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

COMMISSION MEMBERS:
CHRISTOPHER T. HANSON, Chairman
JEFF BARAN, Commissioner
DAVID A. WRIGHT, Commissioner

ALSO PRESENT:
ANNETTE VIETTI-COOK, Secretary of the Commission
MARIAN ZOBLER, General Counsel
NRC STAFF:

FRANK ARNER, Senior Reactor Analyst, Division of Operating Reactor Safety, Region I

CAROLINE CARUSONE, Deputy Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation

NICOLE COOVERT, Branch Chief, Division of Construction Oversight, Region II

DAN DORMAN, Deputy Executive Director for Reactor and Preparedness Programs

CATY NOLAN, Reactor Systems Engineer, Division of Reactor Oversight, Office of Nuclear Reactor Regulation

MOHAMED SHAMS, Director, Division of Advanced Reactors and Non-Power Production and Utilization Facilities, Office of Nuclear Reactor Regulation

ANDREA VEIL, Director, Office of Nuclear Reactor Regulation

STEVEN VITTO, Security Specialist, Division of Physical and Cyber Security Policy, Office of Nuclear Security and Incident Response
CHAIRMAN HANSON: Good morning, everyone, and welcome. I convene the Commission's public meeting on the NRC's Strategic Programmatic Overview of the Operating Reactors and New Reactors Business Lines.

I hope everyone's safe and well during this challenging time. We are, once again, largely virtual, and I continue to be grateful to our staff to make sure these meetings are possible.

I also want to thank the entire agency staff for its continued agility, professionalism, and dedication to meeting our mission.

Today, we're here to discuss the important activities in the agency's reactor business line, including how we're continuing to improve our processes to meet the evolving challenges presented by a rapidly changing nuclear energy landscape. I'm looking forward to our dialog.

Before we start, I will ask, first, if my colleagues have any remarks they'd like to make.

(No response.)

No? Okay.

So, with that, Dan Dorman, our Deputy Executive Director for Reactor and Preparedness Programs, will get us started.

Dan, the floor is yours.

MR. DORMAN: Thank you, and good morning, Chairman Hanson and Commissioners Baran and Wright.

The staff is pleased to have the opportunity to provide a strategic programmatic overview of the operating and new reactor business lines this morning.
The staff members in these business lines continue to excel in the current challenging environment and are doing incredible work that you will hear about today. This includes making necessary adjustments to execute our mission during the COVID-19 pandemic while overseeing the transition to decommissioning for Duane Arnold and Indian Point; modernizing our regulatory infrastructure for new technologies, and preparing for new and advanced nuclear reactors.

The staff are proactively responding by fostering agile organizational structures and approaches, enhancing engagement with our partners inside and outside the agency, and implementing innovations to improve how we do business while still maintaining our safety and security focus.

For this first panel, we will be discussing the operating reactor business line, which plays a key role in executing NRC's safety and security mission. This includes work to ensure several of our agency's enterprise and business line level risks are appropriately managed in areas such as digital instrumentation and controls, accident-tolerant fuel, risk-informed initiatives, subsequent license renewal, operating reactor oversight, and nuclear safety issues response.

Next slide, please.

During this panel, Andrea Veil, the Director of the Office of Nuclear Reactor Regulation, or NRR, will talk about the operating reactor business line strategic priorities and notable successes, including those that enable our regulation of the nuclear technologies of the future.

After Andrea, Caty Nolan, a Reactor Systems Engineer in the Division of Reactor Oversight in NRR, and currently, on rotation as an Executive Technical Assistant in the Office of the Executive Director for...
Operations -- Caty will be describing innovations that have enabled our continuous improvements of the reactor oversight process, or ROP. In both licensing and oversight, the operating reactor business line is a leader in applying risk tools to ensure our focus on items of greatest safety and security significance.

Following Caty, you will hear from Frank Arner, a Senior Reactor Analyst in the Division of Operating Oversight Safety in Region 1, who will share his experience using Probabilistic Risk Assessments, or PRA tools, in executing the oversight of operating reactors.

And finally, Caroline Carusone, Deputy Director in NRR's Division of Operating Reactor Licensing, will discuss how we are modernizing our licensing programs to help us more efficiently and effectively carry out our mission, and how we are communicating the important work we do with our stakeholders.

Next slide, please.

This concludes my opening remarks, and I'll turn the presentation over to Andrea Veil.

MS. VEIL: Thank you for the introduction, Dan, and good morning, Chairman and Commissioners.

Next slide, please.

Due to the COVID-19 pandemic, we made necessary adjustments to our licensing, oversight, enforcement, and other activities. We made these changes in a very deliberate manner that preserved safety, openness, transparency, and public engagement as part of the agency's decisionmaking process.

To ensure stakeholder engagement, we enhanced our use of virtual collaboration tools to conduct public meetings and extended public
comment deadlines, as appropriate. On the left side of the slide, you can see we provided over 50 such opportunities.

We issued a series of letters describing the criteria and conditions under which we would expedite the review of select COVID-related licensing requirements in areas such as work hour controls and operator training and qualification.

We also developed an online portal to standardize and streamline submittals. You'll hear more about this from Caroline Carusone later in the panel.

In the center of the slide, you can see that we issued over 470 COVID-related licensing actions during the pandemic.

We continued to successfully execute the reactor oversight process by maintaining the scope, objectives, and requirements of the NRC's inspection procedures while also implementing a flexible approach that enabled the regions to balance local health conditions and risk profiles. This was critical in helping to determine the appropriate onsite presence inspectors. While there is no substitute for inspectors walking down systems, and the intangibles that come with onsite presence, inspectors continued to independently monitor licensee activities remotely, using technology to get real-time facility information.

In January of this year, the staff issued an initial report on the challenges, lessons learned, and best practices from conducting inspections during the first 6 months of the pandemic. The staff is planning a more comprehensive review of lessons learned and best practices that will consider the additional experience that we gained since that time.

This follow-on effort will include engagement with external stakeholders and explore the impacts of the increased flexibility utilized during
COVID-19 on the inspection program in order to identify potential enhancements to the program. Any proposed enhancements will reflect the value that the NRC places on having inspectors onsite to conduct inspections.

Next slide, please.

We are executing the ROP in a manner that continues to provide objective, risk-informed, understandable, and predictable oversight. The ROP has continued to evolve. For example, we improved focus on safety culture and we added inspections of post-Fukushima flexible and diverse coping strategies, or FLEX, to the regular baseline inspections.

The ROP enhancement in engineering Commission papers were recently withdrawn and we plan to re-engage internal and external stakeholders on proposed changes to the ROP, as appropriate. We will follow our process for those items that require Commission review and approval.

Industry has adopted risk management programs, such as risk-informed technical specification completion times, or TSTF-505, and risk-informed categorization and treatment of structures, systems, and components, or 10 CFR 50.69. This trend is illustrated in the graph in the center of the slide.

We continue to examine our inspection programs to ensure effective oversight of these initiatives, including enhanced (audio interference).

We also continue to better focus on safety through the very Low Safety Significant Issue Resolution Process, or LSSIR. To date, 10 items have been closed using LSSIR. A self-assessment completed in March of this year indicates that LSSIR provides a predictable framework to review, assess, and disposition issues of very low safety significance that are not clearly within a plant's licensing basis. You will also hear about the Risk-Informed Process for Evaluation, or RIPE, from Caroline Carusone.

Next slide, please.
This fiscal year, we approved two additional subsequent license renewals to support 80 years of operation at Surry Units 1 and 2, with reviews ongoing for an additional nine Units at North Anna, Point Beach, Oconee, and Saint Lucie plants. The staff is completing these reviews in a safety-focused manner, centered on the key technical issues to manage the effects of aging and long-term operation.

We're expecting a significant number of subsequent license renewal applications in the coming years. As you can see, 6 units have received their 80-year license; 79 are in their initial license renewal period of 60 years, and eight units have initial 4-year licenses. We have letters of intent from some of those licensees to request initial license renewal.

Next slide, please.

I would now like to highlight a very important achievement, the completion of post-Fukushima actions that have resulted in substantial safety improvements for the operating fleet. These safety improvements, commonly referred to as FLEX, include: added capabilities to maintain key plant safety functions following a large-scale national disaster; new equipment to better handle potential reactor core damage events; strengthened emergency preparedness capabilities, and updated evaluations of the potential impact from seismic and flooding events.

All sites have declared compliance with the various orders, and the NRC inspections confirming compliance are now complete. This includes the few inspections that were rescheduled from calendar year 2020 due to the impacts from the COVID-19 pandemic.

There are several examples demonstrating how licensees are using FLEX to enhance safety. For example, FLEX equipment was recently staged during a loss of offsite power event at Waterford Unit 3 due to Hurricane
Ida. Although the equipment was not needed, this proactive step increased the
defense in depth. Frank Arner will discuss an additional example of safety
enhancements related to FLEX in his presentation.

Next slide, please.

We’re modernizing regulatory infrastructure in the areas of
digital instrumentation and controls and accident tolerant (audio interference) to
better enable the adoption of these technologies. For digital I&C, we’ve
implemented flexible, graded, and risk-informed approaches through revisions
to guidance for staff and industry.

For example, since the last Commission meeting, we issued
Branch Technical Position 7-19, which provides risk-informed and performance-
based guidance on how to address defense in depth for common-cause failures
in digital systems.

We are now moving from infrastructure improvement to
implementation. On August 24th, we issued our Safety Evaluation Report for
the digital upgrade at Waterford Unit 3, which was the first use of an alternate
review process that the staff developed in 2018. We are now preparing for
licensing reviews for major digital I&C upgrade requests from Turkey Point later
this year and from Limerick in 2022.

We also expect requests for a long-term operation during
subsequent license renewals, as evinced by the public announcement from
Westinghouse regarding a contract with Dominion for the implementation of a
digital modernization program at Surry.

We continue to refine our infrastructure through our review
activities of industry-developed guidance. For example, we’re also engaging in
pre-submittal interactions regarding draft industry guidance for new approaches
to address common-cause failures in high safety significant digital I&C systems.
For ATF, we’re continuing to take steps to ensure that the agency is prepared to support industry’s goal of batch loads in the mid-2020s. We’re engaged with the Office of Research, both to identify those issues that are important to safety and to ensure that the staff has the capability to analyze performance of ATF concepts, high burnup, and increased enrichment fuels.

We’re in the process of revising the ATF project plan to better align with the industry’s shift toward higher burnup and increased enrichment fuels. We continue to leverage the project plan as a tool to increase regulatory stability and certainty, along with enhancing and optimizing the NRC review.

Next slide, please.

We are now a few years into our transformation journey, and external stakeholders may see positive shifts as we’re implementing the sustainable ideas that result in safety and efficiency gain. The key is that we are changing how we do business and we are not changing our focus on safety and security.

One goal is increased use of risk insights to help focus our attention on those items of greatest importance to our mission and we’re using the Be riskSMART framework to help achieve this goal. We’re leveraging NRR's Embark Venture Studio and IdeaScale, a crowdsourcing platform to gather and implement staff-generated innovation ideas.

We’re implementing several Embark and IdeaScale initiatives, including those that advance our organization’s use of data to make decisions, including our internal and external Mission Analytics Portal, our MAP-X, respectively; the New Operating Reactor Data Analytics Portal on the public web page, formerly known as RANGL (phonetic); our internal automation of ROP metric collection, and dynamic templates for safety evaluation and approval letters. You will hear more details on these initiatives from Caty Nolan.
and Caroline Carusone.

Next slide, please.

In executing our mission, our people remain our most important asset. We're supporting agencywide initiatives to foster a culture that encourages empowerment of staff at all levels. Our efforts are resulting in measurable improvements that mirror 2021 agencywide culture survey results. Mainly, we're seeing improvements in employee involvement, communications, and perception of agency's ability to adapt to change.

We're committed to providing a diverse and inclusive workplace, and in NRR we have developed a safe workplace plan that includes training and related activities that provide awareness of and appreciation for our colleagues' different backgrounds, experiences, cultures, and views. We've also conducted two townhall meetings on various aspects of the NRR Diversity and Inclusion Plan, and those sessions were recorded.

We're providing professional development opportunities that complement our evaluation of workforce trends and future critical skill gaps. We're investing in a new generation of nuclear safety leaders due to Nuclear Regulatory Apprenticeship Network, a full-time, 2-year training program for outstanding engineers and scientists, many of whom are already contributing to the work that you're hearing about today.

Lastly, we're committed to establishing a self-sustaining Knowledge Management Program, which includes the use of our Wikitech online encyclopedia called Nuclepedia.

Next slide, please.

I'm now happy to turn the presentation over to Caty Nolan.

CHAIRMAN HANSON: Caty, you might be on mute. Stand by. You have to unmute yourself. There we go.
MS. NOLAN: Okay, sorry about that.

MR. DORMAN: Perfect.

MS. NOLAN: Thank you, Andrea.

Good morning, Chairman and Commissioners.

So, next slide, please. Slide 13, please.

We have created a centralized and standardized Significance Determination Process, or SDP, tracker and trend identifier with visibility across all regions. A spreadsheet is used to track SDP findings that have the potential to be greater than Greater Than Green. It is used during routine management meetings to maintain awareness of active SDP issues and to identify potential challenges to the completion timeline.

