UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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STRATEGIC PROGRAMMATIC OVERVIEW OF THE NEW

REACTORS BUSINESS LINE

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WEDNESDAY

SEPTEMBER 10, 2014

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The Commission met in the Commissioners' Conference Room, 1st Floor, One White Flint North, Rockville, Maryland, at 9:30 a.m., Allison M. Macfarlane, Chairman, presiding.

PRESENT

ALLISON M. MACFARLANE, Chairman

KRISTINE L. SVINICKI, Commissioner

WILLIAM C. OSTENDORFF, Commissioner

ALSO PRESENT

MARK SATORIUS, EDO

GLENN TRACY, NRO

VICTOR MCCREE, RII

MICHAEL CHEOK, NRO

FRANK AKSTULEWICZ, NRO

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

9:33 a.m.

CHAIRMAN MACFARLANE: Good morning. Good morning, everyone. You quieted down so well. I'm very impressed. Okay. So I'd like to welcome you all, staff members of course, media, stakeholders, members of the public for today's meeting where the focus of the meeting is new reactors and the staff's activities in the new reactors area.

Despite the resource challenges that NRO has had, NRO has continued to move forward in new reactor licensing reviews. One example, of course, would be the staff's review of the Economic Simplified Boiling-Water Reactor design certification application and its associated rulemaking.

The staff completed this recently, and the staff's efforts focused on resolving difficult technical issues, like the steam dryer analysis. So kudos to the staff for doing that. It's up with the Commission, and we should have some response soon. I think these achievements reflect the hard work that the NRO office has put into all of their efforts, as well as the efforts of industry to work through a multitude of issues on design certification and construction.

The staff has also, of course, continued to provide oversight of construction at Watts Bar, Vogtle, and Summer, and as well as vendor activities both in the U.S. and internationally. So a lot on your plate.

And I think I'm going to leave it there. I look forward to hearing more about all of this work that you're doing. And before I

go any further, let me see if, Kristine, do you want to say anything?

COMMISSIONER SVINICKI: Yes. Thank you, Chairman. I look forward to today's meeting, as well. And I was reflecting back on how much things can change in a few short years. When I joined this Commission, new reactor activities were so front and center for the agency that we met, I believe every three months the Commission met and held a meeting on new reactor activities because that was the pace.

But I think that today's focus on this is very appropriate, and I think that we'll have a lot of constructive updates and back and forths and opportunity to explore. Just as much important work is going on today, and so this will be, I think, a wonderful opportunity to shine a spotlight on those important new reactor activities. So I look forward to that.

CHAIRMAN MACFARLANE: Great. Okay, all right. So with that, I will turn things over to Mark Satorius, our Executive Director of Operations.

MR. SATORIUS: And good morning, Chairman, and good morning, Commissioners. I see we've got a great crowd. We've just about packed it to the rafters so a lot of people interested in the status of the new reactor business line.

Staff representatives from Region II, as well as the new reactor business line, will be briefing you today on the status of the business line. The new reactor program has completed significant accomplishments in the midst of challenges, such as the first-time implementation of the oversight of construction under Part 52

which included a significant role in ensuring the safe construction of new-build nuclear reactor plants.

The many safety findings by our construction and vendor inspections, coupled with licensing review staff findings, have had an important and positive impact on the safe licensing and construction of these new facilities. In addition, the staff has effectively implemented its safe closure initiative by meeting established goals for safety review activities on time and with a strong focus on safety.

I would also note the agility of the new reactor business line and its clear focus, as Glenn and his team have contributed resources to accomplish agency needs, such as Fukushima updates and follow-up, operating reactor licensing activities, and reductions in FTE and contract dollars. It was accomplished without negatively impacting their ability to meet the business line goals.

Today's briefing will touch very briefly on activities in construction and oversight at Watts Bar 2 because we had another Commission briefing scheduled in October to discuss that specific plant. Also, we do not plan to discuss the staff's activities related to small modular reactors because that topic will also be discussed later on this fall in a briefing with the Commission.

So now I'll turn the briefing over to Glenn. Glenn?

