

UNITED STATES
NUCLEAR REGULATORY COMMISSION

+ + + + +

MEETING ON STRATEGIC PROGRAMMATIC OVERVIEW OF THE
OPERATING REACTORS AND NEW REACTORS

BUSINESS LINES

+ + + + +

THURSDAY,
SEPTEMBER 30, 2021

+ + + + +

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

1 PROCEEDINGS

2 9:00 a.m.

3 CHAIRMAN HANSON: Good morning, everyone, and
4 welcome. I convene the Commission's public meeting on the NRC's Strategic
5 Programmatic Overview of the Operating Reactors and New Reactors Business
6 Lines.

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

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

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

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

18 (No response.)

19 No? Okay.

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

22 Dan, the floor is yours.

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

25 The staff is pleased to have the opportunity to provide a
26 strategic programmatic overview of the operating and new reactor business
27 lines this morning.

1 The staff members in these business lines continue to excel
2 in the current challenging environment and are doing incredible work that you
3 will hear about today. This includes making necessary adjustments to execute
4 our mission during the COVID-19 pandemic while overseeing the transition to
5 decommissioning for Duane Arnold and Indian Point; modernizing our
6 regulatory infrastructure for new technologies, and preparing for new and
7 advanced nuclear reactors.

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

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

20 Next slide, please.

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

25 After Andrea, Caty Nolan, a Reactor Systems Engineer in the
26 Division of Reactor Oversight in NRR, and currently, on rotation as an
27 Executive Technical Assistant in the Office of the Executive Director for

1 Operations -- Caty will be describing innovations that have enabled our
2 continuous improvements of the reactor oversight process, or ROP. In both
3 licensing and oversight, the operating reactor business line is a leader in
4 applying risk tools to ensure our focus on items of greatest safety and security
5 significance.

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

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

15 Next slide, please.

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

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

20 Next slide, please.

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

26 To ensure stakeholder engagement, we enhanced our use of
27 virtual collaboration tools to conduct public meetings and extended public

1 comment deadlines, as appropriate. On the left side of the slide, you can see
2 we provided over 50 such opportunities.

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

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

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

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

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

26 This follow-on effort will include engagement with external
27 stakeholders and explore the impacts of the increased flexibility utilized during

1 COVID-19 on the inspection program in order to identify potential
2 enhancements to the program. Any proposed enhancements will reflect the
3 value that the NRC places on having inspectors onsite to conduct inspections.

4 Next slide, please.

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

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

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

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

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

27 Next slide, please.

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

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

12 Next slide, please.

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

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

25 There are several examples demonstrating how licensees are
26 using FLEX to enhance safety. For example, FLEX equipment was recently
27 staged during a loss of offsite power event at Waterford Unit 3 due to Hurricane

1 Ida. Although the equipment was not needed, this proactive step increased the
2 defense in depth. Frank Arner will discuss an additional example of safety
3 enhancements related to FLEX in his presentation.

4 Next slide, please.

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

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

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

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

24 We continue to refine our infrastructure through our review
25 activities of industry-developed guidance. For example, we're also engaging in
26 pre-submittal interactions regarding draft industry guidance for new approaches
27 to address common-cause failures in high safety significant digital I&C systems.

1 For ATF, we're continuing to take steps to ensure that the
2 agency is prepared to support industry's goal of batch loads in the mid-2020s.
3 We're engaged with the Office of Research, both to identify those issues that
4 are important to safety and to ensure that the staff has the capability to analyze
5 performance of ATF concepts, high burnup, and increased enrichment fuels.

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

10 Next slide, please.

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

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

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

1 and Caroline Carusone.

2 Next slide, please.

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

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

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

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

24 Next slide, please.

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

26 CHAIRMAN HANSON: Caty, you might be on mute. Stand
27 by. You have to unmute yourself. There we go.

1 MS. NOLAN: Okay, sorry about that.

2 MR. DORMAN: Perfect.

3 MS. NOLAN: Thank you, Andrea.

4 Good morning, Chairman and Commissioners.

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

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

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

17 Next slide, please.

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

26 Automation of repetitive tasks such as regular reports in high
27 interest areas like SCRAMs and findings trends have provided staff time to

1 focus on more significant issues. This task alone has saved 250 hours per
2 year.