The staff also performed a review of all finalized Greater Than Green findings since the beginnings of the ROP and created an interactive dashboard of key metrics using Microsoft Power Bi. This dashboard can be leveraged to identify and quantify unique trends using the powerful filters and visuals in the application.

Next slide, please.

Staff has taken a holistic approach to modernizing the already strong oversight program by creating trending answers tools. The operating experience and generic communication hub provides trending answers tools that allow NRC staff and management to review findings, operating experience, industry SCRAM trends, ROP inspection sample completion, plant ROP action matrix, licensee event notifications and reports, and ROP-specific resource information. Inspectors are using the hub proactively to see how our other sites have dispositioned various safety issues.

Automation of repetitive tasks such as regular reports in high interest areas like SCRAMs and findings trends have provided staff time to
focus on more significant issues. This task alone has saved 250 hours per year.

Various risk staff board visualizations consolidate hard-to-find risk information, which allows for easier risk insights. The staff is currently developing algorithms that will enable advanced search capabilities for relevant information, automate certain aspects of event evaluation, and provide risk insights for reported events.

The NRC staff continues to take appropriate actions in response to licensees’ performance, including performing supplemental inspections. We have confidence that the flexible, risk-informed baseline inspection program, as executed by resident and regional inspectors, remains an effective and robust program that provides appropriate levels of oversight to assure that licensees are operating power reactors safely and securely, and the adequate protection of public health and safety is maintained. Our focus for 2021 has, and will continue to be, to monitor inspection findings trends, including potential impacts from the decline in findings.

Next slide, please.

For ROP data trending, we are now turning data into insights.

The staff has put forth significant effort to fully automate ROP data collection and visualization for use in ROP data trending, as part of the ROP Self-Assessment Program. The staff effort is now primarily focused on the content and analysis of this data, rather than the manual updating and formatting of the data. Further upgrades to the data sources and storage are on the horizon for adding additional ROP data core analysis.

An example of an insight is that the staff has analyzed this decreasing findings trend for several possible data correlations. This trend is still evident when looked on at a per-site or per-unit basis, and is still evident
when only looking at plants that are currently operating. The trend is not due to
the decreasing number of operating units and is not primarily due to the closure
of sites with a large number of findings. This trend is evident across all four
regions, pertains to all inspection procedures, and incorporates all ROP
cornerstones.

A decrease in the number of findings documented in
inspection reports does not directly correlate to an actual decrease in the
number of issues or non-compliances identified by inspectors. Instead, it is an
indication of a decrease in the number of items documented in the inspection
reports, which could be a result of better analysis and assessment of the
significance associated with the identified issues. This is a positive outcome of
our continued growth as a risk-informed organization.

Next slide, please.

We would now like to present a short video of our operating
reactor analytics tool.

(Video played.)

MR. ARNER: Okay. Thank you, Caty.

Good morning, Chairman and Commissioners.

I'll be discussing leveraging risk insights to enhance the
oversight operating reactors.

And that's slide 18, please.

PRA models provide critical risk insights and are integral to
the oversight process. These models are fundamental to plant assessment,
notably, when used for the significance determination process in assessing
various events or adverse conditions and the impact on safety, the output of
which determines the appropriate next step of agency response.

The inspection process has been using, and continues to use
PRA, as well as considering operating experience for sample selection, with a focus on identifying impacts to plant risk with an efficient use of our resources. Additionally, PRA is critical in the proper evaluation of other key oversight functions, such as notice of enforcement discretion and evaluation of incidents and events as part of our reactive inspection program, to ensure we take appropriative actions, such as potentially sending out a team, using risk tools and making that determination. PRAs are also central to enabling risk-informed initiatives.

Next slide, please.

For example, as Andrea mentioned, industry is implementing 10 CFR 50.69, "Alternate Treatment of Components," and other risk-informed initiatives such as risk-informed technical specification completion times, or RITSTF.

In the field, we need to effectively monitor these new initiatives by understanding key risk insights during plant configuration changes, as more licensees are beginning to implement these programs. Inspection of these programs is a focus area, as it continues to evolve and integrate best practices.

I will now describe a few examples of how risk-informed programs improve operational flexibility for licensees while also enhancing safety.

Relative to 50.69 at Limerick, it allowed for the replacement of degraded piping in the ultimate heat sink spray network in a timely manner.

Another example was during a replacement of one of two offsite power transformers at Limerick where the RIC program enabled an extension from 72 hours out to 30 days for completion of the work. PRA insights resulted in protection of various numerous equipment during the
extended period of work.

Next slide, please.

So, (audio interference) leverage our ability to be risk-smart, independent regulators. NRC PRA models are called Standardized Plan Analysis Risk, or SPAR models. These models are extremely detailed and a key reactor safety tool for applying the Be riskSMART framework to calculate the risk impact of deficiencies or adverse conditions. SPAR provides independence from licensee models and allows for detailed evaluations, leading to well-reasoned, risk-informed conclusions.

For example, a SPAR model was critical in the conclusions of two performed focused, onsite followups for a plant that experienced a diesel generator scavenging check valve failure. The model showed it was likely the failure had a notable elevated risk consequence for postulated fires. Therefore, it was decided a thorough onsite followup should be performed. This resulted in identifying a failure mechanism independent of the licensee's analysis and led to the proper classification of the issues having moderate safety significance vis the licensee's initial determination of a very low safety significant issue.

Another example of the value of our independent tool was during the evaluation of an issue at a different plant site. In this case, the SPAR model was instrumental in determining a failed high pressure injection control system had notable risk significance due to corrosion effects in the oil system. The model allowed us to identify and challenge licensee revisions to their model, which had resulted in the licensee concluding the issue was of very low safety significance. The concerns identified with these changes resulted in the initial NRC conclusion being validated that the issues should appropriately be an input into our assessment process.

Next slide, please.
So, PRA models are updated routinely to inject as much realism as possible and ensure robust execution of the ROP. Licensee models and NRC SPAR models, they're not static, but are modified to allow for best estimate evaluations of risk impacts due to changing conditions. The Office of Regulatory Research routinely works with our contractor to give us the best tools by revising our models to reflect the as-built, as-operated plants.

For example, plants made significant changes in response to the Fukushima event. A flexible operating program was implemented at all the sites to give operators a chance to restore key safety functions for the most challenging of conditions.

NRC risk analysts have been crediting these FLEX modifications in our evaluations since they were implemented, and, in fact, the example of the EDG failure I discussed, without FLEX credit, would have approached that of substantial significance. FLEX is not only credited for postulated external events resulting in complete loss of power, but it’s also credited with in-plant emergency procedures for other scenarios.

For example, one plant risk (audio interference) credit starting in aligning FLEX equipment for standby auxiliary feedwater pumps to power them up during fire events. That may cause a loss of normal AC power.

There have been many examples where FLEX credit has resulted in reducing the risk impact of industry EDG failures from white to green, appropriately avoiding inputs into our assessment process.

Notwithstanding this, FLEX equipment reliability presents challenges with the realistic modeling of the equipment due to the limited amount of test and failure data, along with the less challenging testing requirements that are required for in-plant mature equipment.

For this reason, we apply sensitivities to our analysis to
account for FLEX reliability uncertainties, and in compensatory measures established by licensees, they are evaluated and considered, when appropriate. So, it's a balance. We recognize the significant safety enhancements FLEX can afford, but also are diligent in ensuring robust evaluations to account for FLEX equipment reliability uncertainties.

Next slide, please.

Lastly, the NRC continues to prepare the next generation of risk professionals and use of best practices to communicate risk. Formal knowledge transfer sessions are held weekly to discuss various topics of interest and importance of the focus on risk insights. Resident Inspectors and SRAs interact during site turnovers to ensure critical plant risk insights are discussed, and there are formal qualification programs that SRAs must complete, along with NRR risk analysts, to ensure risk professionals stay in tune with state-of-the-art practices.

This concludes my presentation. I will now turn it over to Caroline Carusone. Thank you.

MS. CARUSONE: Thank you, Frank. Good morning, Chairman and Commissioners. Thank you for the opportunity to present to you today.

I want to spend the next few minutes sharing some of the focus areas within the Operating Reactor Licensing Program and the strides we've made.

Next slide, please.

We've completed 1,076 licensing actions this fiscal year, a very slight decline from last year, which may indicate licensees' shift in schedules of lower priority licensing actions that would not impact plant operations in response to the COVID-19 pandemic.
While we continue to process non-COVID-related licensing work, COVID-19-related licensing actions made up about 20 percent of completed licensing actions for this fiscal year.

In addition to our licensing workload, I wanted to highlight three broad themes important to modernizing our licensing program. They include enhancing stakeholder engagement, expanding use of data and business tools, and strengthening organizational capacity. These three themes are the underpinning of the initiatives I'm going to share with you today.

Next slide, please.

As you know, openness is one of our principles of good regulation, and modernizing our licensing program must include deliberate engagement with internal and external stakeholders to incorporate meaningful and relevant feedback, as we make programmatic improvements.

For example, the risk-informed process for evaluations, or RIPE, our risk-informed review process for licensing actions that address low safety significance issues within the licensing basis, was originally only applicable to about 25 percent of operating reactor plants. However, in evaluating external feedback, the staff expanded the scope to include those plants that have an approved surveillance frequency control program, a much wider applicability.

The staff expects to receive the first licensee reg submittal in October, and we're optimistic that the process will help focus staff on applying the right level of effort on the most safety significant issues.

As Andrea Veil mentioned, our regulatory response to COVID-19 also involved a tremendous amount of public outreach to understand the hardships faced by the industry and the concerns from members of the public. This outreach was vital to the staff's development of a framework for
temporary regulatory flexibilities and the completion of 233 COVID-related licensing actions this past fiscal year, on an average of 33 days each.

Through the use of e-concurrence and summary Federal Register notices, or FRNs, the staff also adapted our licensing processes to efficiently process the time-sensitive COVID-19-related licensing actions. We estimate that summary FRNs also saved an estimated $500,000 in printing costs and staff hours to date. We plan to carry this best practice forward, even after the COVID-19 pandemic is behind us.

We recently sent forward an information SECY paper that describes the changes we've adopted within the 2206 program, the regulatory process for any member of the public to petition the NRC to take an enforcement action against a licensee. These changes stemmed from one of the recommendations from our recent expert evaluation team report on concerns related to gas transmission lines near the Indian Point Nuclear Power Plant.

Public outreach was integral to the change process, since members of the public are the primary users of the process. Changes include the establishment of a core team, more routine touch points with petitioners, and improvements to enhance the independence of reviewers assigned to petition review boards.

Lastly, the newly revamped Technical Assistance Request Process, or TAR process, is an example of a change based on internal feedback, specifically, from our regional offices. This process is used to offer technical assistance to organizations within the NRC regarding operating reactors and used to have timelines of over a year for resolution. Since implementation in August of 2020, we have received two TARs from the regions. One was completed in under 30 days and the other is currently under
Building conduits for communication with internal and external stakeholders is vital to our progress. It raises awareness of issues and perspectives that we may not have fully considered and increases our understanding of issues, which leads to better outcomes.

Next slide, please.

Much of the agency’s focus over the last few years on becoming a more modern, risk-informed regulator has been on advancing our use of data. It’s no different here in NRR, and we’ve partnered with the Office of the Chief Information Officer to build an architecture to help us shift from managing documents to managing data.

In DORL, we’re looking at this in three main ways: how do we intake data effectively? How do we transform the data to understand and improve our performance? And how do we use the data to predict and plan for the future?

Next slide, please.

In the area of intake, we refined our web-based submittal capability beyond what we quickly stood up when COVID began, rolling out the web-based relief request portal in April of 2021. Agile development with OCIO embarked and our end-users continues, and we’re building the foundation for future portal capabilities to interact with our licensees in a more modern way.

Our workload management tools enable us to better monitor and drive performance improvement and identify process pinch points. They’ve also helped us identify best practices to optimize review timelines, such as the use of pre-submittal meetings, increased use of audits and use of requests for confirmation of information, when appropriate.

Identifying these best practices has helped to decrease our
average licensing action completion time over the last 4 years. While I acknowledge that the 2021 numbers reflect a large number of COVID-19 licensing actions which drive down the average, all in all, we're still seeing improvement in our overall timeline.

Also, we're maturing our ability to use data for predictive workload forecasting. What you see on the right is a heat map of some of our more routine licensing actions, based on level of effort on the Y-axis and completion time on the X-axis. The trends and outliers that we can see from this visualization inform engagement efforts with the staff and the industry to have a common understanding of best practices and expectations.

We're working towards a full-cycle workload forecasting and level-of-effort estimation capability with the Office of Chief Information Officer and the Office of Research to help staff and industry plan licensing work better. All of these efforts are crucial for the staff's continued growth in data literacy, which is increasingly important, as we regulate an evolving industry in a fast-changing and data-hungry environment.

Next slide, please.

While this is my last slide, it concerns our most important effort in many ways -- strengthening organizational capacity. Without a strong foundation of skills and knowledgeable staff, nothing I shared previously would be possible.

