: I don't want to be one sided on this. As you mentioned, there is, it's not multiple areas, it's one area, plant operations, that the working group is contemplating an increase.

Are there, and you've kind of talked this a little bit, is it, for that increase in that area of plant operations, are other existing inspections

being folded into plant operations or would this be an actual increase in inspection hours?

MS. KOCK: So, in plant operation there is a couple of different plant operations. There's a couple of different things going on.

One is the shift of some of the hours from criticality into plant operations. There is actually an increase being proposed there in the area of chemical safety.

So in our group, and Robert was part of the group, they did a great job. When our group looked back and where we need to focus, they did determine that chemical safety was an area where we probably need more focus than we had in the past.

So there is an actual increase there as well as a shift. So, in some cases it's a little bit difficult to determine, is it an actual increase or decrease.

COMMISSIONER BARAN: Right. In our presentation you mentioned that the Staff has alignment with stakeholders on accounting for the effectiveness of approved corrective action programs and inspections.

Which stakeholders is the Staff aligned with on this point?

MS. KOCK: So, let me make it clear. I think you of course understand this, the final decision on any changes that we make will be the NRC's it won't be our stakeholders. So I think that's clear to all of us.

When I referred to alignment, what I meant was we had a common understanding with our stakeholders as far as what the risk rankings

are in different areas. What the level of inspection should be.

And what was discussed at the public meeting was, there was a common understanding in some of those areas among the stakeholders that were present.

COMMISSIONER BARAN: Okay. And what would it mean to account for the effectiveness of corrective action programs and inspections? What's being contemplated here?

MS. KOCK: So, what's being contemplated, and this is a complex area of our regulations I think, but what we're trying to consider is how we should consider, and so for fuel cycle facilities a corrective action program isn't actually required.

But if a licensee commits to one and we review it and we have said we approve of this and it's a good corrective action program, how should that be considered in our program.

I think there is some recognition that if a licensee has a corrective action program that we've reviewed and approved, it could result in some risk reduction at the facility because that licensee is actively looking for problems, identifying problems and correcting problems. And so, one set of views would be, that actually could reduce the risk at the facility.

The other thing we're trying to contemplate there is, how should we consider those fuel facility licensees that do have reviewed and approved corrective action program compared to other facilities in the fuel cycle area that don't and kind of normalize that across the inspection program.

So how should that be considered.

COMMISSIONER BARAN: Is there a potential that licensees would get even fewer inspections on the basis of having a functional corrective action program?

MS. KOCK: It could result, if you were to "credit the corrective action program," it could result in a reduction in other areas if you try and normalize the number of inspection hours across the entire inspection program.

COMMISSIONER BARAN: If you --

MR. LUBINSKI: If I could --

COMMISSIONER BARAN: Oh, go ahead.

MR. LUBINSKI: I'm sorry, if I could add to that, Commissioner. As Andrea said, when we're talking about the corrective action program itself and the identification.

What we've also heard from our external stakeholders is, when they're implementing a corrective action program effectively, not only are they self-identifying, they're going above and beyond what the regulatory requirements are in implementing additional controls, which they're saying to us is actually decreasing a risk profile, increasing their safety margins.

So, we believe the team is looking at that to say that if a licensee has a program in place that actually is increasing safety at the plant and having addition safety margin, should that then correspond to less inspections in certain areas where they have put those voluntary controls in

place, whether active or passive controls that they would install.

COMMISSIONER BARAN: Hmm. I mean, it's interesting that what we're contemplating is extra credit for corrective action program. It just seems like, almost like a basic element of running up --

MR. LUBINSKI: I wouldn't --

COMMISSIONER BARAN: -- safety.

MR. LUBINSKI: I wouldn't call it the extra credit. I would say that as the team looked at it, as Andrea said, factoring in things like the risk profile of the plants, the impacts of the ISA, how do they look at risk insights.

It's us looking at the program in accordance with the PRA policy and looking at our risk assessments to say, how do you appropriate consider risk in using your resources to focus on the most significant areas. And if a plant, a licensee were to put measures in place that actually increases safety of the plant, we have to ask ourselves, should we be spending the same amount of effort inspecting that area versus focusing our efforts somewhere else.

COMMISSIONER BARAN: I want to ask two other quick topics in this area. One on the concept of flexible inspection hours that's been discussed.

Can you give me just like a brief description of what that would look like or what's being contemplated there?

Is it the idea that within a certain band inspection hours

could increase or decrease based on something?

MS. KOCK: So, flexibility is a concept that's actually implemented through several of the inspection programs at the NRC and other programs. And the concept is, we're trying to determine what is necessary for us to provide adequate oversight at these facilities.

And that's like the core inspection program or a base line number of hours. But there's always the possibility that we may need more or less inspection based on factors at the plant, operational experience that we see, events that may occur.

Our inspectors have great intuition in insights and experience and we want to, and a lot of cases provide them the flexibility to be able to make those judgements in the field if they see something that they need to delve into a little bit more. So, that's the concept of flexibility that's being discussed here.

COMMISSIONER BARAN: And then, it sounds like the Staff is considering, at least at the working group level at this point, some potentially major changes to the inspection program for fuel facilities. Do you plan to provide a notation vote paper to the Commission so that we make the final decision on this?

MS. KOCK: So, again, we haven't made a decision. So I think the next step is for us to decide what changes that we think we need to make. And based on what changes we think we need to make, then we'll look at, is this a policy issue or not.

The way we have typically looked at whether there is a policy issue is, is it a major programmatic change to the inspection program. Basic tenants of the program that are changing. And that's the decision, I think, that we'll need to look at when we consider, is this something that the Commission should weigh in.

COMMISSIONER BARAN: Is there, as you're thinking about inspection hours, the overall structure would remain the same but the hours were to be dramatically reduced. Is there some threshold at which you would say, well, doesn't the policy matter if we're going to reduce hours by a significant margin?

MR. LUBINSKI: In looking at our guidance, as Andrea said, that would be a judgement we would need to make based on what we would see the overall impact would be of the program. So we haven't made that final decision yet.

But again, it would be within the judgment. And where there was no prescriptive formula would tell us X percent decrease therefore you come to the Commission.

COMMISSIONER BARAN: Okay, thank you.

MR. LUBINSKI: If I could also add --

COMMISSIONER BARAN: Oh, sure.

MR. LUBINSKI: -- in response to one of the answers, Commissioners, I want to recognize the folks who are on the working groups.

As Andrea said, when we asked them to put together this

task we asked them to come with their best thinking on what they felt was important to bring to the table. And early on they were approaching it from many different directions.

From looking at the ISAs, looking at their past experience, looking at risk, but keeping a risk focus in mind as they came forward. And what's interesting is, even coming from the different directions that they did, many times the results seem to come in the same place rather quickly, where the approaches that we're taking were different and then later there became more alignment on the approaches and how they got there.

So I want to really complement the folks for the openness that they brought. And then also, as Andrea said many times, being able to do this in a public setting and making sure that we're inviting all of our external stakeholders to public meetings so that we can hear any concerns that they would have we felt was very important as well through this entire process.

COMMISSIONER BARAN: Yes, I appreciate that. Thank you.

CHAIRMAN SVINICKI: Thank you very much. Commissioner Wright.

COMMISSIONER WRIGHT: Good morning, thank you. So good morning, everyone, it's been a good dialogue.

And before I get started I just want to recognize you for your work on the Westinghouse. I mean, that's ten miles from my home, down in South Carolina, and I've been paying very close attention to it.

And I really appreciate the way that the Region and the way that you all have handled things in the public arena. You've been very transparent and very open. And I just to just commend you for that. And pass that back to the Region as well.

MR. LUBINSKI: Thank you. Jake, I'll you add to that.

I want to think a lot of what we're talking about today is a lot of the safety aspects of the programs. But that's an area where we've definitely looked at the environmental side.

And I want to complement the environmental folks for what they've done on that outreach and the coordination we've had between Headquarters and the Regions.

COMMISSIONER WRIGHT: Okay, thank you for that. So, John, I'm going to start with you on this.

But I've enjoyed and appreciate the discussion on the risk-informed regulator stuff today. And back in October, at the transformation meeting, I had some questions about this topic but I ran out of time, so I want to kind of go back and start with that today if you don't mind.

In September you held the first office live Skype call --

MR. LUBINSKI: Yes.

COMMISSIONER WRIGHT: -- and about what it meant. What modern risk-informed regulator meant at NMSS.

And so how did that go and what kind of comments did you, and questions did you get from Staff, and how are you using the insights that

were gained from this going forward?

MR. LUBINSKI: Thanks, appreciate it. There was actually a few things involved with that. And let me drop back before I talk about the risk aspects.

I felt it was important that we were hearing feedback from our Staff is that they wanted to have more interactions with the senior managers in the office and how could they do that. We actually proceeded that with what we called an executive team chat where we asked for just an executive team and Staff and other management to be present for the meeting. And we had about an hour and a half of just open dialogue.

It came out of that meeting as a recommendation of, let's do something more inclusive like a Skype call. And that's how we came up with a Skype side chat was from the Staff saying, let's do that.

I put it as very successful. At one point we had 137 people on the Skype call. So there was a lot of engagement.

Now, were they there for the entire hour plus that we were on the call, probably not. But it invited them to maybe be multitasking at their desk while they were able to do it and still engage and get other work done.

And also feel that they didn't, if they stayed for ten or 15 minutes they could do that as well.

The topic, again, that came up with risk was, out of our initial executive team chat where they said, tell us more on why we need to do this. And that's where you see the graphic why we started with the whys involved.