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

8 The NRC staff continues to take appropriate actions in
9 response to licensees' performance, including performing supplemental
10 inspections. We have confidence that the flexible, risk-informed baseline
11 inspection program, as executed by resident and regional inspectors, remains
12 an effective and robust program that provides appropriate levels of oversight to
13 assure that licensees are operating power reactors safely and securely, and the
14 adequate protection of public health and safety is maintained. Our focus for
15 2021 has, and will continue to be, to monitor inspection findings trends,
16 including potential impacts from the decline in findings.

17 Next slide, please.

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

25 An example of an insight is that the staff has analyzed this
26 decreasing findings trend for several possible data correlations. This trend is
27 still evident when looked on at a per-site or per-unit basis, and is still evident

1 when only looking at plants that are currently operating. The trend is not due to
2 the decreasing number of operating units and is not primarily due to the closure
3 of sites with a large number of findings. This trend is evident across all four
4 regions, pertains to all inspection procedures, and incorporates all ROP
5 cornerstones.

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

13 Next slide, please.

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

16 (Video played.)

17 MR. ARNER: Okay. Thank you, Caty.

18 Good morning, Chairman and Commissioners.

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

21 And that's slide 18, please.

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

27 The inspection process has been using, and continues to use

1 PRA, as well as considering operating experience for sample selection, with a
2 focus on identifying impacts to plant risk with an efficient use of our resources.

3 Additionally, PRA is critical in the proper evaluation of other
4 key oversight functions, such as notice of enforcement discretion and
5 evaluation of incidents and events as part of our reactive inspection program, to
6 ensure we take appropriate actions, such as potentially sending out a team,
7 using risk tools and making that determination. PRAs are also central to
8 enabling risk-informed initiatives.

9 Next slide, please.

10 For example, as Andrea mentioned, industry is implementing
11 10 CFR 50.69, "Alternate Treatment of Components," and other risk-informed
12 initiatives such as risk-informed technical specification completion times, or
13 RITSTF.

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

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

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

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

1 extended period of work.

2 Next slide, please.

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

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

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

27 Next slide, please.

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

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

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

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

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

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

27 For this reason, we apply sensitivities to our analysis to

1 account for FLEX reliability uncertainties, and in compensatory measures
2 established by licensees, they are evaluated and considered, when appropriate.

3 So, it's a balance. We recognize the significant safety enhancements FLEX
4 can afford, but also are diligent in ensuring robust evaluations to account for
5 FLEX equipment reliability uncertainties.

6 Next slide, please.

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

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

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

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

23 Next slide, please.

24 We've completed 1,076 licensing actions this fiscal year, a
25 very slight decline from last year, which may indicate licensees' shift in
26 schedules of lower priority licensing actions that would not impact plant
27 operations in response to the COVID-19 pandemic.

1 While we continue to process non-COVID-related licensing
2 work, COVID-19-related licensing actions made up about 20 percent of
3 completed licensing actions for this fiscal year.

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

9 Next slide, please.

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

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

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

24 As Andrea Veil mentioned, our regulatory response to
25 COVID-19 also involved a tremendous amount of public outreach to understand
26 the hardships faced by the industry and the concerns from members of the
27 public. This outreach was vital to the staff's development of a framework for

1 temporary regulatory flexibilities and the completion of 233 COVID-related
2 licensing actions this past fiscal year, on an average of 33 days each.

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

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

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

21 Lastly, the newly revamped Technical Assistance Request
22 Process, or TAR process, is an example of a change based on internal
23 feedback, specifically, from our regional offices. This process is used to offer
24 technical assistance to organizations within the NRC regarding operating
25 reactors and used to have timelines of over a year for resolution. Since
26 implementation in August of 2020, we have received two TARs from the
27 regions. One was completed in under 30 days and the other is currently under

1 staff review.

2 Building conduits for communication with internal and external
3 stakeholders is vital to our progress. It raises awareness of issues and
4 perspectives that we may not have fully considered and increases our
5 understanding of issues, which leads to better outcomes.

6 Next slide, please.

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

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

16 Next slide, please.

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

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

27 Identifying these best practices has helped to decrease our

1 average licensing action completion time over the last 4 years. While I
2 acknowledge that the 2021 numbers reflect a large number of COVID-19
3 licensing actions which drive down the average, all in all, we're still seeing
4 improvement in our overall timeline.

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

11 We're working towards a full-cycle workload forecasting and
12 level-of-effort estimation capability with the Office of Chief Information Officer
13 and the Office of Research to help staff and industry plan licensing work better.