First, we're working at all levels to evolve our mindset. Not only are we focused on the Be riskSMART framework to evaluate how we look at and tackle issues, we're also focused on continually seeking to improve our customer service to members of the public and to each other.

Second, we're continuing to look for ways to leverage the incredible depth of knowledge and diversity we have here at the agency. We
seek opportunities to build connective tissue and break down silos across the agency, whether through formal integrated review teams to help us wrestle complex issues of informal opportunities to engage like communities of practice.

To ensure we're well positioned for the future, we're actively working to build a pipeline of entry-level staff, leveraging avenues such as the Nuclear Regulatory Apprenticeship Network, or NRAN; summer hires; coops; direct-hire authorities, and recruiting programs.

We're also very proud of the technical reviewers who have put in the hard work to retrain as project managers, given the decline of work in their respective areas.

Lastly, as you know, we have a large population of retirement-eligible staff who carry a tremendous amount of valuable agency knowledge. We’re focused on knowledge transfer opportunities like training seminars and informal work groups. We’re pairing new and seasoned employees to work together, learn from each other, and share experiences, as we focus on building our organizational capacity, so this is all sustainable in the future. We recognize that investing in knowledge and our people is ultimately the greatest return.

Next slide, please.

This concludes my presentation, and I'll now turn it back over to Dan Dorman.

MR. DORMAN: Thank you, Caroline and the other panelists, for showcasing some of the great work the NRC staff are doing to ensure the safety and security of the nation's operating reactors.

I apologize for the technical difficulty we had with the video, but we'll work with the Office of the Secretary of the Commission to ensure that
that video is appended to the record of this meeting and available to the public.

As you’ve heard today, we continue to look for better ways to do our work using technology and data to improve our processes and to focus our efforts on those items of greatest importance to our mission.

Thank you, Chairman Hanson and Commissioners, for the opportunity to present today on this business line, and we now welcome your questions.

CHAIRMAN HANSON: Thank you, Dan. I appreciate it. And thanks to all the panelists.

I'll get it rolling this morning with some questions.

Andrea, I appreciate the discussion on modernizing the regulatory infrastructure as the industry seeks to adopt new technologies and improve plant reliability. I wanted to start with the Accident Tolerant Fuel Program and with the high burnup applications.

I understand that the phenomena of fuel fragmentation, relocation, and dispersal may be a challenging technical issue for some high burnup applications. How is the agency looking at this issue, and do we have a clear path forward for addressing it with licensees?

MS. VEIL: Yes, we continue to participate, welcome the path and continue going forward in international experimental programs, and we rely very heavily on the Office of Research -- we have a great relationship -- in preparing for (audio interference) and anything else. I think it's no surprise.

So, there is actually a Research Information Letter that is being developed, and it will provide more information. And we expect that that (audio interference) will be done in March of 2022, and that rollout will coincide with the public release.

So, we remain really committed to looking at FFRD. That's
the issue that is most prevalent right now. But, again, with our goal of no
surprises, we're looking at anything that could potentially come up, including our
international relationships, to just ensure that we're prepared for any issue that
we need to look at, FFRD included.

CHAIRMAN HANSON: Okay. Thanks.

On that and kind of continuing with the ATF aspect of this,
some stakeholders have expressed that the ATF project plan should be more
responsive to the use of risk-informed methods. What are your thoughts on
that? What does that actually mean to you in terms of how the agency would
proceed with ATF licensing actions?

MS. VEIL: The ATF project plan has always been a high-
level description of the steps that we need to take. NRC never wants to be a
barrier or burden to new technologies. So, we laid out this plan from the
beginning, and we've consistent throughout, that it's a high-level document with
the steps. It's not a document to tell licensees how to license or how to -- you
know, it's not guidance to tell applicants how to license those fuels.

Guidance, on the other hand, does need to be developed.

And we've made very clear to the industry that we're willing to talk about risk-
informed approaches, but the limited information we have right now, we cannot
do meaningful guidance that would be helpful for the vast majority of applicants
that may be coming in, so we are absolutely open and we have those frequent
touch points to whatever risk-informed processes that the industry wants to
provide, but at this point in time we don't have enough information and that plan
is not guided so I think there is a bit of a disconnect of what the purpose of that
plan is, and it is and always has been, a high-level tool to make sure that we
are ready to take the steps needed to license ATF. It is not guidance for
applicants and what they need to provide for licensing.
CHAIRMAN HANSON: Thank you. That's very helpful in terms of kind of where we need licensees to be in terms of what they submit to us and how that's going to drive a lot of the risk-informed application or risk-informed thinking in that. So, that's very helpful. Thank you.

Let me turn to digital I&C, and, Andrea, this might be for you again. We occasionally ask on this, with regard to digital I&C, are we there yet? And with the progression on Turkey Point and Waterford and Limerick, I guess I'll kind of ask that high-level question again. And it certainly seems like we're pretty close, but I wanted to get your sense of or your thoughts on that question.

MS. VEIL: Yes, we don't see remaining challenges. And the way I look at it is we're moving from modernizing infrastructure to actual implementation now. And so, I'll quote Margie Doane. I'll attribute this quote to her because I really like it and it explained a lot.

"Just like when you're building a house, the foundation is built; the house is built, and now, the tenants are moving in. If you have to do more renovation to improve what's in the foundation, that continues, and we're open to that, but that doesn't mean the foundation is not there."

So, with Branch Technical Position 7-19, that sets out a risk-informed way to address common-cause failure. However, NEI has a proposal on the table that is a new method that looks at addressing common-cause failure, but in a new way, a different risk-informed way. And we've been engaging on that and been talking about it.

So, I don't see challenges going forward. As you mentioned, the Waterford application was reviewed on schedule and issued August 24th. So, I don't see major challenges for going forward. So, I think the best evidence of where we are, and if we're there yet, is industry feedback. And
we're getting positive industry feedback. We're also getting applications and 
pre-application engagement. So, that is the proof that we're there, because 
we're actually getting applications to execute.

CHAIRMAN HANSON: That's great. Thank you.

That kind of was going to touch on my followup question with 
regard to review times. It sounds like, with the implementation of BTP 7-19, 
that we've got standard -- you know, assuming the licensees send us an A 
product, that we've got predictable review times for those licensing actions.

MS. VEIL: What you said, Chairman, is critical. Applications, 
you know, the information in the applications has to be sound.

CHAIRMAN HANSON: Yes.

MS. VEIL: That will minimize RAIs. That will minimize 
interactions. So, if we get good applications, we have the infrastructure and the 
framework to execute, and to execute on schedule.

CHAIRMAN HANSON: Great. Thank you.

I wanted to turn -- and I'm not sure who would best answer 
this question, maybe Frank or Caty or you, Andrea -- you know, we've seen a 
lot of extreme weather events in the last year from the storms in Texas over the 
winter, flooding, Hurricane Ida. A number of us have been out to see plants in 
some of these environments, Salem and Hope Creek, which sits right there on 
the Delaware Bay, on the Susquehanna River.

How are we evaluating these events? And can you talk about 
the process for the ongoing assessment of natural hazards information and any 
recent examples of using that process to inform our oversight of these plants?

MS. VEIL: Yes, I can take that one as well. If I'm on a roll, I'll 
just keep going.

CHAIRMAN HANSON: Yes, you're on a roll.
MS. VEIL: Technical specifications really require that these plants look at the weather phenomena, the recent weather included. That's extreme heat, cold, what have you. So, that is actually a part of technical specifications.

So, the process for ongoing assessment of natural hazards is really the formalized way of looking at that collection and how the staff collects the natural hazards. But the great news is that it's in an easy format for people to see, because it is a lot of information out there.

So, it's put in a Natural Hazards Information Digest. So, it's easily accessible. Staff changes and different assignments change. So, we really need an easy way for staff to be able to see that.

And so, I can give you one example. We're collaborating again with our partners in Research, who we rely on a lot. The earth sciences that are there are really actively engaged with USGS to better understand some of the uncertainties in the seismic hazard estimates for the Central and Eastern United States. So, we're going to incorporate those results in a future guidance development, if necessary. And Research is engaged in activities that are also focused on characterization and quantifying some of the uncertainties in like future rainfall and storm search events.

So, it's a formal process. We've put it in an easy format. So, I'm really proud of the work that we're partnering with Research on doing.

CHAIRMAN HANSON: Great. Thank you. I really appreciate that.

I'll save my last question for later, other than just to say, for Caty and Caroline, I'm really intrigued and enthusiastic about the use of data and business intelligence tools to detect trends and identify precursors. To my mind, this is exactly where the agency needs to go. And the use of data, and
particularly as we continue to develop and put it in appropriate format, historical
data to look at plant performance and identify really critical issues for safety, I
think I just want to kind of give both of you a shout-out for your presentations on
that subject.

And with that, I will hand it over to Commissioner Baran.

COMMISSIONER BARAN: Thank you, and I completely
agree, Chairman, the work on data analytics, I think very exciting and I’m glad
we’re focusing as much on that as we are, as an agency. And thank you all for
the work you’re doing on data in other areas.

Andrea, your comments on the value of in-person inspection
really resonated with me. Can you talk a little more about why in-person NRC
inspections are so important? And can you share some recent examples of
issues that our inspectors identified through in-person inspection that would not
have been discovered remotely?

MS. VEIL: Yes. So, our Resident Inspectors are so critical.
They're the eyes and ears, whether you're talking about an operating plant, a
construction site in the case of Vogtle, or fuel facilities. So, they're the eyes and
ears. And so, that's why I made the remark that there’s no substitute for
Resident Inspectors actually walking down systems. And so, two recent
examples.

At a plant -- I believe it was in the spring -- there was an
auxiliary feed pump trip throttle valve that was improperly engaged. And
because of the unique design of that particular valve, and because of the
configuration of that valve, it would be highly doubtful, in my opinion, that that
would have been caught remotely. So, someone actually walking down that
system and seeing that, which ended up in the system being inoperable
because of that -- it's difficult to view if you're not actually physically walking
down that system.

Another example I think that's even more compelling is an inspector was walking down and saw a (audio interference) paint chips and some corrosion on the floor. So, they did what a good inspector does; got on their hands and knees and looked underneath the service water piping. And it turns out there was damage to the protective paint and there was actually corrosion in the bottom portion of a strainer nozzle. So, again, that system was declared inoperable.

And you can't get down on your hands and knees and look underneath a pipe during a remote inspection. So, those are kind of the two most prevalent examples I can think of right now on the value of inspectors.

And I want to take a second to shout out to the NRC Inspector Newsletter. It comes out periodically and has some really good information in there. And I believe it's called the Eagle Eye Award, where Resident Inspectors are commended for the things that they find that are like difficult or required an eagle eye.

COMMISSIONER BARAN: Well, thanks, Andrea. I appreciate that.

Actually, I remember looking at the most recent edition of that newsletter. I think there were maybe like half a dozen inspection examples in there, and I think maybe like five of the six were all things that you weren't going to get with remote inspection. It was having these folks onsite and finding these things.

Oftentimes, just moving through the plant and saying, "Hey, wait a minute. Something doesn't look right." And so, thanks for those examples, and as you point out, there are really a lot more out there.

One of Frank's slides noted that 24 power reactor sites now
have approved 50.69 programs. This is a very significant risk-informed program that gives licensees the option to categorize structures, systems, and components based on their risk and safety significance. Different categories, then, get different special treatment requirements.

Frank gave some examples of how this program can enhance safety. Can someone give us a general update on how the 50.69 application reviews are going and whether there have been any challenges with licensee implementation of, or NRC oversight of, these programs?

MR. ARNER: Well, this is Frank here. I'll take the implementation of the oversight of the programs.

We got a lot of help back in 2020 from NRR, where we got inspection procedures that were revised to get ready for the enhanced oversight framework for the increased adoption of enhanced risk-informed initiatives, such as 50.69 and TSTF-505.

In fact, NRR came out to Region 1 and gave a 4-hour training session before the Limerick initial inspection was performed. So, it was very detailed and very informative.

Having said that, a working group was formed after we did the inspection, the one-time inspection, at Limerick, because it's a newer process. So, we wanted to leverage the lessons learned and develop recommendations to further enhance the oversight of the program.

The Working group, things I'm talking about are like benefits for improvement in organization of the procedure. It was an older procedure, guidance and inspector training and resources.

The most significant probably is that, for the 50.69 program, part of that is where the licensees will do their assessment of their systems. And so, they might take three to five systems and they'll categorize them. So,
we'll go in and take a look at that.

But a second part is where the licensee goes back in, maybe 2, 3, 4 years later, and does like an assessment or a feedback and process adjustment program. And so, that was a learning here, that that procedure could probably be split into two parts and maybe done 2 years later. And there's other things such as maybe looking at risk 3 components with more focus on common-cause failure, and things like that. So, some examples of enhancements going forward, nothing major, but we think the procedure worked as written, but some of those examples.

COMMISSIONER BARAN: Great. That's really helpful.

And, Frank, I appreciate the reminder you had in your presentation about how vital NRC's SPAR models are to the agency's independent oversight. I couldn't agree more.

You talked about crediting FLEX equipment in the SPAR models while accounting for FLEX equipment reliability uncertainties. And there have been some recent examples of pretty major FLEX reliability problems at some sites.