And that was a lot of the discussion that started with the why.

That's what a lot of people engaged on. And the questions, John, why do you believe this, Rob, why do you believe this.

And we shared our thoughts on why we believe that looking from the standpoint of our external changes, the changing environment we're in and that we need to be looking proactively at what the future looks like and how can we effective and efficiently regulate in that environment.

Also, a lot of what we heard out of was what they say the whys for why they felt they needed to change. And I thought that was probably the most important because they were coming up with ideas of what they saw as barriers. Whether it was in their current processes or in current thinking on where to go.

And they came up with ideas about how to change our processes, how to change our procedures as we continue to move forward. In fact, after that we had asked for some feedback. And the response was, we'd like to see this more.

And we had another call just last week on more the first format where it was just an open dialogue. And a lot of that probably focused more on personnel type issues.

COMMISSIONER WRIGHT: Sure. Thank you for that. So, some of the challenges that I see in this risk-informed decision-making arena, on the material side I guess is the, you've got diverse group of licensees, you don't really have, I guess you lack a formal risk assessment

tools, like PRA and stuff, on the reactor side has.

You've got the ISA, but that really is for fuel cycle facilities. Nothing for the other classes of licensees.

So, what do you see as challenges and how do you think you can overcome those challenges to move the materials program toward a more risked informed?

MR. LUBINSKI: So as you said, on the fuel facility side we do have the ISAs, which helps. As we went into this, I'll give you my perception is, even the industry on the fuel facility side was maybe a little bit skeptical coming to the table about looking at the program overall and what we were trying to do.

But I think the openness that we used and the fact that we didn't look at the ISA numbers as being hard numbers the way we would look at it in a PRA, opened everyone's eyes on both sides of the table that we had to look at this not only quantitatively but qualitatively. And I think that's what we take out that goes to other areas.

You'll hear in the next presentation, we'll talk a bit about independent spent fuel, storage installations and what we're looking at there from a risk-informed perspective.

Do we have PRAs, no, but do we have risk studies that were done in those areas, yes. And that's what we're relying on is, where do we have hard numbers from a risk standpoint.

And then also in that area we've tried to equate that to other

regulatory programs. We looked at, does this facility, what does it look like, what does it act like, what are the risk associated most similar to in other areas.

In the fuel facility, some of that relates more to reactor programs, which is why we look very much at corrective action programs because they're required for the reactors, not for the fuel facilities.

For ISFSIs, we looked more towards the material programs and said, what do we have in the materials area.

About six months we had a program briefing on our nuclear materials users' program, and we're looking in that area to how do we risk-inform in that area as well. That's very qualitative.

And I think the approach though is using the experts, as we did in this area, where you bring in your inspectors, your licensing folks, those who have been to the sites, to bring their insights to bear.

And something Andrea said is, when we talked about flexibility in a program in providing flexible hours, and I would agree with Andrea, I see it this way, that the best way to look at flexible hours is allowing the person who was there has their boots on the ground, is there seeing it firsthand, training them from the standpoint of qualitative insights in the way they approach their job to then use their judgment on site of where they should be focusing their hours and efforts based on the experiences they have.

COMMISSIONER WRIGHT: All right. And I appreciate value my fellow Commissioner's concern about the reduction hours or shifting of hours and things like that, but I guess my question, I don't know that, and

to me I don't, am I wrong, if you're looking at re-calibrating and changing the way that you're basically looking at the quality of the inspections that you're doing, not necessarily the number of hours that you're putting in just to do inspections, would that be --

MS. KOCK: So what I, I agree with you. And the way I keep putting it is, we are looking at what is needed. What is needed for an effective oversight program. Not necessarily a reduction or an increase but what do we need to do in order to do our job effectively.

COMMISSIONER WRIGHT: Right.

MS. KOCK: And not do too much and not do not enough.

COMMISSIONER WRIGHT: And where that falls is where that falls.

MS. KOCK: That's right.

COMMISSIONER WRIGHT: Okay. I was just trying to understand that.

MR. LUBINSKI: And another point that I think is important as we talked about that part of the program and the flexibility is, we really are trying to engage that the flexibility part of the program is a proactive approach, where when we're looking at the site we're looking at what I'll call, what could be called precursors along the not an event response type flexibility.

With that said, all the programs are still going to have that aspect of the program that there will be a reactive part and we will respond. But the more important part is to have the proactive part first and have the

flexibility part of the program be proactive.

COMMISSIONER WRIGHT: Right. Okay. Thank you.

Hey, Jake, how are you? So, your branch seems to have a lot of new and novel work coming its way so, and it's kind of exciting too and I wish you luck as you tackle that.

You mentioned how you used the strategic workforce planning process to prepare for the X-energy and medical isotopes facility reviews. Can you share with us your experience or the divisions experience in implementing that process? How did it go or how is it going?

MR. ZIMMERMAN: So far, I think it's gone well. There is obviously some growing pains with it but I think it's a useful tool long-term when you start to look out five years in advance of what applications or types of technologies you may have to deal with and then you start to dial down and look into, what are the critical skills that you're going to need and then look at your current staffing and then combine that with the budget that you're going to have to project out and then marry that up.

So, I've used different strategic workforce planning tools in the past. I think this one goes a little bit further and provides a little bit more detail.

But there is still more work that remains, but so far I've found it to be a useful tool.

COMMISSIONER WRIGHT: Have you considered any other novel ways of carrying out the projects like agile teams or skills

marketplace? Have you --

MR. ZIMMERMAN: I have not looked into, I personally haven't looked into the skills marketplace. Now that we've merged and we're still forming, I think what we're looking for right now is the opportunity to cross train Staff on the storage and transportation, which there are very similar common skills, they just haven't worked in fuel facilities and vice versa.

So, I think right we're first targeting within. And right, we haven't yet identified a need to go external.

So I think merging the division has allowed us to centralize some common critical skills. And so, we want to take advantage of that first.

COMMISSIONER WRIGHT: Okay.

MS. KOCK: Can I just add --

COMMISSIONER WRIGHT: Sure.

MS. KOCK: I can't help myself.

COMMISSIONER WRIGHT: Please.

MS. KOCK: I've tried to, but --

(Laughter.)

MS. KOCK: The idea of agile teams is something that's come up multiple times through the agency's transformation efforts. And is one of the common themes that's going up in the review of the fuel cycle licensing program that we're doing now, in terms of the need to bring people together early in the process, to identify what's really important, has really helped us on several projects. And it is a common theme that's coming out

of our licensing review.

And so, it was something that we're looking very closely at as we review and revise our licensing guidance.

COMMISSIONER WRIGHT: Thank you. And by the way, congratulations on your new role and we look forward to big things coming from you in that branch.

MS. KOCK: Thank you, I think.

(Laughter.)

CHAIRMAN SVINICKI: But no pressure.

(Laughter.)

CHAIRMAN SVINICKI: Well, my colleagues have covered a lot of the topics here. Maybe I'll just return to some of these areas and ask some additional background information.

You know, I often comment that the strengths of our Commission is that we do have different perspectives. And people come at things and kind of the questions they ask are not exactly the same questions that you would ask.

But I think at the end of the day, similar to what Andrea has described with the teams working on some of the initiatives here and you've got a lot of different perspectives. You have people with different experience levels and different backgrounds in the room.

And in general, I think the rock polisher of that kind of process gets you with a pretty good public policy outcome. Generally. You

know, if people are respectful and kind of not withholding their concerns and things like that.

So, I might ask you, Andrea, in terms of the, we're spending some time talking about inspection hours today so I'll ask a little bit about that.

Is it your understand that the level of inspection hours, as they are set now, different from anything the Staff might be thinking about proposing, is it your sense those were arrived at in the kind of systematic, holistic type of review that's being done now?

I mean, maybe you weren't there, but is your sense of the background that a team was given the opportunity to really look at it or, and again, kind of integrated across.

And I know there is this narrative about the fact that while we're looking to cut hours, I can speak only for myself but I will tell you that that is not my understanding on the reactor side or the programs we're talking about today.

I'm not aware that any NRC team has been, and if they have been given this direction I want to know about it, that they have been told, you've got to come up with a design that cuts X percentage or does something like that. That's not my understanding of what's happening here, so, my sense is they're going, they're doing another fresh look at the relative risk, as we see it, not as the public sees it.

And I understand that's a sensitive point. You mentioned effluent. I know for many communities, actually, my colleague here could

probably speak to this very knowledgeably, very low risk effluence off the sight are very concerning to communities. But as the nuclear safety and environment experts on this particular facility, we would say criticality or we would say some other areas where we would be giving our closest look or maybe spending the bulk of our inspection hours.

So, can you talk a little bit about how the team began?

Was it really just to do the risk informing view or were they told that there was some other outcome or goal here?

MS. KOCK: So I'm going to agree with you that the team was not given direction, that this is a reduction. That is not my expectation at all and is not something I would propose.

The charter for the work was actually very kind of open ended for a purpose, and that purpose was to the holistic look at the program based on risk informing our approaches. So, yes, it was more of an open look.

And as far as your question, in terms of how did we set the hours that we have today versus, so my sense is, I mean, the great thing about the NRC Staff, and I think we're usually in about the right place, so the program is not broken.

And I think that the hours that we came up with, that exist today, were based on our experience and there's nothing wrong with them. But I don't think that they were developed based on a systematic review, like we're doing now.