14 All of these efforts are crucial for the staff's continued growth in data literacy,
15 which is increasingly important, as we regulate an evolving industry in a fast-
16 changing and data-hungry environment.

17 Next slide, please.

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

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

26 Second, we're continuing to look for ways to leverage the
27 incredible depth of knowledge and diversity we have here at the agency. We

1 seek opportunities to build connective tissue and break down silos across the
2 agency, whether through formal integrated review teams to help us wrestle
3 complex issues of informal opportunities to engage like communities of
4 practice.

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

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

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

20 Next slide, please.

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

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

26 I apologize for the technical difficulty we had with the video,
27 but we'll work with the Office of the Secretary of the Commission to ensure that

1 that video is appended to the record of this meeting and available to the public.

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

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

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

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

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

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

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

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

27 So, we remain really committed to looking at FFRD. That's

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

5 CHAIRMAN HANSON: Okay. Thanks.

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

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

17 Guidance, on the other hand, does need to be developed.
18 And we've made very clear to the industry that we're willing to talk about risk-
19 informed approaches, but the limited information we have right now, we cannot
20 do meaningful guidance that would be helpful for the vast majority of applicants
21 that may be coming in, so we are absolutely open and we have those frequent
22 touch points to whatever risk-informed processes that the industry wants to
23 provide, but at this point in time we don't have enough information and that plan
24 is not guided so I think there is a bit of a disconnect of what the purpose of that
25 plan is, and it is and always has been, a high-level tool to make sure that we
26 are ready to take the steps needed to license ATF. It is not guidance for
27 applicants and what they need to provide for licensing.

1 CHAIRMAN HANSON: Thank you. That's very helpful in
2 terms of kind of where we need licensees to be in terms of what they submit to
3 us and how that's going to drive a lot of the risk-informed application or risk-
4 informed thinking in that. So, that's very helpful. Thank you.

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

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

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

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

24 So, I don't see challenges going forward. As you mentioned,
25 the Waterford application was reviewed on schedule and issued August 24th.
26 So, I don't see major challenges for going forward. So, I think the best
27 evidence of where we are, and if we're there yet, is industry feedback. And

1 we're getting positive industry feedback. We're also getting applications and
2 pre-application engagement. So, that is the proof that we're there, because
3 we're actually getting applications to execute.

4 CHAIRMAN HANSON: That's great. Thank you.

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

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

11 CHAIRMAN HANSON: Yes.

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

15 CHAIRMAN HANSON: Great. Thank you.

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

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

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

27 CHAIRMAN HANSON: Yes, you're on a roll.

1 MS. VEIL: Technical specifications really require that these
2 plants look at the weather phenomena, the recent weather included. That's
3 extreme heat, cold, what have you. So, that is actually a part of technical
4 specifications.

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

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

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

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

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

24 I'll save my last question for later, other than just to say, for
25 Caty and Caroline, I'm really intrigued and enthusiastic about the use of data
26 and business intelligence tools to detect trends and identify precursors. To my
27 mind, this is exactly where the agency needs to go. And the use of data, and

1 particularly as we continue to develop and put it in appropriate format, historical
2 data to look at plant performance and identify really critical issues for safety, I
3 think I just want to kind of give both of you a shout-out for your presentations on
4 that subject.

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

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

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

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

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

1 down that system.

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

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

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

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

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

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

27 One of Frank's slides noted that 24 power reactor sites now

1 have approved 50.69 programs. This is a very significant risk-informed
2 program that gives licensees the option to categorize structures, systems, and
3 components based on their risk and safety significance. Different categories,
4 then, get different special treatment requirements.

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

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

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

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

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

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

25 The most significant probably is that, for the 50.69 program,
26 part of that is where the licensees will do their assessment of their systems.
27 And so, they might take three to five systems and they'll categorize them. So,

1 we'll go in and take a look at that.

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

10 COMMISSIONER BARAN: Great. That's really helpful.

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

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

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

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

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

26 We followed that up, of course. We did a one-time temporary
27 instruction inspection, looked at it to make sure PMs are in place that they

1 described. And when they weren't, appropriately, findings were initiated, and
2 then, it was in the corrective action process.

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

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

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

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

27 So, there is uncertainty for best estimate equipment reliability

1 updates going forward, as this is a different process. So, it's a watched area
2 going forward that the data may not be available to adjust the FLEX failure
3 rates, given the data may not be accessible.