Can someone walk through what NRC requires on the reliability of FLEX equipment and how we ensure that those standards are met?

MR. ARNER: Well, I'll take this as well.

To meet the NRC FLEX order requirements, the NF3 had to develop a program. So, they used the guidance of NEI 12-06. That included standards for maintenance and testing of FLEX equipment. So, major FLEX equipment was put into their program. EPRI performed equipment evaluations and outlined standards for the PMs and testing.

We followed that up, of course. We did a one-time temporary instruction inspection, looked at it to make sure PMs are in place that they
described. And when they weren't, appropriately, findings were initiated, and then, it was in the corrective action process.

Now, to further help this going forward, NRR revised baseline inspections. And now, for the surveillance test baseline and procedure, we have a requirement to look at least at one FLEX equipment surveillance test to make sure it remains capable of performing its function. And that's like going out and watching the test or looking at the data. So, that's what we've done.

In addition to this, since we've seen failures, the NRC issued an Information Notice. I think it was 2020-02, or 2021-02, that communicated the recent failures to the industry and developed an operating experience Smart Samples. And Smart Samples are really out there to assist our inspectors to be aware of what's going on with FLEX, maybe some things to look at as well. And so, that's what we did.

My final point with this is, there are no specific requirements for FLEX equipment reliability with respect to PRA modeling, but, as noted, there's uncertainty. So, from (audio interference) to PRA modeling, a complication a little bit is, as I understand it, the industry doesn't really submit FLEX equipment reliability information to INPO, which is the existing process our contractor uses when developing non-FLEX equipment in industry average reliability datasets, which are used in our models now. So, it's a different process we're using for FLEX.

It's a separate process where the P-ROG (phonetic) now has gone out and looked at that data compilation for FLEX equipment. We performed an audit on this in 2020. We had several questions and comments. P-ROG has now brought back the revision to our comments, and we're looking at that right now.

So, there is uncertainty for best estimate equipment reliability
updates going forward, as this is a different process. So, it's a watched area
going forward that the data may not be available to adjust the FLEX failure
rates, given the data may not be accessible.

So, that's why we get into, and what I talked about, using
sensitivities going forward, to make sure we capture if there's some areas
where maybe things are not as reliable as they seem.

COMMISSIONER BARAN: Okay. Thanks, Frank. That's
helpful.

The last issue I wanted to briefly cover is the 2206 process for
filing the petition for NRC to take action at a nuclear power plant. After the
Inspector General found substantial problems with the way the agency handled
the petition related to Indian Point, a staff team made recommendations to
improve the process.

And as Caroline mentioned earlier, the staff recently decided
to make several changes, including establishing a dedicated core team to
handle all 2206 petitions; increasing the independence of petition review
boards; accepting petitions for review if they require detailed analysis, and
better documenting the analysis used to support the ultimate decision on
petitions.

These all seem like good changes that should improve the
process and, hopefully, increase stakeholder confidence in it. Andrea, do you
have any thoughts you would want to share about these changes?

MS. VEIL: Yes, I do. In my former role as Deputy Office
Director in the office, I was (audio Interference), as executive champion for this
effort and some of the other efforts to implement the team, especially (audio
interference). So, I fully support it.

And I'd like to mention the one that Caroline had in her
presentation, which is also a frequent touch point with stakeholders. And so, we looked at that to kind of mirror the allegation process, because both processes can be very long. So, it's very important to have a touch point with the public to let them know where we are.

So, I fully endorse the recommendations and the one that I just mentioned.

COMMISSIONER BARAN: Well, thanks. I think it's really positive that the team took the time to give this process we have here a good scrub and come up with, I think, a series of pretty common-sense things that are going to help.

I mean, there was the specific case of Indian Point and the IG recommendations there that I think were the most immediate spur to action on this. But the reality is, over the years, as I've talked to stakeholders, a lot of them really have doubts about whether this process has been effective.

And as you just kind of talked to a second ago, Andrea, people kind of submit something, and months or years will pass and they won't hear about it. Or there's been just a general concern: is this an effective process? If you've got a concern, is this the way to go, going into this process?

And I think if we can do updates like this, hopefully, we'll restore some confidence in that process and we'll see it used maybe more than it is right now, when people have issues.

So, thanks so much. I appreciate all the work on that.

Thank you, Mr. Chairman.

CHAIRMAN HANSON: Thank you, Commissioner Baran.

Commissioner Wright?

COMMISSIONER WRIGHT: Good morning. So, good morning to everyone, and I thank each of you for your presentations.
It's always great to hear about all the work that you're doing within the operating reactor area, but I'm also looking forward to the next panel on the advanced reactors as well.

So, with that, Andrea, again, good morning to you. And you've been on a roll; I'm going to stay with you.

I know you've faced quite a bit of change during this challenging time that we've had with quite a few staff in your front office changing during the pandemic. Can you talk to me a little bit about how that transition has gone, or is going currently for you?

MS. VEIL: Yes, this is one of my favorite topics because it gives me an opportunity to brag on my team.

Yes, I'm new to the front office. My Deputy Officer Directors, with the exception of one, are new. And this has been an unprecedented time of change, both inside of the NRC and outside of the NRC in the world.

And I cannot be more proud of this office and what the office has done to rise to the occasion, not only with just enhancements of data analytics tools, but all of the work that the engineering folks are doing as the support to the inspection and oversight.

I always shout out the technical staff because I was the Deputy Office Director over engineering. They are doing really fantastic work, and forced into this situation of a pandemic, they've done fantastic work. It's been tough not seeing people in the office, not having that interaction, being flat, not in a three-dimensional world, to be able to be in the same place, but I've been very, very proud of the team and transition has been something that I'm really proud of.

And I'll end with saying, the culture of the office and the focus on our culture initiatives, on top of everything else we have to do, I'll shout out
to our team -- our associates for safety collaboration and communication; our
ASCC (phonetic) team, and our OKR team, objectives and key results --
because we have all come together to work together to elevate this office to a
level that I'm very, very proud of.

COMMISSIONER WRIGHT: So, thank you for that. And it's
good to hear how good the staff's doing. I mean, nothing beats being in person,
but how they've handled things is great.

I want to kind of go a little bit deeper. You've come into a
position, you know, the merger with NRO and NRR happened, and we've gone
through the pandemic, still, during that adaptation to that merger, right? So,
now that that dust has settled a little bit, I'd kind of be interested in your
thoughts on it, and maybe on what's next. What's your vision maybe for the
office going forward? It's probably not been perfect, the merger, but are there
any things you would look at maybe changing or adapting or adjusting?

MS. VEIL: Yes, it certainly has not been perfect. You know,
becoming the largest office in the agency, and taking two large office cultures
and bringing them together, the New Reactor Office and the Operating Reactor
Office, certainly, has not been perfect, but we have done a lot of work.

That's one of the reasons why we do so much work on
culture. So, we not only revised procedures and made sure that we looked at --
you know, in meetings sometimes, "Hey, we used to do it this way in NRO."
"And we do it this way in NRR." And my team and I are interested in what's the
most efficient way to do it. Let's figure out, let's talk about the why, and let's
hear everyone out, but let's figure out what needs to happen going forward.

So, we have been looking consistently not only at procedures,
but even the structure of the office, as we're preparing to get so many
applications in from new and advanced reactors. We're in a constant
conversation about what that could mean. So, we have actively engaged on
talking about if the structure of the office is where it needs to be to support all of
the work for operating new and advanced reactors -- and don't forget research
and test reactors -- as we go forward.

COMMISSIONER WRIGHT: Right. Thanks. Thanks for that.

I'm going to kind of combine a couple of questions that I have here. I mentioned earlier nothing beats being in person, and we've had 18 months that we've been largely virtual.

And I appreciate what the staff has done and their efforts to look at what we've learned from our experience and what we're going to try to do to implement some of that stuff or integrate it going forward.

So, I'm going to stay with you, and maybe Dan, if he wants to jump in, or somebody else; it's okay, too.

Can you talk to me a little bit about the timeline for reviewing procedures and practices from the COVID-19 lessons learned? And do you anticipate any policy issues coming up that would need Commission action?

MS. VEIL: Yes, the initial public report that was issued back in January had a number of recommendations, and it was based on that moment in time of what would occur, and the lessons we learned from that six months of being in the situation.

But now, we have a broader effort that has been discussed in public -- the Charter is public -- of looking at more holistic changes that could potentially be made to the ROP program, based on the information that we have now. So, that effort is going on now.

There is a timeline. I don't want to speculate about how the timeline is going to go, but it's an effort that is starting now, and an effort that will be talked about in monthly ROP meetings, as we go forward. And it's not
something we're looking to drag out for a long time, but I do want to give it
enough time and the appropriate amount of attention, so that we are making
appropriate recommendations, based on the information we have, essentially, 6
months.

COMMISSIONER WRIGHT: Right, and I guess most of the
work has been internal, I would assume, the lessons learned part. But are you
engaging -- I'd kind of like to hear more about how the engagement with
external stakeholders would be going in this area, maybe what type of specific
feedback have we received from the external stakeholders on changes that
maybe the NRC should make. And what, if anything, are external stakeholders
doing that we might want to capitalize on?

MS. VEIL: Yes, this -- oh, go ahead, Dan.

MR. DORMAN: Yes, thanks, Andrea.

Commissioner, yes, let me jump in a little bit here.

COMMISSIONER WRIGHT: Sure.

MR. DORMAN: Yes, I think there's the ROP aspects, and
Andrea has touched on that. And we have the regular monthly ROP meetings
that are opportunities for external stakeholders to engage us on the ROP
elements.

I would say, on a broader sense, the whole transformation
effort over the last several years, we're developing an external survey to
engage stakeholders over the next year to get feedback on how we're doing at
becoming a more modern, risk-informed regulator, and how is that being seen
externally, and how is that impacting our stakeholders outside the agency.

I'd also add that, as we look at re-entry to our facilities from
our maximum telework status, we're also developing plans to check in with our
staff 6 months in, or so, to see what's working and what's not working, and what
do we need to start, stop, or continue. So, we'll develop those issues as well.

COMMISSIONER WRIGHT: Great. Thank you. Thank you for that.

So, I'm going to move over to Caty for a second in the time I've got left here.

So, thank you for your presentation, Caty.

I think something that's often overlooked in recent discussions about the ROP is it's not static, right? It's always changing. And so, I appreciate your idea, I mean your presentation, and I appreciate the staff's efforts to kind of continuously improve that, right?

So, I know you've been using dashboards as a way to better inform the agency's decisionmaking and to be more transparent to the public and industry. So, can you tell me a little bit more maybe about how the ROP dashboards are continuously improving the ROP?

MS. NOLAN: Yes, I definitely can.

So, you're right, we do see the ROP as a living process that can continuously be enhanced. The behind-the-scenes data cleanup and automation activities that go into the ROP dashboards have enabled staff to spend more time on more significant or risk significant work than on sifting through that raw information. We are able to do more analysis and look for trends.

But, if I can, my favorite example of this is the SCRAMs dashboard that we've created. The data is fed into the dashboard from the report, straight from the Headquarters Operations Officer, who receives the report, rather than staff taking the information, manually reading the report, typing it into a database, such as like an Excel file. So, instead of taking that time to run manual reports on some specified frequency, the staff can now just
show this dashboard at a glance, and it has so many visualizations and capabilities, such as filtering, slicing, animated visuals to show trends on various information; things you can look at with the date range, site, system, cause of the SCRAM, things like that.

So, this is currently an internally-facing dashboard, but the efficiencies gained for staff benefits not only the staff, but also the industry and public by not spending time on these more administrative-type tasks.

So, thank you for that question.

COMMISSIONER WRIGHT: Yes. Thank you.

And, Mr. Chairman, with that I yield.

CHAIRMAN HANSON: Thank you, Commissioner Wright.

And with that, I want to thank all the staff for their presentations, for the very informative -- I thank my colleagues for their questions.

Let's take a -- I don't know -- seven-minute break. We'll reconvene at 10:20.

And thank you all very much.

(Whereupon, the foregoing matter went off the record for a brief break, and then, went back on the record.)

CHAIRMAN HANSON: All right. Thank you, everyone.

We're back.

We'll now recommence with the second panel on the new reactor business line. Once again, the discussion will be kicked off by our Deputy Executive Director for Reactor Preparedness Programs, Dan Dorman.

Dan, the floor is yours.

MR. DORMAN: Thank you, Chairman.

Chairman Hanson and Commissioners, during this panel, the
staff is pleased to provide you with a strategic overview of the new reactors business line. This work includes licensing of new light water reactors and oversight of the construction of Vogtle Units 3 and 4, as well as preparations for advanced reactor applications. In this latter area, you will hear about the staff's work to establish a new technology-inclusive regulatory framework for non-light water reactor applications, while also working assiduously with diverse technology developers in pre-application discussions for licensing of advanced reactors.

These activities of enterprise-level importance are key focus areas, especially in light of significant industry interest in employing new and advanced reactor technologies to address carbon-reduction goals while meeting projected energy demand, as you heard during your briefing on advanced reactor preparedness this past April.

As you will hear from our panelists today, early coordination, dialog, and pre-planning are key to facilitating more effective, predictable licensing review processes for new and advanced technologies. This includes engagements across the federal government, industry, and with international organizations.