CHAIRMAN SVINICKI: Do you think that if we left all those things just where they are today, that that would be better or worse for safety than doing the kind of, and I don't mean to, I'm trying to ask a neutral question and I'm struggling with it a little bit, but do you think if we locked all those points of emphasis and the corresponding hours in place for the next ten years, do you think that that is more enhancing to safety than taking this kind of look and making adjustments?

MS. KOCK: So, again, I don't think that the program is broken, but based on what we've seen so far from the working group, I think that there are areas where we're overspending effort and I think there are some areas where we're not expending enough efforts, and that's not what's best for safety. That's not --

CHAIRMAN SVINICKI: Are you confident that given the composition of members on this team, and Robert I think you said was one of those members, do you think that if they felt overall that the set of ideas being advanced to executives here at the Agency, at this point, if they had concerns about it, are you confident that they would speak up?

MS. KOCK: I am 100 percent confident that they would speak up because we have had a wide diversity of views. And as John alluded to, you know, where the team started versus where they end up, there was a lot of different views and a lot of work put in to come up with where we are today.

And my experience, again, with the NRC Staff is they're not

shy, we are not shy. People do speak up. And I always we need to listen to those views, understand them fully and then make a decision.

CHAIRMAN SVINICKI: Robert, I'm going to put you on the spot here. Do you want to talk a little bit about that dynamic in the team?

If it's difficult to say, do you agree with Andrea, but maybe just tell me your testimonial of the group. Was it pretty, kind of a free conversation amongst experts?

MR. WILLIAMS: Yes, I'll definitely agree with the way Andrea presented it. We had a diverse viewpoints, and even early in the public meetings that we've presented some of the ideas, we've presented I think a total of four different options before we finally centered on the last option that we presented.

So we've been, along this whole process, approaching it from all different angles. We had a lot of initial disagreement about the, where the focus area should be. A lot of constructive conversations happened.

And the team, as a whole, just came together, worked cooperatively and had the same mission in mind of maintaining safety, right sizing the program and putting the efforts where we thought they would best be needed.

MR. LUBINSKI: Chairman, if I could add. Early on, as Andrea said, there was questions, why are we doing this, what are we trying to achieve, where are we trying to go, what are the goals.

And I do remember one of the specific questions asked is if the result of this evaluation comes back and says, there are no changes to the program, would that be an acceptable answer. And I remember my answer is that being two part.

One is, yes, that could be an acceptable answer. But then I said, but don't come back in ten minutes and tell me that that's an acceptable answer, you need to be open to saying, not just this has always worked, it's a program that's not broke, why are we trying to fix it, do an evaluation.

So, people did ask that question right up front and said, if there are parts or the whole thing is fine the way it is and we think we have a basis for it, should we do that. And I would say that I appreciate that openness to do that.

I do think as being, looking at the program over the years and your question about, was this kind of rigor put in, I'd say, there was some level of rigor put into the initial programs and it has continued to be modified over the years.

I was involved in some of that in the early 2000s in looking at the program. But what we didn't have is a lot of the current risk insights we have today, such as the insights from the ISAs. And not just the ISAs, but the reviews of the ISAs, the inspection of the ISAs.

So our Staff learned lot over the last 20 years about how to look at these plans from a risk perspective. And that's what I think is being added in this assessment now were the folks who are looking at it today are

more educated on what we mean by risk insights, not so much a deterministic review in developing those programs.

CHAIRMAN SVINICKI: With that, maybe I'll just have you pause on that point because that could sound a bit theoretical. And so, maybe I'll ask you this question.

Do you think that with the experience we have now with the integrated safety assessments, I'm not sure we've defined that yet in the conversation, the ISAs as we're calling them, does it bear relevance and correlation to the events? Kind of the noteworthy events we've seen at these facilities in recent years.

And I would see that if there is not a good correlation between where the ISAs would draw your attention as a safety expert and what we're really seeing at these facilities, then I think folks may legitimately say, well, I worry about the effect of making changes that are rooted very theoretically in the ISAs, how do you respond to that?

MR. LUBINSKI: So I would, just on my own personal experience, I can say just recently looking at where my mind set was 20 years ago and looking at some of the risk associated with something like UF6 cylinders and drops, which when I came into the program was trained that that is the worst hazard that you could ever have at one of these plants.

However, now looking at the ISA insights and what we reviewed, there was recently an incident where rigging on, when it was being placed, moved, and the question was, what's the significance of that. We

were able to go back and look at the ISA and say, you were dealing with a cold cylinder, it was in place over top of the rack where it was supposed to be, this is not a risk significant issue.

So it's a change in thinking where we actually have an analysis that was done to tell us we're in the right place today. Which is different than I think some of us would have thought 15, 20 years ago.

CHAIRMAN SVINICKI: Well, and I appreciate that. And I think an added complexity here, not that it isn't complex on the reactor oversight side, but we have fewer of these facilities that we're regulating in this category, and they differ from each other in terms of the operation and the hazard.

So, it does, I think, challenge the Staff in terms of coming up with templates for inspection hours or even a program overall. That being said, that's not a reason to declare defeat. There are approaches here that allow you to look at similar hazards across this class of facilities.

And I appreciate the Staff, they work they're doing here. I encourage anyone in these working groups to speak up and to have a really good dialogue among experts.

I think that we do want to move in a risk-informed way. But one of you, it might have been Andrea talked about, the wonderful insights that the Staff that's been doing this work for a long time, particularly out in the Region where we've got folks very present at these facilities frequently I think I important.

And I know from my time here, I'll speak for myself, but I think the Staff moves with a lot of trepidation and caution in making changes. I find that to be somewhat of the organizational bias here. Not bias in a bad way but bias in favor of safety and security that has the Staff moved in a very deliberative and measured pace.

And from my part, that's what I observe you doing here. A lot of outreach, a lot of input. So I fully expect that you'll continue moving forward in that vein. John, did you want to have a quick last word?

MR. LUBINSKI: Thank you, Chairman. If I can say, we've talked a lot about the program today and we've done in the evaluation and, again, complementing the folks in the program.

And the biggest reason, the complement, it was not just the great work but this was a difficult project to take on. Because again, we're trying to look at it differently.

It's not easy. As Robert said, when the team got together originally there were a lot of differing views on how do you even approach the project to begin with, so we've appreciated that.

So, it's not an easy answer and we recognize that, but that's why we're also taking the extra time. We were hoping to have this project completed a month or two ago, but the folks came back and said, no, we need to get this right, we need to take the time to do. And we've supported that because we need to get the right answer.

CHAIRMAN SVINICKI: Okay, I appreciate that very much.

And I think we are taking a quick break here before the next panel.

So, we will reconvene at 10:20 and we'll reset the table. Thank you.

(Whereupon, the above-entitled matter went off the record at 10:14 a.m. and resumed at 10:20 a.m.)

CHAIRMAN SVINICKI: Well, we are reconvening now to hear from the second of our panels, which I don't think has a complicated name, but let me make sure that I get the business line correct. Spent Fuel Storage and Transportation Business Line. And we are hearing from one of the same panelists, and that is Mr. Lubinski. I will ask you to take it away. Thank you.

MR. LUBINSKI: Thank you again, Chairman and Commissioners. With me at the table for our second panel are Chris Regan, the Deputy Director of the Division of Fuel Management, NMSS. We also have John McKirgan to Chris' right, who is the Chief of the Spent Fuel and Transportation Licensing Branch. And to my left we have Linda Howell, who is the Deputy Director of the Division of Nuclear Material Safety in our Region IV Office. We would like to provide the Commission with a strategic discussion of the current spent fuel storage and transportation business line.

As we mentioned during the first panel the division merger is expected to result in benefits in terms of Staff agility and strategic workforce development. These benefits also apply in the spent fuel storage and transportation business line.

Many of the themes we will discuss are similar to what you've heard for the previous panel although the activities are different. This is an expected and intentional result of agency-wide strategic direction.

Next slide. The work within the spent fuel storage and transportation line continues to be significant in terms of breadth and scope. It includes licensing and oversight of spent fuel storage at 76 sites in 35 states including two applications for consolidated interim storage. It includes certification of transportation packages for more than 3 million shipments of radioactive material each year. It includes international support on technical and regulatory issues and it includes engagement with multiple diverse stakeholders outside the Agency including tribes, states, the Department of Energy, Department of Transportation and other federal agencies and non-governmental organizations.

We are effectively responding to a changing environment. These changes include a renewed interest licensing of consolidated interim storage facilities and increased and accelerated decommissioning resulting in increased movement of spent fuel into dry storage.

We are on track to complete our safety and environment reviews of the two consolidated interim storage facility applications by mid-2021. We also approved a number of applications for transporting fresh accident-tolerant fuel lead test assemblies to support use in reactors. Staff is preparing for transportation applications for batch loads of accident-tolerant fuel by identifying specific licensing and technical focus areas.

In response to the environment we are making efforts to engage a wider set of stakeholders in new forms. For example, this year we held our annual Spent Fuel Management Regulatory Conference near our Region I Office and held an evening stakeholder engagement session where we heard from a wide range of stakeholders including members of the public on spent fuel storage and transportation issues.

Next slide. In this business line we are continuing to make progress becoming a modern, risk-informed regulator through implementation of process improvements. In September the Staff completed a pilot review of the application for a graded approach that applies risk insights to determine the appropriate level of detail required for the certification of compliance technical specifications. We plan to incorporate the insights from the pilot into guidance for new applications. The Staff expects the effort will make the storage licensing process more effective by reducing the certificate amendment burden on industry based on the safety significance of the issues.

Also we initiated a working group to perform an assessment of the current Independent Spent Fuel Storage Installation Inspection Program. The group evaluated inspection efforts based on their safety significance. We are in the process of evaluating the recommendations.