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

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

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

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

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

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

27 And I'd like to mention the one that Caroline had in her

1 presentation, which is also a frequent touch point with stakeholders. And so,
2 we looked at that to kind of mirror the allegation process, because both
3 processes can be very long. So, it's very important to have a touch point with
4 the public to let them know where we are.

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

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

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

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

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

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

23 Thank you, Mr. Chairman.

24 CHAIRMAN HANSON: Thank you, Commissioner Baran.

25 Commissioner Wright?

26 COMMISSIONER WRIGHT: Good morning. So, good
27 morning to everyone, and I thank each of you for your presentations.

1 It's always great to hear about all the work that you're doing
2 within the operating reactor area, but I'm also looking forward to the next panel
3 on the advanced reactors as well.

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

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

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

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

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

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

26 And I'll end with saying, the culture of the office and the focus
27 on our culture initiatives, on top of everything else we have to do, I'll shout out

1 to our team -- our associates for safety collaboration and communication; our
2 ASCC (phonetic) team, and our OKR team, objectives and key results --
3 because we have all come together to work together to elevate this office to a
4 level that I'm very, very proud of.

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

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

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

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

25 So, we have been looking consistently not only at procedures,
26 but even the structure of the office, as we're preparing to get so many
27 applications in from new and advanced reactors. We're in a constant

1 conversation about what that could mean. So, we have actively engaged on
2 talking about if the structure of the office is where it needs to be to support all of
3 the work for operating new and advanced reactors -- and don't forget research
4 and test reactors -- as we go forward.

5 COMMISSIONER WRIGHT: Right. Thanks. Thanks for that.

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

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

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

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

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

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

25 There is a timeline. I don't want to speculate about how the
26 timeline is going to go, but it's an effort that is starting now, and an effort that
27 will be talked about in monthly ROP meetings, as we go forward. And it's not

1 something we're looking to drag out for a long time, but I do want to give it
2 enough time and the appropriate amount of attention, so that we are making
3 appropriate recommendations, based on the information we have, essentially, 6
4 months.

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

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

13 MR. DORMAN: Yes, thanks, Andrea.

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

15 COMMISSIONER WRIGHT: Sure.

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

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

25 I'd also add that, as we look at re-entry to our facilities from
26 our maximum telework status, we're also developing plans to check in with our
27 staff 6 months in, or so, to see what's working and what's not working, and what

1 do we need to start, stop, or continue. So, we'll develop those issues as well.

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

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

6 So, thank you for your presentation, Caty.

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

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

15 MS. NOLAN: Yes, I definitely can.

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

22 But, if I can, my favorite example of this is the SCRAMs
23 dashboard that we've created. The data is fed into the dashboard from the
24 report, straight from the Headquarters Operations Officer, who receives the
25 report, rather than staff taking the information, manually reading the report,
26 typing it into a database, such as like an Excel file. So, instead of taking that
27 time to run manual reports on some specified frequency, the staff can now just

1 show this dashboard at a glance, and it has so many visualizations and
2 capabilities, such as filtering, slicing, animated visuals to show trends on
3 various information; things you can look at with the date range, site, system,
4 cause of the SCRAM, things like that.

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

8 So, thank you for that question.

9 COMMISSIONER WRIGHT: Yes. Thank you.

10 And, Mr. Chairman, with that I yield.

11 CHAIRMAN HANSON: Thank you, Commissioner Wright.

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

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

17 And thank you all very much.

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

20 CHAIRMAN HANSON: All right. Thank you, everyone.
21 We're back.

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

25 Dan, the floor is yours.

26 MR. DORMAN: Thank you, Chairman.

27 Chairman Hanson and Commissioners, during this panel, the

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

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

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

19 Next slide, please.

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

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

25 Then, you will hear from Nicole Coover, a Branch Chief in the
26 Division of Construction Oversight in Region 2, regarding the transition of
27 Vogtle Unit 3 from construction to operations and preparing for a potential

1 10 CFR 52.103(g) finding. That is a potential finding that all inspections, tests,
2 analyses, and acceptance criteria, or ITAAC, are met.

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

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

13 Next slide, please.

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

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

17 Next slide, please.

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

23 We're also keenly focused on developing our Advanced
24 Reactor Program. We're advancing risk-informed, performance-based, and
25 consequence-oriented approaches in the timely and transparent resolution of
26 key policy issues through the execution of our advanced reactor implementation
27 action plans.