Next slide, please.

Now I'd like to introduce the panelists who will provide additional details on staff activities in this business line.

First, you will hear again from our NRR Director, Andrea Veil, who will provide a high-level overview of the new reactor business line strategic priorities and successes.

Then, you will hear from Nicole Coovert, a Branch Chief in the Division of Construction Oversight in Region 2, regarding the transition of Vogtle Unit 3 from construction to operations and preparing for a potential.
10 CFR 52.103(g) finding. That is a potential finding that all inspections, tests, analyses, and acceptance criteria, or ITAAC, are met.

Following Nicole, Mo Shams, NRR's Director of the Division of Advanced Reactors and Non-Power Production and Utilization Facilities, will provide an update on the staff's activities to strengthen the agency's preparedness for licensing advanced reactor technologies, including the development of the 10 CFR Part 53 rulemaking to provide a modern, risk-informed, and technology-inclusive regulatory option for advanced reactor licensing.

Finally, Steven Vitto, a Security Specialist in the Division of Physical and Cyber Security Policy in the Office of Nuclear Security and Incident Response, will discuss security considerations for advanced reactors.

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

MS. VEIL: Thank you again for the introduction, Dan.

We recognize the national significance of construction of the two new AP1000 units at the Vogtle site. As such, we're very focused on ensuring that we continue to provide strong oversight of construction of those new units, and we remain well positioned and prepared to execute our licensing and oversight role, as those units transition from construction to operation.

We're also keenly focused on developing our Advanced Reactor Program. We're advancing risk-informed, performance-based, and consequence-oriented approaches in the timely and transparent resolution of key policy issues through the execution of our advanced reactor implementation action plans.
We continue to make significant progress on Part 53 and advanced reactor guidance, as we develop a risk-informed, performance-based regulatory framework. We're nearing completion of preliminary proposed rule language for the entire scope of Part 53, and have continued extensive engagements with a diverse set of external stakeholders and the ACRS.

As we continue to prepare for advanced reactor applications, we're also actively engaging stakeholders to develop guidance to support near-term applicants, and we are poised to review expected near-term advanced reactor applications.

The Oklo-Aurora combined license application is under review, and last night we received the Kairos-Hermes test reactor construction permit application. The staff is well prepared for this review, due to our strong pre-application engagement with (audio interference) Topical Report.

We continue to encourage pre-application engagement and have engaged with several prospective applicants, such as X-energy, TerraPower, Westinghouse, Terrestrial Energy (audio interference), and others (audio interference).

I will now touch on key (audio interference) for this business line. I want to, first, highlight our collaborating with the Canadian Nuclear Safety Commission, or CNSC, who recently (audio interference) documenting two collaborative reviews.

The first report documents the results of collaborative activity concerning X-energy's Reactor Pressure Vessel Construction Code Assessment, and the second documents the results of a broad overview of NRC and CNSC regulatory framework, and provides a specific comparison of the licensing modernization project endorsed by the NRC with the CNSC approach.
We remain on track for two additional joint reviews. In support of this partnership, we're strategically planning for our next project and working to continuously improve the efficiency and benefits of our cooperation.

The pre-application engagement I mentioned previously includes supporting key national priorities, such as the Department of Energy's Advanced Reactor Demonstration Program, or ARDP. Staff remains very active on pre-application engagement activities with the DOE ARDP awardees, X-energy and TerraPower.

This staff has been reviewing white papers and Topical Reports on schedule to prepare for these future applications, while implementing a safety-focused approach.

We're also preparing construction permit guidance for light water applications, in anticipation of submissions within the next few years.

The staff developed Interim Staff Guidance to supplement the guidance in our Standard Review Plan, and recently, a Federal Register notice to solicit public comment.

Public comments on the NuScale proposed rule are now being accepted through The Federal Register until October 14th.

This fiscal year, the staff also completed the review of three Topical Reports associated with small modular reactor designs, with additional Topical Reports now under review.

Lastly, central to our execution of these strategic priorities is ensuring that our workforce is prepared to license and regulate new and advanced reactors. We're building a strong, diverse team through knowledge management activities, training, recruitment, and retention, and we are leveraging and sharing data to make informed decisions and have transparency and enable program scalability.
Next slide, please.

This concludes my remarks, and I'll turn the presentation over to Nicole Coover.

MS. COOVERT: Thank you, Andrea.

Good morning, Chairman and Commissioners.

Next slide, please.

The NRC is well positioned and prepared to conduct inspections and address emergent licensing issues, as Unit 3 construction comes to completion. We have done a significant amount of work in advance to understand and plan for inspections, testing, analysis, and acceptance criteria, or ITAAC, inspections, licensing actions, and ITAAC Closure Notices, or ICNs, so that we are prepared for the Unit 3 103(g) finding.

We have trained and developed the right number of licensing and inspection staff, including bench strength to handle the current and upcoming workload.

We put in place a pre-prepared Commission package that documents the basis for the 103(g) finding which allows us to efficiently update the final licensing and inspection documents, as ITAACs are completed and verified in our inspection program.

And we have the flexibility in our program guidance that enables us to focus on ITAAC inspections, as we approach the 103(g) finding.

An important component of our preparedness is the Vogtle Readiness Group, or VRG. This partnership between NRC offices, including the involvement of key managers, plays an important role in proactively identifying potential inspection or licensing challenges and expediting and streamlining of issue resolution.

Recent examples of cross-organizational cooperation through
the VRG and teamwork between regional, residents, and headquarters staff included our evaluation of complex cable separation and ASME welding issues. The diverse experience and leadership of the VRG was instrumental in addressing these emerging NRC inspection and licensing issues associated with potential construction code compliance and ITAAC requirements. In both examples, the VRG worked with staff to accurately identify a specific challenge and ensure the right agency resources were involved to facilitate a timely regulatory decision.

Also, to ensure regulatory engagement at all levels, and to facilitate a constant dialog with the licensee and agency partners, NRC executives and the VRG have resumed meeting onsite with SNC once a month and meets internally during standing meetings throughout each month.

Next slide, please.

The staff has the expertise and capacity to complete ITAAC and operational program inspections. We are proactively managing our capacity to ensure we remain agile, as the construction schedule changes and as the licensee works through different challenges.

To support the 103(g) finding, as of this month, we have verified approximately 53 percent of ICNs for Unit 3 and 28 percent for Unit 4.

As much as possible, inspectors are completing ITAAC inspections before the ICN submittals, and approximately 90 percent of the planned ITAAC inspection hours have been completed for Unit 3 and about 73 percent for Unit 4.

During the COVID-19 pandemic, our inspection program kept track with the licensee's construction activities and, at the same time, prioritized inspector safety by focusing on completing mission-critical inspections; conducting inspections remotely, when possible, and reserving the onsite
inspection for those critical and must-see activities.

For example, inspectors were onsite directly observing first-of-a-kind AP1000 testing and significant testing activities that are typically only performed once during the life of the plant. This included the reactor vessel and reactor coolant system hydrostatic tests, the containment structural integrity test, and high functional testing.

Inspectors were also onsite to observe installation of FACI-related (phonetic) items that would become inaccessible, once construction was complete or the plant was operating. One inspection example is rebar installation and concrete placement for Seismic Class 1 structures.

As the licensee continues construction and to work through challenges, it's important that our program has the capacity and agility to address activities that are presenting complicated issues and will need the right inspection and licensing expertise to address.

One example is our oversight of hot functional testing, where we drew on resources from across the entire region to provide 24/7 coverage for 4 months.

Another example is the electrical, structural, and quality assurance expertise from different program offices who worked together on special inspection to understand the circumstances that went to the licensee's cable separation non-conformances.

NRC inspectors have worked diligently this past year to implement the construction reactor oversight process, or cROP. And before I leave this slide, I'd like to take a moment to point some of them out.

Moving left to right, Jason Eargle, Tom Morrissey, and Theo Fanelli were part of the team of inspectors that provided round-the-clock coverage for the hot functional testing.
The next picture shows Jason Eargle witnessing the first onsite fuel receipt for Unit 3, and Raju Patel inspecting the Unit 3 reactor vessel internals to verify equipment runability after the completion of hot functional testing. The picture on the far right shows Marcus Riley and Robert Mathis inspecting electrical cable raceways.

Next slide, please.

The staff continues to work to ensure a successful transition from cROP to the reactor oversight process, or ROP, after the 103(g) finding. To do that, we have developed guidance and conducted tabletops to address open issues and allegations that may impact the finding on transition.

This slide highlights some key attributes to the successful transition from the construction to the operational oversight process. For example, the Vogtle Units 3 and 4 Resident Inspector Office was intentionally staffed with a diverse set of skills and levels of experience to cover the range of construction inspections that need to be completed and to ensure continuity as Units 3 and 4 become operational.

This slide also displays a sample of the Vogtle Units 3 and 4 dashboard, one of the integrated information tool technologies the staff uses to track inspection and licensing activity completion, which supports key milestones up to and including the 103(g) finding and the transition to operations.

The transition memo addresses how open issues will be dispositioned during this time. For example, all green findings that were identified in the cROP will be closed before the 103(g) finding is issued and will not carry over to the ROP. However, if a Greater than Green finding is open at the time of the 103(g) finding, and it is associated with cornerstones that are more reliant on a Probabilistic Risk Assessment, the Greater than Green finding
will remain open and be assigned to the ROP cornerstones most closely related to the finding, but will not impact the ROP Action Matrix column.

We are also preparing for a potential increase in allegations as we approach the transition operations. There has been an increase in the number of allegations received for this construction site, which is twice the number in calendar year 2020 as in 2019. Based upon lessons learned from Watts Bar Plant construction and other large construction projects, the staff expects that this trend will continue, as the Unit 3 103(g) finding approaches. To address this challenge, the staff has developed guidance for expedited the intake and processing of ITAAC-related allegations in the time near the 103(g) finding.

We also provided training and hosted tabletop exercises on the late-filed allegation process. This expedited process does not compromise the integrity or the level of review at which the staff processes allegations.

Next slide, please.

The staff has embarked on a holistic lessons learned initiative to capture a Part 52 licensing and oversight experience to inform future programs, including construction of small modular reactors and advanced reactor technologies. We are leveraging Nuclepedia to collect and source staff insights, best practices, and lessons learned from this project. The effort will be led by the Vogtle Readiness Group with support from multiple organizations across the agency, like Region 2, BPO, DRO, NSIR, OGC, OPA, as well as participation from DNU and DNRL.

Additionally, we are gathering feedback from industry stakeholders and the public for this initiative. To formalize this effort, we have created a charter which was signed and made public on July 12th, and we’ve already begun populating Nuclepedia and have hosted a public meeting to
introduce the effort.

Next slide, please.

This concludes my remarks, and I'll turn the presentation over to Mo Shams.

Thank you.

MR. SHAMS: Thanks, Nicole.

Good morning, Chairman and Commissioners.

It is my pleasure to be here today to share with you the staff's activity to strengthen the agency's preparedness for licensing advanced reactor technology. In my remarks, I will highlight our efforts to build the Advanced Reactor Program; transform our regulatory framework into a modern, risk-informed approach; conduct safety-focused licensing and pre-application reviews, and strengthen our readiness through partnerships.

Next slide, please.

2021 has been a defining year for the Advanced Reactor Program and becoming a modern, risk-informed regulator. We view this vision as an enabler to safely and securely regulate these new technologies while addressing the unique challenges of the diverse and dynamically evolving landscape.

To realize the vision, the staff has been implementing a number of strategies to build an agile and sustainable Advanced Reactor Program. I will highlight some key activities for the five strategies shown on the slide.

Since late 2016, the staff continues to make substantial progress in executing its vision and strategy for advanced reactor readiness while achieving the activities outlined and implementation action plans in an agile and proactive way.
We are enhancing analytical tools and capabilities, endorsing new standards for advanced reactors, resolving key policy and technical issues, and progressing in completing a variety of rulemaking activities. Still, work remains to ensure we can efficiently review the variety of technologies on the horizon.

That said, the staff is currently well positioned to review advanced reactor applications. Advanced reactor activities are carried out by an extraordinary group of staff from around the agency. Their energy and dedication are key to the agency's success.

As the workload expands, the team is growing to effectively address critical challenges spanning a wide range of issues. We are recruiting and hiring a diverse team to build a strong workforce ready for current challenges and future scenarios.

We are also leveraging the Nuclear Regulatory Apprenticeship Network to recruit and hire a new generation of nuclear safety leaders. In addition, we are also investing to ensure that our current workforce has the skills needed to execute our mission through training and developmental opportunities.

To ensure we have the right workforce at the right time, we are using the Strategic Workforce Planning and Signpost and Markers Initiatives to better identify skill gaps and workload trends. We ensure that our growth targets are well correlated with signposts and markers. A strategic look at the next several years has enabled us to effect change now to ensure we are prepared with a stable workforce in years to come.

In addition to growing our workforce, we have created numerous tools and engagement opportunities to support internal and external communication, improve transparency, and enhance planning and execution of
Over the past year, the staff transformed the division SharePoint site into a hub for advanced reactor information. The site contains various tools to expand accessibility to data, retain knowledge, and increase our ability to make data-driven decisions.