I will now turn to Chris Regan for his part of the presentation.

MR. REGAN: Thank you, John.

Good morning, Chairman and Commissioners. I will be providing an overview of significant spent fuel and transportation business line

activities.

Next slide, please. As mentioned during the fuel facilities business line briefing earlier this morning, Staff assessed the current regulatory framework related to the use of accident-tolerant fuel and fuel with higher enrichment and developed a comprehensive agency plan to enable their use.

At the upper right of this slide is a picture of silicon carbide accident-tolerant fuel. The agency plan includes the necessary actions to support the industry's goal of 2023 deployment of accident-tolerant fuel from both the fuel facility and transportation perspective. For transportation we evaluated our regulations to determine if review of the technologies will require rulemaking. In the vast majority of cases no changes to our regulations are needed to accommodate the new technologies.

To facilitate 2023 deployment of accident-tolerant fuel with higher enrichment below 10 percent NMSS must receive an application to revise a certificate of compliance from a vendor for transporting UF6 by August 2021. For fresh fuel transportation NMSS must receive an people to revise the certificate of compliance no later than January 2022. As of today we not received any formal applications or letters of intent, but we continue to invest in the openness principle communicating clearly our expectations for timely submittal of license applications and identifying challenges early to internal and external stakeholders.

We are also preparing to address other changes in the

areas of spent fuel storage and transportation. In this capacity we conducted an initial assessment of spent fuel transportation oversight inspection readiness for the potential future needs of industry to transport spent fuel to a consolidated interim storage facility.

Based on the initial assessment the Staff determined that the current inspection program adequately addresses the potential future needs, but that there are opportunities for enhancements. Specifically, the program could benefit from additional inspection procedures or guidance in current procedures and associated training that addresses a way from reactor independent spent fuel storage installations or any unique aspects of shipment preparation activities for spent fuel transportation.

We recently presented the Staff's assessment at the spent fuel storage inspector counterpart meeting and the spent fuel regulatory conference to solicit stakeholder feedback. Staff is currently developing our path forward and coordinating with other affected NRC offices.

In coordination with our tribal, federal and state partners we also observed and participated in two transportation tabletop exercises: the NEI Transportation Tabletop in May 2019 and the Midwest Council of State Governments Tabletop in November 2019. These tabletop exercises allowed participants and observers to gain a better understanding of the spent fuel transportation planning and implementation processes through dialog, information transfer and decision making on legal, regulatory and process requirements, as well as stakeholder interests.

In the lower right picture you can see a transportable spent fuel cask.

Next slide, please. We are optimizing our licensing and inspection practices to ensure we are prepared for the future. Some examples include the completion of guidance documents to prepare for workload associated with the safety review of license and certificate renewals beginning in fiscal year 2020 as the number of certificates approach the end of their initial 20-year term. We are setting the stage for future by revising our guidance to ensure it can be easily adapted when necessary and we are adding clarity and efficiency to the licensing process through consolidation of several separate Standard Review Plans and Interim Staff Guides into two documents.

In addition, we accommodated early review of renewals from Humboldt Bay, Holtec International and TN Orano by following recently issued guidance in NUREG-2214, Managing Aging Processes and Storage, which facilitates a more efficient review by identifying credible aging mechanisms for the components of most of the dry cask -- dry storage casks designs in the U.S.

Earlier this year the Staff presented the final report on NUREG-2224, Dry Storage and Transportation of High-Burnup Spent Nuclear Fuel, to the ACRS Subcommittee on Metallurgy and Reactor Fuels. NUREG-2224 is new guidance that delineates acceptable conditions for spent nuclear fuel with higher burnup in storage and transportation. These conditions will

limit degradation during storage and transportation evolutions.

In addition, the NUREG provides guidance on how to demonstrate that the conditions will be maintained and applicable for higher burnup fuel. The Staff is finalizing the document and publication is expected by the second quarter of FY 2020. The issuance of the NUREG is expected to assist licensees to more efficiently and effectively prepare applications for the safety and transport of high-burnup spent fuel and assist license reviewers in their evaluation of these applications.

We are also ensuring a shared understanding of what facility changes can be made without the need for prior NRC approval as afforded by the provisions in our regulations. The Staff is working to endorse industry guidance NEI 12-04, Guidelines for 10 CFR 72.48 Implementation, which delineates methods and approaches that are considered acceptable for complying with the regulation. Specifically, endorsement of NEI 12-04 will clarify that licensees or certificate holders for spent fuel storage systems can use methods of evaluation used in establishing the design bases across certificates of compliant amendments without the need to seek NRC approval. This clarification will potentially reduce the number of certificate amendments received by the NRC for review.

This effort, together with the graded approach pilot, complement each other by focusing on the more safety-significant aspects of certificate reviews and clarifying the flexibility that exists for certificate holders to make appropriate changes without the need to request amendments while

still maintaining safety. We are currently assessing an innovative approach to facilitate early implementation by industry of the guidance contained in NEI 12-04 while we finalize our endorsement in the Regulatory Guide.

Recognizing the likelihood for an increase in the number of design changes made by licensees without prior NRC approval through application of the guidance contained in NEI 12-04 and to assure appropriate regulatory oversight of all design changes made by licenses, the Staff also completed development of draft inspection guidance that will further inform and proceduralize the process for sampling of license design change screenings and evaluations so as to focus on the changes that have the greatest potential to increase risk.

Next slide, please. As I mentioned, we completed an assessment of the current Spent Fuel Storage Inspection Program to ensure we are focused on the items of highest safety significance and apply our resources in a smart manner and which accounts for the operating experience we've obtained to date. This will be important given the expected continued increase in the movement of fuel into dry storage as decommissioning is accelerated.

A working group comprised of Staff from all four Regions, NMSS and NRR used operating experience and risk insights to eliminate overlaps with other procedures, develop more realistic estimates of the time it takes to complete inspections and optimize resource use to focus effort on the most critical aspects of the oversight program.

To ensure we proceed in a fully informed manner, we had a public meeting just this past Monday to solicit stakeholder feedback and we plan to finalize our recommendations and complete implementation of program revisions by Fiscal Year 2021.

This concludes my part of the presentation. Now I'll turn it over to John.

MR. McKIRGAN: Thank you, Chris.

Good morning, Chairman, Commissioners. I'll provide you an overview of the spent fuel safety and transportation licensing activities with a focus on how we're promoting transparency in a dynamic environment while we continue to work toward becoming a modern risk-informed regulator to achieve our mission more effectively.

Next slide, please. We continue to effectively and efficiently license spent fuel storage facilities and transportation containers. The number of completed licensing actions was up roughly 20 percent from last year while the budget for the licensing product of the business line was relatively flat, illustrating an enhancement in the efficiency of our program.

Specifically, this year we completed 66 transportation certificate approvals and 15 storage licensing actions including two storage renewals: Trojan and Three Mile Island 2, TMI-2. The TMI-2 ISFSI is pictured there in the bottom right of the slide. Fiscal Year 2020 is a big year for renewals with an anticipated record number of submittals planned. As we'll discuss later, the Staff is well-positioned to review these incoming renewals.

During this past year the business line completed a number of significant licensing actions. These include expedited reviews of a number of storage cases to support decommissioning activities and a number of transportation cases to support the shipment of accident-tolerant fuel. Examples include the MAP-12 transportation package, also pictured at the top right on the slide, to ship accident-tolerant fuel chromium-coated lead test assemblies. On the storage side of the house the review of the HI-STORM 100 Amendment 14 supported the Pilgrim decommissioning schedule.

Next slide, please. We are promoting transparency by proactively engaging with industry and external stakeholders to enable timely licensing decisions. Concurrent consolidated interim storage facility application reviews coupled with accelerated decommissioning of power reactors has emphasized the importance of timely regulatory decision making and the proactive engagement of stakeholders is a key element. As such, we've continued periodic communications with licenses and certificate holders. The Staff is actively seeking and obtaining advanced notice of upcoming licensing actions and industry schedule drivers that substantively inform our workload prioritization.

We are obtaining early insights on upcoming amendment requests through review of industry responses to our generic communications and periodic scheduling dialogues with vendors. Additionally, the Staff has augmented its outreach activities to accommodate the increased engagement from interested parties and stakeholders for both CISF applications through

responses to written inquiries, Congressional staff briefings and government-to-government interactions with the State of New Mexico and the Wyoming legislature.

In September we testified at the Wyoming legislative session regarding the NRC's role and regulations related to the storage of spent fuel. We have also gathered the most common questions and significantly enhanced our public web page to provide plain language responses to these technically-complex issues. We continue to provide cost and schedule estimates at the beginning of each licensing action. This proactive engagement has facilitated timely decision making.

We are making substantive progress on the technical review of Holtec and Interim Storage Partners CISF applications. Based on the latest information from our applicants we have issued revised schedules for the reviews of the two CISF applications. Based on this latest information the Staff plans to complete its review of both applications in mid-2021.

We are currently within our project budget expenditures for both reviews. We have completed several key milestones on these projects including publication of the scoping comment report as part of the environmental review. We are progressing on the draft Environmental Impact Statements or EISs for both applications. We've issued the first round of safety and environmental requests for additional information for both projects, begin consultation and tribal interactions and completed a number of public meetings.

The next key milestone in the project will be the publication of the draft EISs for public comment. This is scheduled for March 2020 for Holtec and May 2020 for ISP. We anticipate significant public interest in these documents and are preparing public meetings near the facilities to present our draft documents and to receive public comments.