1 We continue to make significant progress on Part 53 and
2 advanced reactor guidance, as we develop a risk-informed, performance-based
3 regulatory framework. We're nearing completion of preliminary proposed rule
4 language for the entire scope of Part 53, and have continued extensive
5 engagements with a diverse set of external stakeholders and the ACRS.

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

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

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

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

22 The first report documents the results of collaborative activity
23 concerning X-energy's Reactor Pressure Vessel Construction Code
24 Assessment, and the second documents the results of a broad overview of
25 NRC and CNSC regulatory framework, and provides a specific comparison of
26 the licensing modernization project endorsed by the NRC with the CNSC
27 approach.

1 We remain on track for two additional joint reviews. In
2 support of this partnership, we're strategically planning for our next project and
3 working to continuously improve the efficiency and benefits of our cooperation.

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

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

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

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

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

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

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

1 Next slide, please.

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

4 MS. COOVERT: Thank you, Andrea.

5 Good morning, Chairman and Commissioners.

6 Next slide, please.

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

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

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

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

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

27 Recent examples of cross-organizational cooperation through

1 the VRG and teamwork between regional, residents, and headquarters staff
2 included our evaluation of complex cable separation and ASME welding issues.

3 The diverse experience and leadership of the VRG was
4 instrumental in addressing these emerging NRC inspection and licensing issues
5 associated with potential construction code compliance and ITAAC
6 requirements. In both examples, the VRG worked with staff to accurately
7 identify a specific challenge and ensure the right agency resources were
8 involved to facilitate a timely regulatory decision.

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

13 Next slide, please.

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

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

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

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

1 inspection for those critical and must-see activities.

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

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

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

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

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

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

25 Moving left to right, Jason Eargle, Tom Morrissey, and Theo
26 Fanelli were part of the team of inspectors that provided round-the-clock
27 coverage for the hot functional testing.

1 The next picture shows Jason Eargle witnessing the first
2 onsite fuel receipt for Unit 3, and Raju Patel inspecting the Unit 3 reactor vessel
3 internals to verify equipment runability after the completion of hot functional
4 testing. The picture on the far right shows Marcus Riley and Robert Mathis
5 inspecting electrical cable raceways.

6 Next slide, please.

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

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

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

22 The transition memo addresses how open issues will be
23 dispositioned during this time. For example, all green findings that were
24 identified in the cROP will be closed before the 103(g) finding is issued and will
25 not carry over to the ROP. However, if a Greater than Green finding is open at
26 the time of the 103(g) finding, and it is associated with cornerstones that are
27 more reliant on a Probabilistic Risk Assessment, the Greater than Green finding

1 will remain open and be assigned to the ROP cornerstones most closely related
2 to the finding, but will not impact the ROP Action Matrix column.

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

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

15 Next slide, please.

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

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

1 introduce the effort.

2 Next slide, please.

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

5 Thank you.

6 MR. SHAMS: Thanks, Nicole.

7 Good morning, Chairman and Commissioners.

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

14 Next slide, please.

15 2021 has been a defining year for the Advanced Reactor
16 Program and becoming a modern, risk-informed regulator. We view this vision
17 as an enabler to safely and securely regulate these new technologies while
18 addressing the unique challenges of the diverse and dynamically evolving
19 landscape.

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

24 Since late 2016, the staff continues to make substantial
25 progress in executing its vision and strategy for advanced reactor readiness
26 while achieving the activities outlined and implementation action plans in an
27 agile and proactive way.

1 We are enhancing analytical tools and capabilities, endorsing
2 new standards for advanced reactors, resolving key policy and technical issues,
3 and progressing in completing a variety of rulemaking activities. Still, work
4 remains to ensure we can efficiently review the variety of technologies on the
5 horizon.

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

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

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

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

25 In addition to growing our workforce, we have created
26 numerous tools and engagement opportunities to support internal and external
27 communication, improve transparency, and enhance planning and execution of

1 activities.

2 Over the past year, the staff transformed the division
3 SharePoint site into a hub for advanced reactor information. The site contains
4 various tools to expand accessibility to data, retain knowledge, and increase
5 our ability to make data-driven decisions.