Likewise, we are passionate about our communication with the public. In late 2020, we unveiled our redesigned advanced reactor web page, and we have continued to make enhancements since then. The web page offers a more modern look for members of the public, provides a streamlined experience, and makes it easier to obtain information about our activities and engagement.

Next slide, please.

In addition to building a vibrant program, the NRC is transforming the regulatory framework for advanced reactors into a modern, risk-informed and technology-inclusive approach.

Central to our effort is the development of Part 53. And incredible group of staff from around the agency has been working diligently to develop Part 53, consistent with the Commission direction and in a way that is creative, open, and responsive to our stakeholders' input. At this point, the staff is nearing completion of the first draft of preliminary rule language for the entire (audio interference).

Over the past year, more than 30 external engagements, as well as briefings to the ACRS on the rule and associated guidance, have engendered a rich dialog and have led to a wide range of comments expressing diverse and sometimes competing views. Such extensive engagement prior to issuing a proposed rule is a precedent-setting process and has been an incredibly valuable process in obtaining and assessing stakeholder views.
To date, we have received more than 140 individual public comments, and over the past several months, staff has worked tirelessly to address the feedback and has released revised rule language embracing new ideas and reflecting stakeholder comments.

One such example of the staff receiving feedback and adjusting our approach is the development of a more deterministic licensing option to complement the Probabilistic Risk Assessment-led approach originally outlined in the (audio interference). As we evolved Part 53, the staff has committed to a framework that achieves the goals of the Commission Advanced Reactor Policy Statement and the NRC's principles of good regulation.

In addition to Part 53 work, the staff has taken strides on other important rulemaking addressing environmental reviews, security, and emergency preparedness for advanced reactors. These rulemakings are vital elements of the modernization effort and our stakeholders are highly interested and engaged in their development.

Lastly, the staff is also actively making progress in developing flexible, risk-informed guidance to both enable efficient reviews of near-term applications and support the ongoing rulemaking. Since last time we briefed you in April, we have issued eight additional guidance documents and released draft language for others to continue to facilitate our deliberate public dialog with stakeholders to develop key guidance documents.

Next slide, please.

While tireless staff efforts continue on modernizing the regulatory framework, we are also actively moving forward in ongoing licensing reviews and pre-application engagements with prospective applicants. For licensing reviews, the staff continues its engagement with Oklo on Aurora combined license application to obtain information needed to address key
issues and advance the review.

In addition, we received the Kairos-Hermes first reactor and construction permit application yesterday, as Andrea indicated, and we will begin the acceptance review and communicate the results shortly.

In pre-application interactions, we are now actively engaged with 12 entities in various stages of pre-application activity, particularly the Department of Energy's Advanced Reactor Demonstration Program awardees, including X-energy, TerraPower, as well as several others.

In addition, we are interacting with other entities on potential applications in various degrees of design maturity. Over the past few years, these prospective applicants have submitted 24 Topical Reports and white papers for staff review, and the staff has completed safety-focused reviews for 15 submittals and we are on track to complete others.

To support these first-of-a-kind advanced reactor reviews, the staff is leveraging a core team concept. This approach empowers a small team of experts to focus the review on the greatest safety aspects of the design to enable timely, efficient, and effective reviews.

Indeed, the core team is supported by subject matter experts from around the agency, as needed, to ensure a comprehensive review of the submittal. Early insights indicate that the core team approach is paying dividends and enhancing our review efficiency.

Also, using and sharing data is another strategy we are leveraging to enhance our planning and execution of reviews. We have created several tools to communicate review status, aiming at strengthening accountability, and increasing the transparency of our review activities. To that end, we are committed to making the majority of this information available to the public on our external website.
The staff is also strengthening our readiness for advanced reactor licensing through research activities and international cooperation. In the research area, we've partnered with the Office of Nuclear Regulatory Research to ensure we have the necessary capabilities to support the ongoing and upcoming reviews.

A recent example of this partnership is the staff holding three widely attended public workshops to demonstrate the full plant source term calculations using our codes for three reference plant models. These workshops were well received by stakeholders and were also recorded and posted on the public website to support future readiness.

On the international front, the NRC continues to have mutually beneficial engagements with the international community to inform our regulatory framework development and to address the challenges of licensing the reactor designs of the future. As Andrea indicated, this summer we successfully issued our first joint products with the Canadian Nuclear Safety Commission under our Memorandum of Operation.

While actively partnering on other joint efforts, we are strategically planning for the next project and addressing lessons learned to gain more benefits more efficiently. Likewise, we are engaged in International Atomic Energy Agency and Nuclear Energy Agency efforts to bring new ideas and inform how we approach our regulatory activities.

In closing, the NRC staff is actively making progress on dozens of advanced reactor issues -- modernizing the way we work, incorporating extensive stakeholder feedback, and remaining flexible and agile to the evolving environment. I'm immensely proud of the contributions and commitments of our staff and very excited about the future of our Advanced
Reactor Program.

Next slide, please.

This concludes my slides. I will now turn the presentation over to Steve Vitto.

MR. VITTO: Great. Thank you, Mo.

Good morning. I'm here today to provide my insights on the security considerations for advanced reactors and how NSIR is prepared to establish a modern security infrastructure for advanced reactor licensing.

Next slide, please.

NSIR remains focused on safety and security of the operating fleet of power reactors while establishing a modern infrastructure for advanced reactors. The current security framework enables a graded approach to security through use of alternatives and exemptions. Advanced reactor facilities are expected to incorporate security into designs, and thus, may differ from the current operating fleet.

For example, there may be less reliance on human actions via the traditional security approach -- guns, gates, and guards -- and more reliance on advanced security technologies for protection of the facility.

In an effort to minimize exemptions and become more technology-inclusive, NSIR is developing a regulatory framework for advanced reactors that applies it further for (audio interference) graded approach for a comprehensive range of security areas.

Physical security regulations for power reactors are based upon the main concept of meeting the performance objective of protecting the facility against a Design Basis Threat, or DBT, or radiological sabotage. A DBT is not dependent on reactor technology. However, the consequences resulting from a DBT-initiated act are based upon the technology and how a site
implements to protect the strategy.

Next slide, please.

Because of a variety of potential reactor designs, radiological consequences provide the benchmark underlying a graded approach. Advanced reactor designers are expected to consider safety and security requirements together in the design process, such that security issues can be effectively resolved through facility design and engineered security features, formulation of mitigation measures, and reduced reliance on human actions. These reactors may have a reduced number of target setups, and additional security features may be incorporated into the initial design, and targets up to the essential equipment that may need to be protected to prevent radiological sabotage.

As a result, potential risk of radiological consequences posed by advanced reactors may differ from that posed by large light water reactors enough that physical security needs to protect advanced reactors may differ as well. For example, the design attributes of physical protecting systems protecting advanced reactors may rely on engineering systems and automation to justify less reliance on human actions, such as those provided by armed responders to defend against the DBT attempts to sabotage a plant.

Some advanced reactor designs could result in longer coping times and possibly allow for designs of a physical protection program with greater reliance on offsite security forces to provide response to threats, thereby reducing the need for a higher number of onsite security staff.

Among these design principles is safety and security programs should be mutually supportive. Each individual program has some reliance on other programs to ensure the overall performance objective is met. We are committed to our role in establishing modern
infrastructure for advanced reactor licensing via two key rulemakings. The alternate physical security rulemaking offers several security alternatives for the protection of advanced reactors. This proposed rule would allow eligible small modular reactors and non-light water power reactors to establish an alternate risk-informed performance-based approach to certain physical security requirements.

Applicants will perform an analysis to evaluate the radiological impacts of potential safety and security events. If a consequence-based criteria is met, flexibility to design the physical security program is provided to incorporate several possible alternatives to prescriptive security requirements in the areas of minimum number of armed responders, physical barriers, onsite second alarm stations, and associated vital areas.

Elements of this rulemaking are also being considered in the broader advanced reactor rulemaking under Part 53. Under Part 53, NSIR is developing a technology-inclusive security framework that applies a performance-based, greater approach for comprehensive range of security areas, including physical security, cyber security, fitness for duty, and access (audio interference) station.

The preliminary proposed rule language consists of the Advanced Reactor Policy Statement, incorporated security by design, (audio interference) performance requirements, and eliminates several prescriptive requirements that exist in the current security framework.

Next slide, please.

Consistent with previous speakers, NSIR is prepared to regulate the nuclear technology of the future. NSIR is advancing these priorities by cultivating a team of interdisciplinary experts and maintaining open engagement with stakeholders. Staff is focused on applying the right skill set
and resources to arrive at risk-informed and technically sound approaches. NSIR is leveraging talent and expertise from within and outside the agency to help with a risk-informed and performance-based regulatory infrastructure for licensing of advanced reactors.

As an example, NSIR entered into an interagency agreement with a National Lab to bring onboard staff members to focus on advanced reactors, provide insights on security modeling, and identify advanced reactor unique technology features that may need protection.

Next slide, please.

Early and frequent stakeholder engagement is critical to NSIR and its success in developing a risk-informed and performance-based approach to security. This can't be said enough. Stakeholder engagement provides staff with greater understanding of public views, industry considerations, and other inputs to help guide the development of NUREG approaches.

NSIR is engaged in seeking feedback from a wide range of stakeholders with diverse views, and the staff is seeking input from as broad (audio interference) as possible. For example, staff routinely interfaces with our government partners, such as the Department of Homeland Security and the Department of Energy to share operating experience and best practices on cyber-security-related areas, to include supply chain risk management.

NSIR's staff continues to engage with international partners through participation in bilateral and consultant team meetings to benchmark approaches and share best practices being used for advanced reactor security worldwide. Staff has participated in multiple IAEA consultant team meetings this year, including discussions on security by design, cyber security for small modular reactors, and on lessons learned for implementation of cyber regulations and oversight.
Next slide, please.

We are delivering success in our work in supporting national priorities. Staff is focused on new technology and trends in emergent threat vectors to ensure our regulatory infrastructure provides clarity, stability, and protection in a dynamic environment. Staff assesses the threat environment and conducts liaison with other intelligence and law enforcement organizations to stay abreast of ever-evolving threats.

Additionally, cyber security continues to be focus for the agency both for existing licensees and future ones, due to the need to provide critical additional assets to maintain functions that are needed for safety, security, and emergency deterrence.

Next slide, please.

So, that completes my discussion of the security considerations for advanced reactors. Thank you for your time. And I would now pass the presentation back over to Dan Dorman for concluding remarks. Thank you.

MR. DORMAN: Thank you, Steve.

Commissioners, have you've heard, the staff in the new reactor business line, they're taking the necessary steps to better regulate the nuclear technologies of today and of the future.

We're also working with our domestic and international partners to ensure our independence is not isolated. It's consistent with the Commission's first principle of good regulation.

And early engagement and information exchange supports staff knowledge that enables timely development of regulatory infrastructure.

In closing, I would like to thank all the panelists today, the staff who supported our preparations for this Commission meeting, as well as
all the staff in both the operating and new reactor business lines who are
working tirelessly in an ever-evolving environment to ensure the safety and
security of operating and new reactors.

Thank you again, Chairman Hanson and Commissioners, for
the opportunity to present today, and we now welcome your questions.

CHAIRMAN HANSON: Thanks, Dan, and thanks to all the
presenters this morning. I just continue to be impressed with the breadth of
activities that are going on in the new reactors business line.

Thanks, also, for kind of highlighting international cooperation
on the reactor front. I think in my interactions last week in Vienna, talking to my
regulatory counterparts, it was really kind of revolved around two themes. One
was aging reactors and how we might learn from each other about how our
respective fleets are aging and what they're finding that's most risk significant in
their own fleets.

And then, the other one was really around kind of advanced
reactors. And the theme I think there was there are so many designs out there,
it's tough for any one regulator to kind of capture them all. And so, how do we
each maintain our independence, but also learn from each other? I think we
saw the benefits of some international cooperation around the AP1000, and I
think we're seeing that in some other areas, too.

So, with that, Mo, I want to start with you this morning. I've
been following the advanced reactor readiness efforts closely and the progress
your team is making with readiness activities while engaging near-term and
prospective applicants really is commendable.

I want to get your thoughts on the licensing approaches for
prototypes. Do you think there's sufficient regulatory clarity for Part 50
applicants if they elect to pursue the prototype licensing path? And could
additional guidance be useful to clarify staff expectations early in the process; for example, during the construction permit phase?

MR. SHAMS: Chairman Hanson, thank you for the question. Yes. My direct answer to the question, yes, we do have guidance in place to support applicants for Part 50 construction permits application. I would share with you, sir, that, in 2017, the staff issued a Regulatory Review Roadmap, and in that roadmap we had an appendix dedicated to testing requirements and experiments associated with the new technologies. And in there, there's a fairly detailed discussion about prototypes and what type of an engagement is needed between the vendors and the staff to address these requirements.

With that in mind, it is crucial for a vendor that foresees a need for a prototype or extensive kinds of testing to engage with the staff early on in pre-application, to be able to have the appropriate level of discussion about the needed testings and the appropriate level of information to enable the staff to be able to reach a reasonable assurance of adequate protection finding.