Next slide, please. We're continuing to safely license transport packages while exercising agility in a dynamic industry environment. Some examples include the completion of an exigent letter authorization to ship a damaged cesium source safely. The Staff performed a timely safety-focused review of the modified RH-TRU radioactive material transportation package, pictured here, to meet the industry needs in moving the damaged source to a safe and secure location. The damaged source had resulted in exposures to workers and needed to be moved quickly to a facility that had the equipment to handle it. The Staff engaged constructively in effective dialog with the transportation package vendor as they described the necessary modifications to the package that would ensure safe transport. In an integrated team approach the Staff worked together across technical disciplines addressing the different aspects of structural and shielding elements of the modifications. As a result the Staff was able to issue the letter authorization enabling the timely movement of the damaged source.

Another example is the completion of an expedited exemption request to Arizona Public Service Company for Palo Verde to allow a modification to the technical specifications of the MAGNASTOR spent fuel

storage cask. The review of this request was accelerated to accommodate a planned outage by the plant. The Staff's timely review enabled the plant to maintain a full core off-load capacity.

This request also demonstrated the need for the graded approach pilot on the content of the CoC and technical specifications that I'll talk about in the next slide. The level of detail in the tech specs which precipitated this exemption request is the kind of issue that the graded approach will help Staff and industry avoid in the future.

We were successful in these cases by exercising our work prioritization guidance and leveraging our IT planning and scheduling tools to complete these high-priority cases with only minimal impact on other case work. Our prioritization guidance provides a framework that ensures that the most critical and important cases are handled appropriately. We are improving renewal reviews through the use of the MAPPS report and leveraging contractor resources to assist with technical reviews of renewal applications to address surge capacity.

As mentioned, our IT planning and scheduling guidance is a key component of our work flow management capabilities and our success in exercising agility. We use STIMS, a module of web-based licensing, to allow frequent checking and adjusting of resources as incoming casework demands shift. We have added the capability to track and report on our NEMA metrics with STIMS.

Strategic workforce planning has helped the business line

identify future workforce gaps in the nuclear criticality and shielding areas and we have used the summer intern program to identify top candidates and are very excited about the N-RAM Program to help ensure future success of the program.

Next slide, please. We are making progress in becoming a modern risk-informed regulator through further incorporating risk insights into our reviews. Some examples of the specific licensing actions where this mind set is shifting include the graded approach pilot amendment that I just mentioned.

The graded approach is a major initiative for the Staff and industry. In completing the graded approach pilot the Staff evaluated 99 items in the current certificate of compliance and used a systematic risk screening to determine if the element needed to be included in the certificate. As a result of our efforts 16 items were removed from the certificate either due to being low risk or being duplicative of another requirement. A further 52 items were rearranged or relocated and six items were removed from the tech specs to the final Safety Evaluation Report. This will provide licensees the flexibility to make changes in these low-risk areas without requesting unnecessary amendments.

Next steps include the revision to Staff guidance documents including our format and content guidance and the Standard Review Plan for dry cask storage systems. While those guidance documents are being processed Staff intends to issue a letter to the industry endorsing the use of

the graded approach.

The Staff is also interacting with industry on an industry white paper to lay out a strategy for optimization of the storage certification process. Specifically, NEI is seeking to continue a dialog to enhance efficiency in spent fuel storage reviews by providing further guidance on the identification of performance margins in the areas of source term, thermal parameters, radiological parameters, fuel qualification and criticality. Staff continues to be very open to the potential enhancements that would also maintain adequate safety.

This was a topic of discussion at the recent Spent Fuel Regulatory Conference back in September. Industry has submitted a white paper in November and we held a public meeting to discuss the document on November 18th.

The Staff also attended several meetings being led by EPRI this past October to further understand fuel characteristics for the purpose of identifying margin. The Staff will be reviewing EPRI reports for insights where margins might exist that can be credited in our reviews.

We are building on agency best practices, re-instituting a topical report process that is expected to reduce undue engagement of regulatory resources by requiring fewer amendment submissions once a topical report approving a general design or approach is approved.

A vendor has discussed with NRC their plans to submit a topical report for allowance of candidate heat load patterns without an

amendment request. The applicant discussed their plan to propose a suitable methodology permitting licensee selection of candidate heat load patterns without the need for a license or certificate of compliance amendment. It is the applicant's intent that the topical report would receive NRC approval and that the approved methodology would allow the vendor and its clients to address emerging plant needs in a timely manner. The details of the report are still being developed and the Staff held an additional pre-application meeting in November before the submittal of the document.

I'll now turn it over to Linda.

MS. HOWELL: Thank you, John.

Good morning, Chairman and Commissioners. My portion of the presentation will focus on the Spent Fuel Oversight Program. I want to focus on three areas: collaboration between the Regions and Headquarters, engagement with stakeholders, and then preparing for the future in the Spent Fuel Oversight Program.

Next slide, please. The Regions and Headquarters routinely collaborate to ensure that NRC's oversight program for spent fuel storage and transportation is implemented effectively. During the past year however substantial collaboration has occurred between the Regions and Headquarters due to the significant oversight efforts expended evaluating complex technical issues at one spent fuel storage facility and in processing two significant escalated enforcement actions involving a spent fuel licensee and a vendor.

The collaboration included the use of multi-disciplinary teams involving Headquarters and Regional staff to review technical issues involving spent fuel loading at one facility, as well as inter-regional resource sharing to cover routine spent fuel storage inspections in Region IV while our technical staff was fully engaged in follow-up inspections relating to an escalated enforcement action involving an event that occurred in 2018. Our Headquarters inspection team also engaged in follow-up inspection of vendor activities following issuance of an escalated enforcement action to a vendor earlier this year.

The outcome of these collaborative efforts included expanding our ability to provide effective and enhanced oversight and resolved significant technical issues, maintaining oversight of initial and ongoing spent fuel loading operations at many sites during a period when resources were challenged, and enhanced learning opportunities and knowledge transfer among the technical staff assigned to inspection and licensing of spent fuel storage facilities. In addition, the exchange between Regions provided opportunities for new eyes to examine procedures and operations at several facilities during the past year, which always enhances and strengthens our inspection and oversight programs.

Next slide, please. Substantial public outreach was coordinated over the past year to communicate technical information and inspection and enforcement findings associated with one spent fuel licensee and a spent fuel storage system vendor. Public outreach efforts were

conducted in response to interest expressed by the public and Congressional stakeholders regarding technical issues associated with the enforcement actions that I previously mentioned as well as the interest in future spent fuel loading activities at one specific site.

The Staff leveraged use of technology by conducting meetings via the Internet to share information with the public in a very timely manner. By scheduling public inspection briefings in this manner we were able to share inspection observations with members of the public, particularly those in local communities, in advance of publication of the formal inspection reports. Use of webinars also allowed us to capture questions and feedback from public stakeholders and be more responsive to their requests for information.

We used this technology to broadcast a pre-decisional enforcement conference which provided an opportunity for the public to have a level of involvement beyond what is typically experienced by listening over a conference bridge. These opportunities to observe Staff briefings and obtain information more quickly as inspection activities progressed and Agency decisions were made regarding enforcement action and the Agency's conclusions on spent fuel transfer operations at a site were well received by the public.

We participated in several community engagement panel meetings in the vicinity of a site to discuss our inspection observations and plans for future inspections at that site. These meetings provided

opportunities for Staff and managers to hold face-to-face discussions with members of the local communities. We also conducted a town hall meeting in the vicinity of the licensee's spent fuel storage site. That meeting was sponsored solely by the NRC so that the public would have an opportunity to interface with us independent of licensee representatives.

In addition to our public webinar meetings we fully utilized the Agency's public web page and the Spotlight feature to post inspection-related and technical documents of interest to the public as well as questions and answers related to the site-specific enforcement action and our ongoing technical review involving one licensee. We also used this web page feature to provide easy access to the Agency's frequently asked questions for spent fuel storage and transportation, as well as other technical documents.

During the past year several briefings were performed for Congressional representatives and their staff to explain the bases for Agency decisions and the status of spent fuel oversight activities. In addition, one senior manager, along with other invitees, participated in a Congressional field hearing conducted in California to discuss issues involving spent fuel management activities in that state. A second senior manager also participated in a hearing conducted by the California Coastal Commission.

Based on our experience over the past year the Staff plans to be proactive in considering enhanced public and Congressional stakeholder engagement when significant technical or safety issues are identified and when there is significant stakeholder interest with a specific spent fuel storage

site.

The photograph in this slide shows members of the NRC interacting with the public in the vicinity of operating power plants.

Next slide, please. As new spent fuel storage systems and facilities are constructed and operated additional inspections may be required. Regional and Headquarters staff will continue to closely monitor initial fuel campaign schedules and anticipate that licensees may choose efforts to expend fuel loading campaigns to support decommissioning activities.

The Regional and Headquarters teams will continue to collaborate and share resources to ensure oversight of the most safety-significant activities. As the model for decommissioning shifts to the increased use of contractors for turnkey operations the Staff will continue to ensure that safety culture considerations remain at the forefront of operational decisions.

The Staff recently completed a limited number of inspections of aging management programs. Those inspections were performed in accordance with Temporary Instruction 2690-11. Implementation of that temporary instruction was announced to the Commission in December of 2017. The purpose of the temporary instruction was to evaluate through inspection whether spent fuel storage licensees have adequate processes or procedures, either planned or in place, to implement aging management programs to support renewed specific licensees or renewed certificates of compliance for storage system designs.