MR. TRACY: Thanks, Mark. Good morning, Chairman and Commissioners. I'd like to open by acknowledging the significant contributions of our program partners in Region II, the

Advisory Committee for Reactor Safeguards, the Office of the General Counsel, Reactor Regulation Research, Nuclear Security and Incident Response, Investigations, Enforcements, and, of course, our important corporate program partners.

I'd also like to acknowledge the new reactor business line executives that are in the well and the many managers and staff in the audience or back in their offices, as well as the resident construction and vendor inspectors that will be introduced specifically by Vic and Mike Cheok.

Next slide. The mission in the new reactor program has not changed since the inception of the Office of New Reactors in 2006. This mission is to serve the public interest by enabling the safe, secure, and environmentally-responsible use of nuclear power in meeting the nation's future energy needs. Our briefing today will demonstrate how we're fulfilling this mission by discussing the new reactor program goals in their order of priority.

Next slide, please. I'll start with an overview of the current environment of the new reactor program. Our highest priority is Watts Bar 2 and the four AP1000 units under construction at the Vogtle and Summer sites. The staff's current activities include construction and vendor oversight, reviewing license amendments, inspecting and verifying ITAAC closure, licensing new reactor operators, and developing and implementing the initial testing program oversight program.

Safety environmental reviews are ongoing for eight applications for combined licenses. The staff is nearing its

completion of review on three of these applications and is preparing to support mandatory hearings for two or three combined licenses next year. Six combined license applications have been suspended and two more withdrawn at the request of applicants due to changes in their business plans.

Staff activity on design certification reviews has decreased over the last couple of years. The staff completed its review of the ESBWR design certification, and the rulemaking is in its final stages. For the remaining two design certification applications, AREVA's evolutionary power reactor and Mitsubishi's U.S. advanced pressurized water reactor, we have decreased the staff's resources at the request of the applicants. Delays in these reviews have resulted in corresponding delays in the referenced combined license application reviews.

The staff is conducting pre-application activities for the KHNP APR1400 review and expects to receive a revised application at the end of this calendar year. Small modular reactor efforts consist of pre-application interactions with potential applicants, developing the necessary infrastructure, and addressing rising policy issues. Based on our discussions with industry, we currently anticipate receiving applications beginning in fiscal year 2016 at the earliest.

Throughout the year, new reactor program staff have been working diligently on the safe closure of the program's highest priority projects, an initiative providing us both clear objectives and timeliness goals while maintaining our focus on safety. Among the

staff's accomplishments in fiscal year 2014 are the ESBWR review, the Fermi 3 safety evaluation, the Lee and the PSEG draft environmental impact statements, the comprehensive APR1400 acceptance review and decision, consistently thorough and timely review of license amendments supporting ongoing safe construction, and the identification of issues of safety importance in construction and vendor oversight.

Next slide. It's been NRO's practice to routinely project the future of the business line's workload, adjusting for volatility in the external environment. The next three slides list the anticipated workload for the new reactor business line in fiscal year 2020. Our strategic overview indicates that our current design certification and combined license applications will be near completion. We will see a reduction in new reactor large light water licensing and construction oversight resource needs.

Next slide. We'll be engaged in continued early inspection and license amendments for the four AP1000s. Staff review of small modular reactors will be significantly underway and potentially increasing.

Next slide. We expect the important development of the infrastructure for non-light water reactor safety reviews. And, lastly, our international cooperation in new and advanced reactors will continue to increase.

Next slide. I'll now present a few key program challenges. Since the inception of NRO, we've seen significant changes in the anticipated number and timing of applications.

Several combined licenses have been suspended at the request of applicants. Applications for small modular reactors have been delayed. Technology choices have been revised, and applicants have reduced their support for their own applications.

In addition, internal agency priorities, such as Fukushima and the continued storage rule, have created some challenges to our established plans and the availability of specific critical skills and resources. We're experiencing the challenges of implementing Part 52 for the first time. As the staff implements new processes, such as the verification of the ITAAC closure notifications, the staff identifies process areas in which to clarify or improve.

The Part 52 process provides very limited flexibility to make changes to the approved design in the combined license. During the construction process, some changes in design are, in fact, necessary, and the staff is dealing with the challenges of reviewing these changes within the Part 52 process.

The use of modular construction techniques by the industry has presented challenges both to the licensees, as well as the NRC. The inspection and technical review staff are focusing on the oversight of module fabrication to ensure that the modules are fabricated and installed in accordance with the approved designs.