In addition to that, we are also developing now for the advanced reactors a content of application guidance which will also have additional information on prototypes, summarizing what we've already indicated, but also even adding and enhancing, if there's more information that can be of value.

CHAIRMAN HANSON: Thanks for that.

I think I'll stick with the Part 50 theme here just for a hot second. With a lot of applicants, even outside of the prototype approach, planning to use the Part 50 process, can you provide a quick update on the Part 50/52 rulemaking?

MR. SHAMS: Sure. Yes. Thank you again, Chairman.
So, the Part 50/52 rulemaking is on track. It's on schedule.

It's scheduled to come to the Commission for May 2022. We've received the comments from the public on the regulatory basis, and the staff has been addressing those. We've received some late-filed comments. We're also considering those as well; have not addressed them yet. We're meeting on those to determine the staff's responses to them.

The package will come to the Commission, as I indicated, in May. We'll have a SECY paper and a FRN and the regulatory analysis for the rulemakers. So, we're on track. We're integrating thoughts and ideas and feedback we've received, as well as those that come from interactions on other activities related to advanced reactors as well.

CHAIRMAN HANSON: Great. Thanks a lot, Mo.

Andrea or Mo, the non-light water reactors, of course, are getting a lot of attention through the ARDP and other programs. But can you talk a little bit about what we're doing to prepare for the forthcoming light water SMR applications? For example, how are we considering lessons learned from the NuScale design certification review for some of these other light water SMR designs?

MS. VEIL: Sure. I can start with a brief overview, and then, Mo, you can add more detail, if you would like.

We're reviewing several designs. As you said, there's a lot of activity going on in the new reactor business line. For example, there's the upgraded version of the NuScale design, the 77-megawatt electric that we're reviewing. We have the BWRX-300, which is the 300-megawatt electric that we're looking at, and then, also, the Holtec design.

So, we recently kind of embarked on three significant activities that are going to improve the properties associated. As you
mentioned, there's a 50/52 rulemaking effort. There's also a lessons learned
effort of the NuScale DCA review. And then, there's an Interim Staff Guidance
to update the guidance for construction permits.

So, Mo, if you have any more detail you wanted to provide, I'll
turn it over to you.

MR. SHAMS: Thanks, Andrea. You covered it well.

I think we are well engaged with these vendors, and as
Andrea indicated, we're looking at the guidance for construction permits. We
have an Interim Staff Guidance that's already out. We are going to be looking
for feedback from stakeholders on that and integrate what we receive in
finalizing that guidance.

CHAIRMAN HANSON: Okay. Great. Thank you.

Steve, a quick question for you. On the regulatory
infrastructure efforts for physical security, and so forth, for new reactors, what
are some of the more challenging issues that NSIR has worked through, or is
working through, on the alternative physical security rule and associated
guidance documents?

MR. VITTO: Great. Yes, thanks for that question.

So, the alternative physical security rule incorporates the use
of dose-based performance requirements, which is an evolution from the
current framework that uses significant core damage as a consequence against
which the nuclear power plants should protect. So, while the concept itself has
been relatively easy to establish, the methods to analyze the security events
against a dose-based framework have proven challenging.

Developing concepts and processes to identify the structures,
the equipment, and the actions needed to protect an advanced reactor have
presented complexities. So, staff is making progress in the area and continues
to have frequent stakeholder engagement to share concepts associated with
the framework and receive feedback to inform refinement of the rule and
guidance.

At its most recent public meeting, which occurred yesterday,
staff discussed the eligibility criteria and consequences analysis, and received
feedback from stakeholders that indicated that the use of the three eligibility
criteria may have resulted in added complexity and does not provide substantial
benefits. So, using the feedback, staff is currently looking into the best path
forward regarding the criteria.

So, those are some of the challenges. Thank you for the
question.

CHAIRMAN HANSON: Yes, thank you for that. I look
forward to seeing how that develops.

I'm a little unclear on how much time I have left. So, I think
what I'll do here is just -- I didn't want to end my time without recognizing Nicole
and the really remarkable work that's been going on down at Vogtle, led by
Laura out of Region 2, Marissa, and Nicole. And the whole team down there
has really done an outstanding job of overseeing a gigantic, to say the least,
and complex construction project.

I know my colleagues have been down there in your cases
many times over the years to see progress and to engage with the team. I think
that just highlights the importance that the Commission and the rest of the
agency places on the work down there. And I wanted to highlight that and
commend you all.

With that, I'll hand it over to Commissioner Baran.

COMMISSIONER BARAN: Great. Thanks. And that was
really just where I was going to begin.
Nicole, thanks for the update on NRC’s oversight of the Vogtle construction project. When I toured the site earlier this year, I saw firsthand how focused our inspectors are on doing a thoughtful or thorough job of completing all the necessary inspections.

NRC recently conducted a special inspection to assess the issues with electrical cable separation non-conformances. That report documented a preliminary White finding for corrective actions and a preliminary Greater than Green finding associated with the failure to follow procedures. What’s the status of licensee efforts to correct those deficiencies and make sure corrective actions are in place to prevent similar issues?

MS. COOVERT: Thank you, Commissioner, for the question, and thank you, Chairman, for the comments. We really appreciate your comments on that.

For the special inspection, yes, we did identify two apparent violations. The licensee is currently in progress to completing repair work associated with those items. As part of the NRC inspection, we not only looked at the programmatic aspects of it regarding the quality control and corrective action program programmatic breakdowns associated that led to the non-conformances, but we’re also in the process of evaluating and inspecting the individual non-compliances.

So, as we do our room-by-room ITAAC walkdowns, we are verifying that the cable separation is meeting not only the code compliance, but also ITAAC requirements. And all of those items and our results are made publicly available as part of the inspection report and on the NRC public website.

Additionally, the apparent violations, as part of the construction reactor oversight process, the licensee has 40 days from the time
that the inspection report is issued to provide a response on the docket or in a conference. The licensee is providing documentation which is expected to be submitted approximately October 5th. At that point, we will review their documentation to make a final significance determination, which part of our process is a 90-day process. So, we anticipate completing it approximately around the end of November.

COMMISSIONER BARAN: Okay. And how confident is the staff that the main causes for these non-conformances have been identified?

MS. COOVERT: Thank you for the question again. And, yes, we, as part of not our special inspection, but our continuing inspection, we review the licensee's extent of condition and their methodology regarding that. So, we understand how they are identifying and continuing to identify and resolve issues. As they complete their repair work and the corrective actions, we are performing those inspections. And to date, we have not identified any challenges with our ability to complete inspections, based upon what they've identified, but we will continue to monitor. And again, the results will be publicly available in our inspection report.

COMMISSIONER BARAN: Great. Thanks.

And are there any other unresolved technical issues that the Region 2 staff has on their radar for Vogtle Unit 3?

MS. COOVERT: So, for Unit 3, the licensee is currently remediating several non-conformances, which includes cable separation, as we've discussed; also, the Unit 3 spent fuel pool leakage, and measuring and test equipment program, or MTE, as they reported to us in the notification that also included the cable separation reportability.

And in all of those cases, we monitored their repair work and their analysis products to understand the causes that led to those issues. We
are inspecting both the causal analysis and the repair work activity to, again, make sure that they comply with code and/or ITAAC requirements. And to date, there's no additional issues that we've discovered or that we're tracking that is of what would be considered significance.

COMMISSIONER BARAN: Thanks. That's very helpful.

Let me ask about the transition from construction to operation at Vogtle and our long-term oversight of the plant. If both units ultimately become operational, what's the staff's latest thinking about the structure of NRC's resident office for what would be, then, a 4-unit site? Would there be separate resident offices for the original units and the AP1000s, or a larger combined resident office with additional inspectors? Or are we looking at a longer transition period, as we learn how to inspect the new reactors?

MS. COOVERT: Thank you.

So, currently, we have two separate resident inspector offices. We have the Unit 1 and 2, which have two Resident Inspectors, and we have the Unit 3 and 4, which have four Construction Resident Inspectors.

And so, as the Unit 3 and Unit 4 transition from construction to startup, to commercial ops, there is a gradual decrease recommended for the resident staff as a whole with a recommendation that, after the Unit 4 steady-state operation, which would be the first outage, refueling outage, that the resident offices would combine to 1 through 4 unit structure in one resident office, which is currently the Unit 3 and 4 construction resident office. The total number of recommended Resident Inspectors is three, and then, based upon the inspection hours for both the AP1000 and for Vogtle 1 and 2.

The key aspect of that recommendation is that we have a recommendation that we do analysis to ensure that the key assumptions that we had for the recommendation are still valid. After Unit 3 becomes
commercial operations, we'll be able to validate some of those key assumptions, based upon operating AP1000 inspection hours.

COMMISSIONER BARAN: Okay. Thanks. I'll be interested in following that, as that kind of understanding evolves. I mean, my -- just in a simplistic way -- thinking, you know, adding two new units of a new technology, is one additional Resident enough? I don't know. That's, I guess, what you all are looking at and will kind of determine with some experience over time.

I want to turn, briefly, to the Part 53 advanced reactor rulemaking. We're going to have a dedicated Commission meeting on this topic later in the fall, but I want to ask a couple of high-level questions today.

As I read the transcript of the public meetings, I've seen some stakeholders argue that the test for whether any requirement should be included in the rule is whether it's absolutely essential to provide reasonable assurance of adequate protection of public health and safety. As I think more and more about that, I think that's really the wrong test because it assumes that adequate protection is the ceiling for NRC's safety standards, when, in fact, adequate protection is the floor. It's the minimum.

NRC is charged with doing, under the Atomic Energy Act, not the maximum. And the agency has required many important safety measures over the years that went beyond adequate protection. And these include critical cost-beneficial, substantial safety enhancements that provide valuable defense in depth.

I think it's important that the essence of these kinds of key safety enhancements are carried into Part 53. Not every requirement is going to be retained in the exact same way in Part 53 because we're talking about different technologies, but the essence of the safety enhancements I think need to be retained, or we're going to end up with a Part 53 regulation that's less
Andrea, what do you think about this, and how is the staff approaching this overarching issue? My sense is, reading the transcript, that the staff is thinking along these lines. But can you talk a little bit about that kind of big-picture issue?

MS. VEIL: Yes, this is an important question because I think there's been a bit of confusion around the Commission Policy Statement. But the staff agrees that the essence of the safety enhancements need to carry over to Part 53, but I want to give a little more detail.

It's true that applicants need to achieve at least the same level of safety as the operating fleet. That's been a source of confusion. I've heard people say, oh, yes, the expectation is that new and advanced reactors have to be more safe. The staff has never said that. Consistent with the Commission Policy Statement, they have be as safe as the current fleet. But the difference is that, under the current framework, the current regulatory structure, if there are beyond design basis events, they are looked at as they appear, right? Kind of after the fact, those vulnerabilities are addressed.

But in the Part 53 proposed framework, it requires applicants to address those vulnerabilities as part of the actual licensing basis and in the design, in the initial licensing, and then, applies applicable requirements. But the distinction is that those requirements would be applied in a risk-informed, technology-inclusive, performance-based manner.

So, yes, we agree, but there is a framework as to why there are differences. And again, I want to say very clearly that, consistent with the Commission Policy Statement on the advanced reactor policy, we are absolutely clear that the plants have to be at least as safe as the current fleet. We are not saying, and will not say, that they have to be more safe than the
Another big-picture question is how potential fusion technology should be addressed, whether Part 53 should attempt to cover fusion, or it should be addressed in a separate rulemaking effort. What's the staff's current thinking on that question?

MS. VEIL: Sure, I can start, and then, Mo, if you have any other details, you can provide it.

But we're being very consistent with the SRS. So, we're considering the appropriate treatment of fusion. We're going to assess any potential risk, and we've already had multiple engagements with stakeholders in public meetings.

So, we're going to look at any potential risk and we're going to do that in parallel with the development of a Part 53 rulemaking. So, there would be a separate options paper for the Commission to consider how to address fusion. We're not saying that that's going to be on the same schedule as the Part 53 rulemaking. That would likely extend beyond the current schedule, the actual rulemaking for fusion, but we would expect to complete that before 2027.

So, that will allow additional time for assessing fusion technology because it is new. We can better incorporate it into the framework, but it's very important to state that nothing in Part 53 is meant to preclude fusion, but we are going to give an options paper to the Commission to look at these specifically. And that is a parallel effort with the Part 53 rulemaking effort.

COMMISSIONER BARAN: Okay. Great. Thanks.

I'm a little over my time, but I just want to briefly echo something that Mo said earlier, which is the folks who are working on this
rulemaking, they're just doing a terrific job. I mean, I read these transcripts; I'm so impressed with both their subject matter expertise, their knowledge, their professionalism, the way they're leading these meetings.

It's not easy to have every draft you ever work on immediately kind of out there for the world to comment on and give you reactions to. That's nothing we've ever done before. It's a very challenging way to do it. And I just think the staff is doing just a terrific job on that. So, please pass that along.

I think these are hard issues, and I think they're just really tackling them in a very professional way. So, thank you.

CHAIRMAN HANSON: Thanks, Commissioner Baran. I second your remarks about the effort of the staff on this area.

Commissioner Wright?