Renewed specific license holders and certificate of compliance holders are required to provide aging management programs with license or certificate renewal applications in accordance with 10 CFR 72.42, or 72.240, respectively.

The Staff selected sites for review under the temporary instruction in accordance with specific criteria that included, among other items, sites with different storage system designs and inclusion of a site from each Region. Staff is currently completing their review of the initial data collected from this effort. The Staff will use the results of the inspections to develop future inspection guidance.

We expect to incorporate review of licensees' aging management programs into our routine periodic inspections and we also plan to monitor operating experience in this area as we proceed with those inspections to determine whether adjustments to the inspection efforts or the guidance is needed.

Regional and headquarters Staff have also evaluated technologies which have been successfully used to both inspect and repair metal surfaces. Those activities have included the observation of in situ visual assessments of spent fuel canisters loaded in a UMAX spent fuel system where the majority of the canister remains underground or below the pad surface. In that particular instance the assessments were performed using a video camera mounted on a small robot which navigated around the surface of the canister.

The Staff has also recently observed demonstrations of metal particle overlay, or a cold spray process that can be used to repair flaws in metal surfaces. One licensee is currently exploring the use of this technique with equipment that would be deployed robotically to assess the effectiveness of in situ canister repair. These efforts are being explored by industry to identify methods that can be used for canister inspection and repair in the future, if needed, and to support future aging management programs.

The photographs on this slide show robotic devices that have been tested and could be used in the future for inspection or repair of canisters.

Next slide, please. NRC continues to share operating experience gathered through our Vendor and Licensee Oversight Programs. Information is posted to the NRC web page either through site-specific portions of the Spotlight feature or through other more generic sections such as the frequently asked questions. When appropriate the Staff issues generic communications.

The Program Office has sponsored its annual regulatory conference meetings, as mentioned earlier, where operating experience as well as future program development are discussed. Regional inspectors have also noted that spent fuel storage system vendors continue to communicate operational experience and in some instances have issued recommendations based on lessons learned to their customers in an effort to enhance safety.

In one instance a vendor recommended the use of equipment that would provide the ability to maintain visual observation of loaded spent fuel canisters during lifting and downloading operations as well as consideration of using load-sensing devices on equipment that is used to lift and move spent fuel canisters during fuel transfer operations. The NRC will continue to monitor operating experience and issue generic communications as we see appropriate to the industry.

And finally, if interim consolidated storage facilities are approved, additional oversight of licensee inspections before and after transport may be needed. As licensing activities for these facilities progresses and the inspection program evolves we will monitor resource needs and will evaluate them further.

That concludes my remarks. I'll turn it back over to John.

MR. LUBINSKI: Linda, thank you.

I also want to thank Chris, John. I also want to thank all the members in the Division of Fuel Management for helping prepare us for the two presentations this morning, as well as the work they do every day, and the program offices that we -- or program offices who we work with in the Regions for supporting the program as well as these presentations.

With that, that concludes our prepared remarks for this morning and we now look forward to any questions.

CHAIRMAN SVINICKI: Thank you for that acknowledgement, John. It is important to note that often the presenters

have been supported by a lot of other NRC Staff. So thank you for recognizing those individuals who may be in the room or just listening in today.

And with that, we'll begin questions with Commissioner Baran.

COMMISSIONER BARAN: Well, thank you for your presentations. I appreciate the discussion we had on the first panel about potential changes that would have the effect of reducing inspections and inspection hours for fuel facilities.

This ended up being I think the main focus of the first session, and I think that's appropriate because it's an important issue. It's good to hear that working groups aren't getting explicit direction to recommend cuts to inspections, but we also heard from one working group member that rightsizing was a key focus for the working group; and I think we all know what rightsizing means, and that orientation shows in a basic framework of what the working group recommended in that case.

And as we talked about in the first panel, there were three tiers of safety issues: Tier 1, Tier 2, Tier 3. And under this construct Tier 1 gets flat level of inspection, or in some cases actually reductions. Tier 2 gets cuts. Tier 3 gets deeper cuts. And if that's the basic framework, the outcome seems pretty obvious. Cuts not just to inspection hours, but to inspections by reducing their frequency.

I disagree with the idea that fewer inspections would somehow enhance safety.

For this panel I'd like to discuss the potential changes to independent spent fuel storage installation or ISFSI inspections. These of course are the dry cask storage pads located around the country, typically on site at operating or decommissioned reactors. There was an NRC Staff team looking at this issue, too. All four Regions were represented on the team. The stated goal of this effort is risk-informing the program. But to be clear, the Staff is talking about major reductions in NRC safety inspections for ISFSIs.

In October the Staff team presented two options to management: One option was supported by three of the four Regions and the other option was put forward by Region II. Under the majority recommendation annual ISFSI inspection hours nationwide would be cut by 47 percent. Region II recommends going further, to cut inspection hours by 88 percent. Either way those would be dramatic reductions.

Is NRC management considering inspection reductions of that magnitude?

MR. LUBINSKI: So at this point, as we said earlier about our discussion, the report was provided to the Division Director. At the time it was Mike Layton.

COMMISSIONER BARAN: Yes.

MR. LUBINSKI: Now we've done our reorganization it would be Andrea Kock. Chris is the deputy of that division.

That was the initial working group's recommendations.

What we decided to do at that point was then go out for public engagement. So we have made no decisions yet as a management within NMSS on where we're going to go with that as far as any final decision.

We are going to continue to engage with the public. We did handle this group a little differently where we worked a lot more internally before engaging with members of the public. And that includes industry, all the external stakeholders. So this is the start of that process now.

As Chris mentioned, we just had our first public meeting two days ago and it was the first time people have had an opportunity to look at those reports. We've asked for written comments to come in on that. Once we get the evaluation of those written comments, we'll then make a decision on whether we move forward with additional engagements with the public or which decision we make. So in short, we've not made a final decision yet, but we're considering the recommendations of the working group.

We have set up, as the previous working group set up the same way with asking the group to bring together groups of inspectors. One of the champions of this was a previous SRA out of the industry who -- or I'm sorry, out of the Region who had a great risk background to bring to the table in looking at risk insights. And we asked them to develop how do you look at what risk factors to consider in going forward. So we as a team didn't even define to them the true definition of risk. They came back to us on looking at the different risk factors on how to consider.

And a little bit different than in the fuel facility area, but one

of the similarities is in the fuel facilities we looked at different disciplines such as chemical safety, criticality safety. In this area they were looking at operations. There's a lot of operations that occur when you talk about an ISFSI. It's not just the storage on the pad. It's the storage on the pad whether it's at the reactor or whether it's away from the reactor. What about during fuel loading campaigns? So we looked at where do you focus your efforts during those different facets of the ISFSI.

COMMISSIONER BARAN: I want to ask about that. San Onofre had a near-drop of a dry cask not that long ago, but it looks like the working group team is recommending a general reduction in inspection hours for dry cask loading campaigns from 66 hours per year to 35 hours per year. That would be a 47 percent cut in inspection hours. The Staff working group also recommends a 33 percent reduction in routine stand-alone ISFSI inspection hours.

Are those recommendations what we're putting out for kind of public comment?

MR. LUBINSKI: Those recommendations are being put out for public comment, yes.

COMMISSIONER BARAN: As I think about this kind of from a big picture, there's a lot going on right now that has the Agency, the industry and the public focused on the safety of dry cask storage. We have nuclear power plants decommissioning. There is increased interest in consolidated interim storage. There was the event at San Onofre. Casks

around the country are aging and obviously will continue to age.

The reality is that the Agency is not expending a lot of resources on ISFSI inspections right now. It's just around three full-time equivalents each year. This big potential cut, if it were at the recommended level of the working group, would only say 1.4 FTE.

So I think a question we have to ask ourselves as part of this decision making process is, is that small amount of savings really worth reducing public confidence in the safety of dry cask storage in communities around the country?

MR. LUBINSKI: So I would say there a couple things in that: Number one is we need to look from the standpoint of our own resources, as you said, as far as if there were a potential cut. And again, we haven't made any decision yet. How are we focusing our resources and how are -- how is that influencing where the licensees are focusing their resources?

So if a licensee is focusing their resources in an area that may not be as risk-significant, may have a very low safety significance, may require us -- them to continually do that based on the amount of inspections we do, that's going to take their focus away from safety -- or more significant safety issues at the plant. So that's the other impact when you look at reductions in a program or shifts on a program based on the safety significance from one area to the other.

So even if you're talking about small amounts of effort, you have to look at what the positive impacts are of those changes from the

standpoint of having a refocus of plant operations into the correct areas.

COMMISSIONER BARAN: Well, I think that's a reasonable factor to consider. I think though we also need to consider the reactions of non-industry stakeholders. How many communities hosting ISFSIs do you think would see a 50 percent reduction of NRC inspections as a safety enhancement?

MR. LUBINSKI: So at this point, as I said, we've gone out and asked for public comment. We have not received any public comments yet. We did have the meeting this past Monday. Most of the comments received during the discussion were from the industry.

I'm going to ask Chris. I think we had 60 people on the phone line?

MR. REGAN: We had 47.

MR. LUBINSKI: Forty-seven? Forty-seven people on the phone line. Not all of them identified themselves. But we did reach out beforehand to make sure that members of the public were notified about the meeting, and we believe some of them were on the phone. We heard nothing from them on the phone. That doesn't mean they're not going to comment in writing. So we look forward to getting those comments in before making our decisions.

COMMISSIONER BARAN: Yes, I mean, we don't want to guess about what people would think about this.

But, Linda, you were at a recent San Onofre public meeting

on NRC's response to the near-drop. How do you think the Staff's recommendation would have gone over with the stakeholders who attended that meeting?