The staff is addressing several issues in the procurement of components, primarily for the AP1000 reactors under construction. At the same time, we're looking at ways to ensure that our licensees proactively prevent the introduction of counterfeit, fraudulent, and suspect items.

Next slide. Describing our strategies to address these challenges, I would note the new reactor environment is continually in flux, and the new reactor business line must, therefore, remain very agile. We do this by developing detailed schedules and plans and revising them, as needed, due to the changes in the applicants' plans, our resource availabilities, and other agency priorities, while ensuring that the reasons for those changes are well understood by our applicants and our internal stakeholders.

We've demonstrated our agency focus. The execution of our business line reductions has been achieved through attrition, the coordinated transfer of staff, and the careful recruitment of critical skills where they're needed.

Because we're implementing a new licensing process, we understand the value of periodically reviewing the effectiveness of our processes and how we can improve them. So far, NRO has completed two formal lessons learned on Part 52 licensing and implementation. These activities are in addition to the routine periodic program self-assessment we conduct.

We have also just completed a very formal review of the staff's readiness to transition from construction oversight to operational oversight. And you will hear more about these efforts and the actions we're taking later in this briefing.

The NRO and Region II team have successfully communicated with the licensees and applicants to help ensure that the new reactors are, in fact, designed and built safely. Through direct and transparent discussions and meeting with our licensees and

their consortium partners, we're able to communicate our concerns and our expectations that result in improvements to the safety of the new reactors.

NRO has been routinely adapting its resources and work plans to changes in the industry's plans and other external factors. With the initiation of Project Aim, we've integrated our strategic plans into the agency's overall long-range planning project.

Lastly, the new reactor program enjoys a very robust international rapport with our regulatory counterparts, which spans from Europe throughout Asia and includes, of course, the Multinational Design Evaluation Program. We're highly engaged in cooperative activities with China's National Nuclear Safety Administration in the area of AP1000 construction and inspection. We just, in fact, had the first NRC foreign assignee complete an assignment in NNSA's Beijing headquarters. His assignment was in addition to four previous Region II inspectors at Sanmen and an NRO vendor inspector in NNSA's northern regional office. We continue to coordinate with China's NNSA to have NRC inspectors observe portions of pre-operational and start-up testing at the Sanmen site.

In addition, we continue to work closely with our South Korean colleagues to enhance international coordination for the prevention of the introduction of counterfeit, fraudulent, and suspect items. And, lastly, I'd note just today that we have opened our latest bilateral discussions with our Indian counterparts, along with our colleagues from the Office of Research.

Next slide, please. Several years ago, we developed

the most significant goals for the new reactor business line, and we prioritized them as depicted on slides 11 through 13. The leadership team reviews and updates these goals every year to ensure that they reflect the current environment, and they use the goals to prioritize our work and our resources.

We, in fact, structured today's briefing around our prioritized goals. Members of the program management team will discuss each of the goals, the challenges, and the strategies in each area.

I'll now turn it over to Vic McCree to discuss the progress and the challenges in implementing our first priority: construction oversight.

MR. McCREE: Thank you, Glenn. Good morning, Chairman, Commissioners. Glenn mentioned in his opening remarks an appreciation for the many people supporting this important program. I'd like to identify two specifically by name who are with us today: Patrick Heher, Senior Construction Project Inspector in Region II, and Coleman Abbott to his left, a Resident Inspector at the Vogtle site.

Next slide, please. Construction continues at a dynamic and accelerating pace at all three reactor construction sites. And our inspection program is evolving to reflect this accelerated pace. At the AP1000 sites, our current focus is primarily on civil structural areas and containment vessel fabrication. We will give more attention to the mechanical, electrical, and instrumentation and control components and systems, receipt and installation, in the near

future.

We're also engaged in planning for pre-operational testing inspections, as well as other programmatic inspections at the AP1000 sites. Inspection of pre-operational testing is already underway at Watts Bar Unit 2. And insights from those inspections, as well as inspections of start-up testing, will be used to inform our inspection planning at Vogtle and at Summer.