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

12 Next slide, please.

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

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

22 Over the past year, more than 30 external engagements, as
23 well as briefings to the ACRS on the rule and associated guidance, have
24 engendered a rich dialog and have led to a wide range of comments expressing
25 diverse and sometimes competing views. Such extensive engagement prior to
26 issuing a proposed rule is a precedent-setting process and has been an
27 incredibly valuable process in obtaining and assessing stakeholder views.

1 To date, we have received more than 140 individual public
2 comments, and over the past several months, staff has worked tirelessly to
3 address the feedback and has released revised rule language embracing new
4 ideas and reflecting stakeholder comments.

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

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

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

22 Next slide, please.

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

1 issues and advance the review.

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

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

9 In addition, we are interacting with other entities on potential
10 applications in various degrees of design maturity. Over the past few years,
11 these prospective applicants have submitted 24 Topical Reports and white
12 papers for staff review, and the staff has completed safety-focused reviews for
13 15 submittals and we are on track to complete others.

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

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

22 Also, using and sharing data is another strategy we are
23 leveraging to enhance our planning and execution of reviews. We have created
24 several tools to communicate review status, aiming at strengthening
25 accountability, and increasing the transparency of our review activities. To that
26 end, we are committed to making the majority of this information available to the
27 public on our external website.

1 Next slide, please.

2 The staff is also strengthening our readiness for advanced
3 reactor licensing through research activities and international cooperation. In
4 the research area, we've partnered with the Office of Nuclear Regulatory
5 Research to ensure we have the necessary capabilities to support the ongoing
6 and upcoming reviews.

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

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

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

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

1 Reactor Program.

2 Next slide, please.

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

5 MR. VITTO: Great. Thank you, Mo.

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

9 Next slide, please.

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

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

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

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

1 implements to protect the strategy.

2 Next slide, please.

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

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

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

24 Among these design principles is safety and security
25 programs should be mutually supportive. Each individual program has some
26 reliance on other programs to ensure the overall performance objective is met.

27 We are committed to our role in establishing modern

1 infrastructure for advanced reactor licensing via two key rulemakings. The
2 alternate physical security rulemaking offers several security alternatives for the
3 protection of advanced reactors. This proposed rule would allow eligible small
4 modular reactors and non-light water power reactors to establish an alternate
5 risk-informed performance-based approach to certain physical security
6 requirements.

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

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

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

23 Next slide, please.

24 Consistent with previous speakers, NSIR is prepared to
25 regulate the nuclear technology of the future. NSIR is advancing these
26 priorities by cultivating a team of interdisciplinary experts and maintaining open
27 engagement with stakeholders. Staff is focused on applying the right skill set

1 and resources to arrive at risk-informed and technically sound approaches.
2 NSIR is leveraging talent and expertise from within and outside the agency to
3 help with a risk-informed and performance-based regulatory infrastructure for
4 licensing of advanced reactors.

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

9 Next slide, please.

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

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

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

1 Next slide, please.

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

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

12 Next slide, please.

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

17 MR. DORMAN: Thank you, Steve.

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

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

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

26 In closing, I would like to thank all the panelists today, the
27 staff who supported our preparations for this Commission meeting, as well as

1 all the staff in both the operating and new reactor business lines who are
2 working tirelessly in an ever-evolving environment to ensure the safety and
3 security of operating and new reactors.

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

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

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

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

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

25 I want to get your thoughts on the licensing approaches for
26 prototypes. Do you think there's sufficient regulatory clarity for Part 50
27 applicants if they elect to pursue the prototype licensing path? And could

1 additional guidance be useful to clarify staff expectations early in the process;
2 for example, during the construction permit phase?

3 MR. SHAMS: Chairman Hanson, thank you for the question.

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

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

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

22 CHAIRMAN HANSON: Thanks for that.

23 I think I'll stick with the Part 50 theme here just for a hot
24 second. With a lot of applicants, even outside of the prototype approach,
25 planning to use the Part 50 process, can you provide a quick update on the Part
26 50/52 rulemaking?

27 MR. SHAMS: Sure. Yes. Thank you again, Chairman.

1 So, the Part 50/52 rulemaking is on track. It's on schedule.
2 It's scheduled to come to the Commission for May 2022. We've received the
3 comments from the public on the regulatory basis, and the staff has been
4 addressing those. We've received some late-filed comments. We're also
5 considering those as well; have not addressed them yet. We're meeting on
6 those to determine the staff's responses to them.