MS. HOWELL: It is quite true that stakeholders in the vicinity of San Onofre might not be happy with the decrease in inspection effort, but I think if you step back and you take a look more broadly at the dry fuel storage facilities across the nation the level of interest from local stakeholders, members of the public, as well as Congressional stakeholders, will vary depending on where that particular storage system is in its life cycle.

In other words, if you have a site that's undergoing extended fuel off-load such as San Onofre to support more rapid initiation of true decommissioning activities, the members of the public may have greater interest at that time and they may question the NRC why would you decrease your level of inspection effort?

If you -- on the other hand if you have a site such as Trojan or Humboldt Bay where there is no continued active fuel loading, you hear and see less interest or belief expressed by members of the local communities that NRC needs to expend additional hours. And one of the things that was factored into this working group's recent review is that particular issue. It's like when and where should we be focusing our inspection efforts? And I think John alluded to that in his response.

So there's flexibility built into the approach for inspection procedures, even though you might ultimately end up with a slight decrease,

but it's -- the team attempted to focus their recommendations on where should we be putting our oversight efforts and what are the really risk-significant activities?

COMMISSIONER BARAN: Yes. Was there some area that these resources were recommended to be shifted to, or just cut?

MR. LUBINSKI: There was actually a slight increase in inspections during fuel loading, so there was an increase in that area.

COMMISSIONER BARAN: But the overall 47 percent recommended reduction, that's not being shifted to something else. That's just gone?

MR. LUBINSKI: No, it's not being shifted to something else. Where it will go is we will continue to see increases in this area as far as the number of inspections that we need to perform nationwide. So on a plant basis, no, it's not being shifted within that plant, but it will be used for inspections at other ISFSI facilities.

COMMISSIONER BARAN: Okay. Great. Thank you.

CHAIRMAN SVINICKI: Thank you.

Commissioner Wright?

COMMISSIONER WRIGHT: Thank you. Good morning. Still. Yes.

So the last time we were briefed on these two business lines we were at the beginning of our conversation on transformation, and the presentations from both the panels this morning have really highlighted how

you've embraced transformation and a lot of the changes that you are going through. And I think should be proud of the work you're doing and I look forward to hearing more as you progress through the full implementation.

So, Chris, I'm going to start with you. All right? And then your hour will be up.

(Laughter.)

COMMISSIONER WRIGHT: You mentioned the NEI transportation tabletop that was at Prairie Island. And I attended that in May. Found it very helpful to see how the different groups that would be involved in transporting spent fuel would interact and where the hand-offs would be. I was particularly impressed with the industry staff that were playing the role of the NRC. I understand that your Staff spent some time coaching them and --

MR. REGAN: We did, yes.

COMMISSIONER WRIGHT: -- on our role and the regulations. And that really seemed to pay off because they were quite impressive. So thanks for that.

I'm also pleased to hear about the work that your Staff is doing to be ready for the transportation of fresh and irradiated accident-tolerant fuel and high-assay LEU fuel. So it seems like we're making pretty good progress for the designs that we're familiar with such as the ceramic fuel pellets and zirconium cladding.

Are there any gaps that we still need to address for other designs like triso or metallic fuel or -- and what about the high-assay LEU

fuels?

MR. REGAN: So from a regulatory perspective, no, but there are some technical areas where additional data would be helpful to obtain to better inform our reviews of those new types of fuel cladding and the higher enrichment levels. If you focus on spent fuel storage, spent fuel transportation, material characteristics that we might need to know for transportation of spent fuel at the back end storage of that fuel -- because we do have regulatory requirements that would need to be addressed that you would need that data for.

So from a technical standpoint there are some areas that we want to look at, but that's currently something that we're assessing. But from a regulatory standpoint no regulatory gaps.

COMMISSIONER WRIGHT: So what do you see as the biggest change that the NRC has yet to make to be ready for these applications?

MR. REGAN: So our regulatory processes are in place, and as mentioned we actually have already approved transportation of fresh fuel for the lead test assemblies. So it can be done. We have the processes in place. What we're primarily waiting on at this point are applications.

We've engaged with industry. We've communicated with NEI what our -- what the expectations are if they are to meet their 2023 desire for batch loading of the advanced ATF or HALEU. So really we're collecting data, doing some research for the back end of the fuel cycle, but at the

moment we're in a holding pattern to actually get an application to start reviewing those.

COMMISSIONER WRIGHT: Are there any areas where Staff is waiting on us, the Commission?

MR. REGAN: No. None that I'm aware of, no.

COMMISSIONER WRIGHT: Okay. All right. Good. Thank you.

John, good morning.

MR. McKIRGAN: Good morning.

COMMISSIONER WRIGHT: So it can be hard to articulate what being a modern risk-informed regulator means, but the graded approach pilot for the certificate of compliance reviews is a great example I think of how we can use risk insights to appropriately focus the reviews.

So I understand that you're also working on a proposed rule related to a 2014 petition for rulemaking that requested changes to the regulations to address the format and content of certificates of compliance.

MR. McKIRGAN: Yes, sir.

COMMISSIONER WRIGHT: How do these two activities relate?

MR. McKIRGAN: So there is a nexus there. The graded approach came along somewhat after that petition was initially submitted, but there is a connection there.

And so one of the things the Staff is doing now is to kind of

re-look at the landscape in light of where we are and reassess what we can do just within our own purview, within guidance and within the current regulatory framework. And so that is where the graded approach really comes in. So we have regulatory framework that enables certain flexibility.

The pilot that we chose was an excellent one in that it had a very long history, it had been modified a number of times and it had grown over time. And so it was ripe for a fresh look at what is in the tech specs, what is in the CoC that really needed to be retained for safety? And so it was an ideal pilot.

The transformation and the risk informing of that process was also well timed and ideal in that the transformation mentality -- we were working with the Staff to come to that mind set and that pilot proved to be an excellent example of -- a practical example of where the Staff is actually working through the risk insights and sorting through item by item, 99 items, to partition them into what needs to stay and what can go or what can be modified. So there was a neat confluence of elements there that came together in that pilot.

We are looking at more holistically some of the other items that were considered in that petition and I think that is still in process. We haven't come to any conclusions yet on that. But we did want to take a look at what we can do within our own purview first before going through a rather laborious rulemaking process.

COMMISSIONER WRIGHT: Right. So you had a people

meeting in October, I understand --

MR. McKIRGAN: Yes, sir.

COMMISSIONER WRIGHT: -- to gauge I guess the interest in continuing with the rulemaking. What kind of feedback did you get?

MR. McKIRGAN: So I think there's a -- I don't know that we've gotten all the final feedback on that. I think there's still some more work to be done there. There was some good responses from industry. They have some views. I think there was good support for that notion of trying to see what we can do absent rulemaking, but we do need to follow the rulemaking process. That petition is in the process and we want to be true to that process and allow that to come to its conclusion. And we'll be certain to communicate those results.

COMMISSIONER WRIGHT: Okay. Thank you for that.

Coming to you, Linda. How are you this morning?

MS. HOWELL: I'm fine.

COMMISSIONER WRIGHT: So I really appreciate your leadership this year. You've done some very complex issues with a lot of public interest.

MS. HOWELL: Thank you.

COMMISSIONER WRIGHT: You appear to routinely kind of approach things with a level head and you have the ability to communicate very difficult technical, highly technical stuff in a way that people can

understand and connect with. So that's not an easy task, so congratulations on that ability.

So I'm impressed with how many communication techniques and channels were used to communicate with all the interested stakeholders on the issues with SONGS and Holtec. And you used town hall meetings, you used webinars, written communications, briefings for Congressional staff, website postings and social media postings.

So what did you learn from using these varied approaches? Are there lessons learned that we can apply to other high-interest activities?

MS. HOWELL: Perhaps. And thank you for asking that question. It was a daunting approach to the Staff initially, but as we completed the first webinar and prepared for the next one, it became easier over time. So it's really not complex.

I think one of the biggest lessons was the reception by members of the public. We'll talk about the webinars. The concept that we were able to get information that was of interest to them out in advance of that 45 or 60-day period that it traditionally takes us to produce a team inspection report was important because they understood just based on what they saw and read in the media, what they were hearing from the licensee that decisions were being made, that inspection activities were ongoing.

And so I think there was a great appreciation by members of the public whether they specifically liked our decisions or whether they specifically liked the information, but they did appreciate the ability to hear that

in a timely manner and to have those opportunities when we went out and participated in the community engagement panels to step up and discuss their thoughts, express their views with us face to face. I think that's a great learning experience.

And I think that over the course of the last year we became more proactive as we went along, if we knew that a report was coming out, a decision was about to be made, with reaching back to the Office of Congressional Affairs and making offers to do those Congressional staffing briefings. Not only did we do them remotely, but whenever we went out to the community engagement panel meetings, we made the offer to drop by the local district offices so that they could sit with us one on one, ask questions and we could ensure that they had a common understanding.

So I think the approach to looking proactively at who do we need to engage with, when do we need to engage when we know that we have high stakeholder interest is a lesson that we should walk away from from this. And it doesn't just apply to spent fuel. It may apply to many other situations.

COMMISSIONER WRIGHT: Were there any IT issues that maybe we should explore that would -- that we need to work on to improve our communications?

MS. HOWELL: Honestly it was very easy. The technology that's out there and the infrastructure that we have in place at the Agency made it relatively straightforward to go ahead and conduct this.

COMMISSIONER WRIGHT: Thank you so much.