The photograph on the left is an example of a first-of-a-kind activity. The photo is of the structural module that represents a large section of the radiological portion of the AP1000 auxiliary building referred to as CA20. In this picture, the completed module has been transported out of the module assembly building at Vogtle to prepare for lifting and setting inside the nuclear island for Unit 3.

The photograph on the bottom right is an example of another first-of-a-kind activity. This photo shows one of the AP1000 shield building wall panels. As you know, the shield building will be constructed of reinforced concrete using steel reinforcement bar, or rebar, up to a certain elevation. These steel panels will be used for the remainder of the cylindrical portion of the containment above the reinforced concrete wall. The panels will be filled with concrete similar to the wall sections for the structural modules.

Next slide, please. There are a number of challenges we've tackled as we've developed and implemented the construction inspection program. Today, I want to briefly highlight three: construction and vendor inspection interface, the dynamic

inspection environment associated with construction, and first-of-a-kind inspections.

As you know, we're conducting construction inspections to confirm that inspections test analyses and acceptance criteria, or ITAAC, have been successfully completed, including the targeted ITAAC that are designated by specific inspection procedure to ensure that the as-built design satisfies the license requirements. Some important aspects of ITAAC inspections are occurring at vendor locations. One example of this would be the American Society of Mechanical Engineering, or ASME, fabrication at a vendor facility. Because confirmation of ITAAC closure may include both vendor and construction activities, it is important that we adequately coordinate and integrate the outcome of both activities.

Also, managing our inspection resources is a constant challenge in a dynamic inspection environment. While this is a recognized challenge during construction, getting the right people at the right place at the right time can be very challenging when overseeing construction activities at multiple sites simultaneously.

Another challenge involves the new and, therefore, never-before inspected aspects of the AP1000 design. I referred to two examples earlier in my presentation: the structural modules and the shield building transition panels. The photographs shown in this slide shows Chad Huffman, one of the construction resident inspectors at Vogtle Units 3 and 4, performing an ITAAC inspection by measuring the distance from the bottom of the containment sump to the containment vessel bottom head of Unit 3 at Vogtle.

Next slide, please. To ensure effective coordination of construction and vendor inspections, we nurture a strong and collaborative working relationship between the construction inspection organization in Region II and the vendor inspection branches in the Office of New Reactors. We work closely to identify the ITAAC activities at vendor sites that are important enough to inspect, and then we coordinate inspections, properly document the results, and ensure the inspection results are retrievable for ITAAC closure activities. Many of our vendor inspections also include construction inspectors from Region II.

To address schedule variability, we plan and prioritize our inspections well in advance. Also, our inspection schedule is integrated and contains all inspections across all construction projects in one schedule, allowing us to quickly identify resource and schedule pinch points and then an opportunity to relieve those pinch points.

We also make full use of our resident inspectors because they have the advantage of being at the site. If an inspection was originally assigned to region-based inspection resources and there are resource or schedule conflicts that arise such that a region-based construction inspector is unable to observe the specific activity, the resident inspectors are engaged to conduct that inspection.

In addition, we leverage other expertise in Region II to carry out some of our construction inspections, as appropriate. For example, inspectors from our Division of Reactor Safety have participated in some construction inspections. And, similarly,

inspectors from our construction organizations have participated in operating reactor inspections.

We encourage this cross-business line support to get the job done, mainly. But we also do so to enhance collaboration and synergy, improve the fungibility of our inspectors across business lines, and also, ultimately, to increase organizational capacity.

To address the new aspects of the AP1000 construction, we've hired inspectors with the technical background and skill sets to meet our inspection needs. We've also trained and qualified those inspectors for the inspections that we need to conduct.

In addition, we have used lessons learned from our inspectors assigned at the Sanmen AP1000 construction site in China, as Glenn mentioned. And we will use insights from our pre-operational and start-up inspections at Watts Bar Unit 2 to better inform and prepare our inspectors for similar inspections at Vogtle and Summer.

The photo shown in this slide shows David Failla, one of the construction resident inspectors at Summer Units 2 and 3, inspecting steel reinforcement bars underneath the containment vessel bottom head of Unit 2.

Next slide, please. Experience has shown us that when we hire the right people and give them the right tools to do their jobs they'll do good things. And that has been the case with our construction inspectors. Our inspectors are identifying relevant issues, and they are adding value in the field. Licensees have addressed the issues and incorporated lessons learned, as

appropriate, into their own processes.