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

12 CHAIRMAN HANSON: Great. Thanks a lot, Mo.

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

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

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

26 So, we recently kind of embarked on three significant
27 activities that are going to improve the properties associated. As you

1 mentioned, there's a 50/52 rulemaking effort. There's also a lessons learned
2 effort of the NuScale DCA review. And then, there's an Interim Staff Guidance
3 to update the guidance for construction permits.

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

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

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

12 CHAIRMAN HANSON: Okay. Great. Thank you.

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

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

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

25 Developing concepts and processes to identify the structures,
26 the equipment, and the actions needed to protect an advanced reactor have
27 presented complexities. So, staff is making progress in the area and continues

1 to have frequent stakeholder engagement to share concepts associated with
2 the framework and receive feedback to inform refinement of the rule and
3 guidance.

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

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

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

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

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

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

26 COMMISSIONER BARAN: Great. Thanks. And that was
27 really just where I was going to begin.

1 Nicole, thanks for the update on NRC's oversight of the Vogtle
2 construction project. When I toured the site earlier this year, I saw firsthand
3 how focused our inspectors are on doing a thoughtful or thorough job of
4 completing all the necessary inspections.

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

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

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

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

26 Additionally, the apparent violations, as part of the
27 construction reactor oversight process, the licensee has 40 days from the time

1 that the inspection report is issued to provide a response on the docket or in a
2 conference. The licensee is providing documentation which is expected to be
3 submitted approximately October 5th. At that point, we will review their
4 documentation to make a final significance determination, which part of our
5 process is a 90-day process. So, we anticipate completing it approximately
6 around the end of November.

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

9 MS. COOVERT: Thank you for the question again.

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

18 COMMISSIONER BARAN: Great. Thanks.

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

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

26 And in all of those cases, we monitored their repair work and
27 their analysis products to understand the causes that led to those issues. We

1 are inspecting both the causal analysis and the repair work activity to, again,
2 make sure that they comply with code and/or ITAAC requirements. And to
3 date, there's no additional issues that we've discovered or that we're tracking
4 that is of what would be considered significance.

5 COMMISSIONER BARAN: Thanks. That's very helpful.

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

13 MS. COOVERT: Thank you.

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

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

25 The key aspect of that recommendation is that we have a
26 recommendation that we do analysis to ensure that the key assumptions that
27 we had for the recommendation are still valid. After Unit 3 becomes

1 commercial operations, we'll be able to validate some of those key
2 assumptions, based upon operating AP1000 inspection hours.

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

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

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

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

23 I think it's important that the essence of these kinds of key
24 safety enhancements are carried into Part 53. Not every requirement is going
25 to be retained in the exact same way in Part 53 because we're talking about
26 different technologies, but the essence of the safety enhancements I think need
27 to be retained, or we're going to end up with a Part 53 regulation that's less

1 protective of public health and safety than the current regulations.

2 Andrea, what do you think about this, and how is the staff
3 approaching this overarching issue? My sense is, reading the transcript, that
4 the staff is thinking along these lines. But can you talk a little bit about that kind
5 of big-picture issue?

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

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

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

23 So, yes, we agree, but there is a framework as to why there
24 are differences. And again, I want to say very clearly that, consistent with the
25 Commission Policy Statement on the advanced reactor policy, we are
26 absolutely clear that the plants have to be at least as safe as the current fleet.
27 We are not saying, and will not say, that they have to be more safe than the

1 current fleet.

2 COMMISSIONER BARAN: Okay. Thanks.

3 Another big-picture question is how potential fusion
4 technology should be addressed, whether Part 53 should attempt to cover
5 fusion, or it should be addressed in a separate rulemaking effort. What's the
6 staff's current thinking on that question?

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

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

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

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

25 COMMISSIONER BARAN: Okay. Great. Thanks.

26 I'm a little over my time, but I just want to briefly echo
27 something that Mo said earlier, which is the folks who are working on this

1 rulemaking, they're just doing a terrific job. I mean, I read these transcripts; I'm
2 so impressed with both their subject matter expertise, their knowledge, their
3 professionalism, the way they're leading these meetings.

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

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

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

12 Commissioner Wright?

13 COMMISSIONER WRIGHT: Thank you, Mr. Chairman.

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

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

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

1 seen playing softball together at times as well.