CHAIRMAN SVINICKI: Well, thank you all again for your presentations.

Linda, maybe I'll turn to you because it's easier sometimes just to continue rather than to keep going back and forth.

I do want to thank you for the work that you're doing, and particularly I was listening with interest to your response to my colleague about looking at our techniques of reaching out to people. I think that the days of considering it kind of a one-size-fits-all outreach program I think are over. And in a polarized world it's easy to just kind of go, well, there's trying and utter defeat and everything else, but I -- there are things that are more effective and it depends on who you're communicating or trying to communicate with and what you're trying to communicate. So I appreciate that we're bringing some thought to that.

And you're in Region IV, so I know you've been busy because we have some things that have garnered some public interest out there. If I may ask without being too personal, how many years of public service do you have?

MS. HOWELL: I achieved my 31st year with the NRC --

CHAIRMAN SVINICKI: Okay.

MS. HOWELL: -- this past fall.

CHAIRMAN SVINICKI: Well, wonderful for that. On any

given day I'm sure you've -- have you felt a lot as you've gone about -- that your job on many days is doing the easy thing or doing the right thing?

MS. HOWELL: I personally tend to focus on doing the right thing.

CHAIRMAN SVINICKI: Yes, okay. So often I think those of us with long public service know what it is to be the face of unpopular decisions. And it is not easy. It takes a certain evolved thinking not to take people's concerns and general criticism of your organization personally. So it is kind of a higher order evolved area to work in.

But I think we talked a little bit about rightsizing. When you're working in communication you find out that words mean different things to different people. I'd be interested; and maybe I'll pivot to John on this one. He's gotten so bored, he's writing a doodle there.

(Laughter.)

CHAIRMAN SVINICKI: Do you think that the concept of rightsizing a regulatory footprint bears a relationship to reasonable assurance of adequate protection, which is again the legal standard for what we do, which is not the absolute delight of every stakeholder and constituent all the time. It's reasonable assurance of adequate protection. Do you think rightsizing is an inherent element of that?

MR. LUBINSKI: Yes, I do. That's the premise of making the decisions. That's the task when we talk about risk-informing activities to still making sure we have reasonable assurance of adequate protection.

When we deal with external stakeholders, that's some of the challenge we have. Even when we use the words reasonable assurance of adequate protection, we'll hear back from them that's not enough. We want absolute assurance. And that's -- we have to tell them that's not our mandate.

CHAIRMAN SVINICKI: I had to sit once in a meeting with an elected official who didn't like our 95 percent confidence levels. He wanted it to be 100 percent. And it's interesting in those moments how you realize that it's everyone's background that gives them a different perspective. And as an engineer I really had to think on my feet. And so my answer was zero and 100 percent really don't exist in the physical world. Like zero was invented --

MR. LUBINSKI: Yes.

CHAIRMAN SVINICKI: -- I'm forgetting now by who. Somebody invented zero, but before that the concept of zero hadn't existed. And so I said really nothing is ever perfectly safe or absolutely risky. It's we're always kind of working at varying levels and 95 percent confidence is considered actually a very, very high confidence.

But it revealed to me the different things -- people hear things differently, they think differently. And I'm sure that you could find constituencies that would find both of those perspectives reasonable. So we often have to be the face of explaining these things, and it's not easy. But I'm sorry I cut you off on that.

MR. LUBINSKI: Oh, no, I appreciate that, because again

as we go forward and getting the input from the public many times we go through a -- what I'll say is a mini risk analysis as we're asking the questions and getting input. And as we answer the questions we find many times we get the what next, what if after that.

And we find ourselves having to then explain that we're looking at the probability of that incident occurring when you start to get five, six, seven what ifs down the line and saying we have to make, as Linda said, the tough decision, the tough call to say, no, we've now determined this is reasonable assurance, no, it's not absolute assurance, we're not at zero risk, and have to be able to communicate that. But where do you draw that line? Where do you make that call? And that's the difficult decision we need to do.

And then we need to make sure as we're communicating it -- because they're coming up with what has a consequence to it in their what if scenario. It's truly a consequence, but the probability of that consequence is so low that we need to make that decision.

CHAIRMAN SVINICKI: Well, and we see this too often; I find myself thinking about this concept, when it comes to new technologies that in industry, or the industry we regulate here at NRC, which is mostly what we think about; but I try to think about other regulated industries -- there are new enhancing technologies that the regulator is not in a position to mandate.

We heard a little bit about visual inspections and things that can be done that are not -- certainly something at this point in time we have no regulatory basis to compel everyone to send those little robotic crawlers in

there. Now, if there's some issue and we have a safety concern, then we would ask the licensee to propose some means of addressing it.

But if the regulatory framework for any industry would never basically take into account some new technologies or in some ways -- I hate this term provide credit for, but I kind of think of it as in a regulatory space can you have some acknowledgement of an enhanced technology that you can't mandate if it's diagnostic or an inspection technology or something like that.

What is the likelihood of the industry you regulate really exploring and funding the development of those things which again do have positive enhancing safety attributes, but you can't require them -- you could get kind of locked and frozen in a circumstance where they have no motivation to improve that. It does further enhance safety beyond the regulations. And so that's another element I think of rightsizing is having a system that gives you the flexibility if there's deteriorating regulatory performance of putting more regulatory oversight and a heavy regulatory footprint on something.

But if regulatory performance is stabilized or they want to invest in -- for their own maybe business reasons have some of these technologies that further would enhance safety or give us greater knowledge, perhaps even further enhanced confidence about something, then you have to be able to somehow encompass those improvements.

And so I think as we look at transformation, I think, sure our fiercest critics can look at it as some sort of diminishment of who we are and our commitment to safety and security, but I think for me that's first of all kind

of an injustice to the good people and the work they're doing here. I've been here a while. I've gotten to know a lot of you. And while NRC can move at a frustratingly ponderous pace sometimes, there is a lot of caution built into that.

And so at the end of the day being the face of some of the Agency's decisions, it is wonderful to be able to engage an external constituency and say this is how we analyzed it. Here's the care and rigor that we used on something. So while it can seem to move at its own pace, you do come out at the end of the day with a well-substantiated set of recommendations and things like that. So I've talked a bit.

John, when I communicated to you that the Commission was going to ask you to step into this role as NMSS director and the Commission asked you to do that, we were reflecting on your early career time in NMSS. And you've had some time now to be Director and during this transformation phase to look at where you're taking NMSS now. How would you contrast the two, of the NMSS you're leading today as the director and then your early experiences with NMSS. And I'm sure many in NMSS are tuning in.

(Laughter.)

CHAIRMAN SVINICKI: This is the Director's evaluation.

MR. LUBINSKI: I find it interesting. When I look at my early career in NMSS, I really look at it as a two-part career. One was more in what's the nuclear materials users now and the other was in the fleet fuel

cycle area. So I'll address both of those.

As I was responding earlier with your question about the oversight program, and using that as just one of the examples, just looking at that area the amount of new information we have right now on risk insights in that area I think is huge. And I think the Staff and their embracing of it is just much different than it was 20 years ago because they now have that information.

So when I think about the changes that are taking the program, it's not that John Lubinski's coming into the job and asking make this change. It's me coming into the program and saying what changes do we need to make? The answer is in the room. What do you believe we need to do? And they're saying, oh, we do have ideas. We've had these ideas. Let's bring them into to -- so I've seen that as a difference and a contrast I'd say in that area and having those more risk insights.

When I think back, it was longer ago when I was in the Nuclear Materials Users Group. And it's interesting because so many of those issues have evolved more, whether it's in the general licensing area, licensing in medical, and we've made a lot of changes in those areas over the years. So in some of those areas I'd say certain aspects I don't even recognize anymore. Others are still the same. But I've appreciated that the Staff in those groups have taken it to the next level and moved it forward to the place it is today.

And again some of the issues are still the same that we're

dealing with, and I do get a smile on my face at times when people refer back to a paper that may have had my name on it from 25 years ago and use my words back to me. But, and I'd say in those cases some of my views have evolved, which is also interesting because we may look at where my position was 25 years ago and I feel that I've learned, I've grown, and my position has changed on many of those issues as well.

And I think that's a good example that we can use as we're talking to others about our change and our transformation that when we can show ourselves the way we've changed and the way our thinking changed, it helps others to think about that as well.

CHAIRMAN SVINICKI: I appreciate your candor on that, and I -- gosh, I would hope even in the time I've been at NRC that I hope I've changed and evolved in things. And I think a lot of us consider that a really healthy dimension. So I take that as a very positive answer on your part, that you'd be willing to acknowledge if you were a technical contributor to something 25 years ago that you've learned a lot, that the world has changed and we need to keep our aperture open in that way.

I again as chairman get invited to speak a lot of places and I got a really good question. I can't remember the venue, but the question for me was so NRC is successful in this transformation journey and you come back and walk in the door five years from now, how does it look different?

And my answer, I don't remember it specifically, but it was somewhere along the lines of I don't think it's about like changing who we are

and what we do. I don't think that's really the change. I think to me it would be more reflective of kind of what's happening in the wider world, our own practices and regulations and procedures and maybe the kind of how we do what we do has hopefully improved, it's more informed, we're leaning in and taking -- and having access to the tools and things and just the learnings and communication and other things that are available to us.

But, again, it's been -- as I predicted at the beginning -- there, see, you laid the table with a lot of really wonderful content there. I want to thank you all and again to your Staffs who prepared you for the presentations here today.

And with that, we are adjourned. Thank you.

(Whereupon, the above-entitled matter went off the record at 11:28 a.m.)