COMMISSIONER WRIGHT: Thank you, Mr. Chairman.

And before I get started through the questions, I want to echo what you were talking about with Mo and Nicole and them. You know, I went and visited in August, as part of my "hottest-month-of-the-year plant tour" in Georgia and Arkansas.

But I was; I was very impressed with our team and how we are interacting with the licensee and with the people onsite, and how we're engaging to try to resolve issues and try to help bring this across the finish line. So, hats off to them. It's in a very difficult atmosphere, too, what's going on in the pandemic.

Now I'm going to segue over, because you brought up Mo Shams just a second ago. I'm very proud of him. You know, he was part of my office. He was my reactor advisor. And so, he'll always be a part of Team Wright. So, I know that my team would want to say hello to him. He's a good man, a good dad, and very smart, very talented, as you know. And we've been
seen playing softball together at times as well.

So, Mo, hello. It's always good to see you.

MR. SHAMS: Hello. Oh, it's the same here.

COMMISSIONER WRIGHT: Part 53 is our opportunity to account for the inherent safety features of advanced reactors, which are much different, both in size and nature, than the current fleet.

For example, it appears that microreactors have limited risk to the public and the environment, when compared to large light water reactors. So, to go a little bit deeper in the conversation that they were having, what are we doing to reflect that in Part 53 and the broader advanced reactors regulatory framework?

MR. SHAMS: Commissioner, first of all, thank you. Thanks for the introduction. It's an honor to have been a part of your staff. And obviously, to play softball with you, that's another level of honor. So, thank you.

For Part 53, I want to start by saying that part of my presentation was that we, as a team, we're transforming the entire regulatory framework to really pave the way for advanced reactors. And in doing so, we're taking a risk-informed and a consequence-oriented approach for our activity, whether it's reviews or a requirement.

You'll see that in our requirements, security requirements. Steve walked through that, presented a detailed approach on that. You see it, also, in our EP requirements, the development of an approach that is consequence-oriented, such that requirements are appropriately sized to the level of risk presented by a technology.

Last year, we've issued a guidance document, ISG, in Interim Staff Guidance 29, on scaling appropriately as well the environmental review. So, all these pieces are being put together. Our guidance documents, I
mentioned a little earlier about our advanced reactor content of application. And that is also consistently approaching the amount of information provided to the staff in a risk-informed way that reflects the safety significance of the different designs.

For Part 53, it's the same thing. It is a performance-based approach, and the expectations about the information, the expectation about meeting the regulations, they are focused on and scaled appropriately to the level of risk provided by, or presented, I should say, by a technology. And the overarching system, the overarching approach, I should say, we're taking does recognize the consequences of a facility.

COMMISSIONER WRIGHT: Thank you.

I'm going to stay with you, but Dan and Andrea might want to chime in on this as well, this next question.

So, we have an important role to play in providing efficient and effective reviews of all these technologies. And we don't want to be an impediment to any technology. That would be inconsistent with our mission and our principles of good regulation. But we've got to have the right people, right? We've got to have the right people in place at the right time and have some continuity in the reviews.

And there's been some anecdotal concern about do we have the right people; do we have enough people? So, what is the staff doing now to ensure that we have a stable workforce in the years to come in this area?

MR. SHAMS: Thank you, Commissioner. That is a very important topic for us as well.

And I would start by saying, absolutely, we have the right people and, absolutely, we have the staff onboard to be able to conduct a review effectively, efficiently, and timely. We've been working on this for some
time. We're very passionate about our people. We mentioned that and many
of the speakers already today mentioned that, how passionate we are about our
people, and I'm in the same place.

One of the main things that I took on, when I took the position
about a year ago, is to build the program in a way that's sustainable, that's
scalable, and that starts and ends really with our people. So, we've been
recruiting; we've been hiring. I've added, roughly, 15-plus people this year from
around the agency. We've hired folks from Region 2, from Research, from
NSIR, from NMSS. We're making sure that we have a very diverse and well-
rounded program.

We're also looking to add additional folks next year from
NRAN to make sure that we have a pipeline coming in. We had three or four, I
believe, summer interns this year as well. And so, as far as the addition, we
are consistently adding and bringing in people to make sure that we have the
right folks.

We're also training. We're training our staff in the Division as
well as the broader group. As I indicated in what I mentioned, we're doing a
core team review, but that doesn't mean that we're isolated. The core team
review is strengthened by the broader group around the agency. So, we train
our staff as well, as go around and train others in NRR and around the agency.

Knowledge management for us is very important. On our
SharePoint site, we're putting these training venues and presentations, such
that others can benefit from them as well.

So, we're taking a holistic approach to build our program and
add the right people in there. And I should not leave this without saying that the
Strategic Workforce Planning for us, it's another very important tool. We look at
it. We make sure we have the right staff for now, for the future. We look at
potential retirements as well, and we plan for those accordingly.

COMMISSIONER WRIGHT: That's wonderful news, very reassuring. Thank you, Mo.

And I didn't know if Dan or Andrea wanted to add anything. I could give you an opportunity, if you wish.

MS. VEIL: Yes, I would just quickly add that we have what's called executive team significant topics. And so, a lot of those are dedicated to new and advanced reactors. So that everyone in the organization knows what we're doing. And when the time comes to review something, and we may need some subject matter expert help, or anything else, people know the design ahead of time, and we don't have a large learning curve to understand the design.

COMMISSIONER WRIGHT: All right. Thank you.

MR. DORMAN: And, Commissioner, I would just add on Strategic Workforce Planning that Mo mentioned, we look out 5 years on an environmental scale and identify what our critical skills are needed to be, and that guides us in all the recruitment efforts that Mo is talking about, to make sure that we have the right skills for the work that's before us. I just wanted to emphasize that.

COMMISSIONER WRIGHT: Yes, thank you. Because there has been concern about, okay, we've got all these different technologies. Is there anything that might stump us? So, it sounds like that you all are -- what Mo said really resonated -- so, it sounds like you're there, and that's really good to know.

So, I'm going to stay with you guys, Andrea and Dan probably, I guess, more than the others.

But, in addition to having stability in reviews, I know there's
considerable interest in the timeliness of the reviews. And one thing that I know plays a huge role in our timeliness, as was mentioned by Andrea earlier, is the quality and the completeness of the applications or Topical Reports that we receive.

So, I have a couple of questions. Are there any areas where we have been particularly challenged in getting the information that we need, and what are we doing to address this?

MR. DORMAN: So, I think I'll take a first stab at it, and then, turn it over to Andrea. But, Commissioner, thanks for the question.

The quality, you know, I can't put enough emphasis on the value of the pre-application discussions that we have with an applicant. They're developing their design. We're having conversations with them, getting to understand their design, understand what's important in their design, and communicate back to them what are the key issues that the staff is going to be looking for answers to, as we get to a reasonable assurance of adequate protection finding in the licensing action.

So, that enables the applicant to build that in upfront and, hopefully, help us to have less derailers, if you will, as we get into a planned review process, so that we can avoid disruptions and stay on schedule.

Andrea?

MS. VEIL: Yes, I would just add a finer point on that. Pre-application, we cannot stress enough, and we actually put out a white paper on the importance of pre-application engagement, and accept the pre-application engagement, right?

And so, as I mentioned in the presentation, we got the Kairos-Hermes application last night.

COMMISSIONER WRIGHT: Right.
MS. VEIL: So, that is a great example of the pre-application activity that we've done and the 11 Topical Reports that have already been submitted. So, I can't stress enough the importance of pre-application engagement.

COMMISSIONER WRIGHT: So, I guess, in your opinion, there's a good understanding between the staff and the applicant in what is necessary from the applicant for us to make a finding? And I guess, if not, if you think there's a disconnect somewhere, is there anything that's being done to kind of address it? Either one of you?

MS. VEIL: Well, I can, certainly, and you can add any fine points you want to make.

We have frequent engagements when we need information. It's not just we write a request for additional information. We have frequent engagement, and we absolutely outline what we need. We're not interested in bringing (audio interference); we're not interested in wasting resources. We are just as invested in non-(audio interference) reviews as an applicant.

So, in our interactions, we're very clear on what is that we need. In the event that there is some misunderstanding, then we engage in public meetings, what have you, to try to be clear, so we're not just iterating, because that is a big time waster.

COMMISSIONER WRIGHT: Right. Okay. Thank you.

MR. SHAMS: Thanks, Andrea.

If there is a moment, Commissioner Wright --

COMMISSIONER WRIGHT: Sure.

MR. SHAMS: -- I can add, too, as well that, yes, and the frequent engagement Andrea indicated with the stakeholders involved, the activities that we're working on, the topics that we're seeing, and we're also
taking priorities from them. We have frequent touch points with them: what
guidance is needed currently? We’re focused currently on the guidance for the
near-term applications as well, to make sure what information.

One of the things that Andrea pointed to was the paper on
pre-application. We’ve issued another paper, also, on regulatory applicability.
That was an issue for stakeholders that they wanted some additional clarity on
that, and we’ve issued it and provided an additional appendix on some potential
information that needed to be submitted to augment the application. So, we’re
working that angle as well.

COMMISSIONER WRIGHT: Thank you. Thank you so
much.

Mr. Chairman, I’m over time. So, back to you.

CHAIRMAN HANSON: Thank you, Commissioner Wright and
Commissioner Baran, really for your questions, and to the staff for your
presentations.

As we wrap up, I want to take a moment to recognize Margie
Doane, our Executive Director for Operations. As many of you know, her last
day at the NRC is fast approaching.

Thank you, Margie, for your phenomenal leadership during
this crucial and dynamic time at the agency, and for the industry, for that matter.
The NRC is very good at focusing on our safety and security mission.
However, sometimes we conflate the mission with the status quo and
resistance to change. But you inspired us to change, to modernize, and to
become more risk-informed, and to reassure us that the changes that we were
making were the right thing at this time for the agency. You encouraged us to
look for new pathways to innovation through your dedication to the mission and
your really very inclusive leadership. You were truly a role model for the
women and men of this agency, and I count myself lucky to have had the opportunity to work with you.

I knew when I came to the Commission, and certainly, when I became Chairman, that the next phase of your career was looming on the horizon. And I told you privately, and I will say publicly, that I was grateful for every day that you stayed on while I was here, certainly, since I moved to the 17th floor. I'm personally very grateful for your counsel and your leadership and your friendship.

So, best of luck to you in your new role as the Deputy Director General for Management at the IAEA. I can tell you, from having been over there last week, how excited that organization is to have you on the ground and to incorporate you into all of the fantastic activities that Director General Grossi has going on all over the world. What a great place, and how lucky are they to have you. I'm really completely thrilled for you and for the IAEA, and, of course, for your ability from your new perch to look out for both global and U.S. interests around the world.

So, congratulations and best wishes to you on your next endeavor. You will be sorely missed.

MS. DOANE: Thank you, Chairman.

I don't know if you were going to turn to your other Commissioners or --

COMMISSIONER BARAN: Well, Margie, I can't top that.

That was really beautifully said.

But I was just reflecting, as I was sitting here, that I think we first interacted when I was still on Capitol Hill, and you at that time were Director of the Office of International Programs. And then, while I've been here, you've been General Counsel and EDO.
And as I've said to you before, I just think this next step in your career, it's just so perfect for you. You're just going to be so great in that role, with the experience you've built up over really the decades at NRC and in the different roles you've had. I just think you're phenomenally prepared for that next step. Knowing you as I do, I think you're really going to love it.

So, congratulations and all the best.

COMMISSIONER WRIGHT: And I don't mind telling you I was surprised. I was caught off-guard by that. And I really can't add a whole lot to what -- I can add nothing to what the Chairman said -- that was beautifully done -- or Commissioner Baran as well.

But I met you when I was first, I guess, confirmed, and I remember meeting you right after I came through the parking garage and came up to the floor, and we had to figure out all the paperwork and the letter you had to sign, and all those things. And we couldn't get my computer to connect to a printer. So, it was a whole mess.

But you're wonderful. You're easy to work with. You're calm. You're a calming influence. You're thoughtful and you want to do the right thing. Integrity means a lot. Trust is a big thing with you.

And, man, I can't wait to come over and see you. I've got a friend in Austria. Hot dog.

(Laughter.)

And I do wish you the best of luck, and I look forward to seeing you again in your new role.

MS. DOANE: Well, thank you, Chairman and Commissioners Baran and Wright.

It's been a privilege to serve under you. Chairman Hanson, thank you for the nice words. I feel the exact same way.
It's been just, I think, an incredible time for the staff to work in this virtual environment in a pandemic. And they have just shown such resilience. It's been such a privilege and honor to serve with them. I'm so humbled to have been able to serve them in this way in the final position of EDO.

It's bittersweet for me to leave. I've been here for 30 years. I have raised my girls and my family has come along with me.

So, this has been a great place. It is a wonderful family. I know it will continue long after I'm gone.

And I just want to thank you and tell you what a privilege it has been to serve under the Commission and staff. So, thank you so much.

CHAIRMAN HANSON: Thank you, Margie, and all the best.

MS. DOANE: Thank you.

On that bittersweet moment --

(Applause.)

With that bittersweet moment, we are adjourned. Thank you all.

(Whereupon, the meeting was adjourned.)