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

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

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

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

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

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

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

25 Last year, we've issued a guidance document, ISG, in Interim
26 Staff Guidance 29, on scaling appropriately as well the environmental review.
27 So, all these pieces are being put together. Our guidance documents, I

1 mentioned a little earlier about our advanced reactor content of application.
2 And that is also consistently approaching the amount of information provided to
3 the staff in a risk-informed way that reflects the safety significance of the
4 different designs.

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

11 COMMISSIONER WRIGHT: Thank you.

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

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

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

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

25 And I would start by saying, absolutely, we have the right
26 people and, absolutely, we have the staff onboard to be able to conduct a
27 review effectively, efficiently, and timely. We've been working on this for some

1 time. We're very passionate about our people. We mentioned that and many
2 of the speakers already today mentioned that, how passionate we are about our
3 people, and I'm in the same place.

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

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

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

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

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

1 potential retirements as well, and we plan for those accordingly.

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

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

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

13 COMMISSIONER WRIGHT: All right. Thank you.

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

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

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

27 But, in addition to having stability in reviews, I know there's

1 considerable interest in the timeliness of the reviews. And one thing that I know
2 plays a huge role in our timeliness, as was mentioned by Andrea earlier, is the
3 quality and the completeness of the applications or Topical Reports that we
4 receive.

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

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

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

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

20 Andrea?

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

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

27 COMMISSIONER WRIGHT: Right.

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

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

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

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

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

21 COMMISSIONER WRIGHT: Right. Okay. Thank you.

22 MR. SHAMS: Thanks, Andrea.

23 If there is a moment, Commissioner Wright --

24 COMMISSIONER WRIGHT: Sure.

25 MR. SHAMS: -- I can add, too, as well that, yes, and the
26 frequent engagement Andrea indicated with the stakeholders involved, the
27 activities that we're working on, the topics that we're seeing, and we're also

1 taking priorities from them. We have frequent touch points with them: what
2 guidance is needed currently? We're focused currently on the guidance for the
3 near-term applications as well, to make sure what information.

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

10 COMMISSIONER WRIGHT: Thank you. Thank you so
11 much.

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

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

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

19 Thank you, Margie, for your phenomenal leadership during
20 this crucial and dynamic time at the agency, and for the industry, for that matter.
21 The NRC is very good at focusing on our safety and security mission.
22 However, sometimes we conflate the mission with the status quo and
23 resistance to change. But you inspired us to change, to modernize, and to
24 become more risk-informed, and to reassure us that the changes that we were
25 making were the right thing at this time for the agency. You encouraged us to
26 look for new pathways to innovation through your dedication to the mission and
27 your really very inclusive leadership. You were truly a role model for the

1 women and men of this agency, and I count myself lucky to have had the
2 opportunity to work with you.

3 I knew when I came to the Commission, and certainly, when I
4 became Chairman, that the next phase of your career was looming on the
5 horizon. And I told you privately, and I will say publicly, that I was grateful for
6 every day that you stayed on while I was here, certainly, since I moved to the
7 17th floor. I'm personally very grateful for your counsel and your leadership and
8 your friendship.

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

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

19 MS. DOANE: Thank you, Chairman.

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

22 COMMISSIONER BARAN: Well, Margie, I can't top that.
23 That was really beautifully said.

24 But I was just reflecting, as I was sitting here, that I think we
25 first interacted when I was still on Capitol Hill, and you at that time were Director
26 of the Office of International Programs. And then, while I've been here, you've
27 been General Counsel and EDO.

1 And as I've said to you before, I just think this next step in
2 your career, it's just so perfect for you. You're just going to be so great in that
3 role, with the experience you've built up over really the decades at NRC and in
4 the different roles you've had. I just think you're phenomenally prepared for that
5 next step. Knowing you as I do, I think you're really going to love it.

6 So, congratulations and all the best.

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

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

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

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

21 (Laughter.)

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

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

26 It's been a privilege to serve under you. Chairman Hanson,
27 thank you for the nice words. I feel the exact same way.

1 It's been just, I think, an incredible time for the staff to work in
2 this virtual environment in a pandemic. And they have just shown such
3 resilience. It's been such a privilege and honor to serve with them. I'm so
4 humbled to have been able to serve them in this way in the final position of
5 EDO.

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

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

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

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

13 MS. DOANE: Thank you.

14 On that bittersweet moment --

15 (Applause.)

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

18 (Whereupon, the meeting was adjourned.)

19

20

21