Due, in part, to such lessons learned, the construction of the second AP1000 units at Vogtle and Summer have gone more smoothly. I briefly share two examples of specific construction inspection findings highlighted in the photos on this slide.

The first example in the bottom left is inadequate anchorage of shear stirrups in pre-cast elements of reinforced concrete slabs for the auxiliary building. I know that's a mouthful.

Our inspectors observed that the design of the stirrups did not conform to the requirement of the applicable code, the American Concrete Institute Code 349-01. Specifically, longitudinal bars were missing from some of the bends in the U-stirrups that had been installed for resistance and transfer of vertical and horizontal shear forces. The use of longitudinal bars in the bends was important to ensure adequate anchorage of the stirrups.

In response to this finding, the licensee fabricated new pre-cast slabs that comply with the codes. By conducting inspections in the field early on, one of the lessons from NUREG-1055, this non-conformance was identified before many slabs had been fabricated and before they were installed.

The second example in the bottom right is inadequate quality-related records regarding the AP1000 accumulator tank volume calculation. The acceptance criterion for the AP1000 accumulator volume, ITAAC requires the volume to be greater than 2,000 cubic feet. When NRC inspectors requested the dimensional inspection reports containing the data used to calculate the volume,

the licensee was unable to provide the requested information and had to re-perform the volume measurements at the site.

As of today, the licensees re-performed the volume metric surveys and is evaluating the results. Our inspectors observed the performance of the surveys and will independently assess the results of the licensee's evaluation.

That completes my presentation. At this point, I will turn it over to Mike Cheok.

MR. CHEOK: Thank you, Vic. Good morning, Chairman, Commissioners. Next slide, please. In July 2013, the staff implemented the construction reactor oversight process or the cROP at Vogtle Units 3 and 4 and Summer Units 2 and 3.

Currently, there is one green finding in the action matrix for Vogtle Unit 3 and one green finding for Summer Unit 2. There are no substantive cross-cutting issues at either site. Based on the cROP, all four units remain in the licensee response column.

An important part of our oversight process is to gather, assess, and to take action in response to public input. This past spring, we had good public participation for the end-of-cycle meetings in the vicinity of both AP1000 sites.

At the Vogtle meeting, the staff received and acted upon suggestions to improve access to our material on our cROP public website. In addition, we also included a link to the new reactor construction in the spotlight section of the NRC homepage. The staff will continue to solicit public input to improve the cROP.

Our 2013 self-assessment concluded that the cROP

has been effectively implemented and has met its strategic goals. We have appropriately monitored the construction activities and have focused our resources on the most safety-significant issues.

Next slide, please. In 2013, the staff completed the lessons-learned review to assess the post-combined operating license implementation of Part 52. This review concluded that our oversight was being conducted with safety as its primary focus.

The staff identified five areas that would benefit from enhancements. I will summarize the status of each lesson.

Tier 2* COL information requires prior NRC review and approval before changes can be implemented. The staff has met with stakeholders on several occasions to obtain insights to improve clarity, consistency, and objectivity in the definition of Tier 2* information. We expect to update the guidance found in SRP Chapter 14.3 and to complete this task by early 2015.

Inspection guidance for making clear and timely regulatory decisions in the construction environment has been updated to emphasize the elevation and closure of unresolved issues. The staff has been trained on the updated guidance. During discussions with the public, the staff has noted that it is equally important for the licensees to establish processes to identify design changes of construction issues that may require licensing action by the NRC. The staff and the industry continue to focus on the importance of early communications in this area.

ITAAC closure and verification will require continued and effective interface between staff and the licensees. Over the

past year, the staff has conducted five public meetings to discuss and to clarify potential issues with ITAAC closure. The meetings will continue to be conducted at least on a quarterly basis.

In addition, the staff has completed our review of Nuclear Energy Institute Report NEI 08-05, Revision 5, and has endorsed industry guidance for the ITAAC closure processes found in this document. NEI 08-01 is publicly available in ADAMS.

More generically, the staff continues to work with stakeholders in greater standardization of ITAAC across reactor designs with a goal of updating SRP 14.3 by early next year.

Next slide, please. The staff has added guidance to the vendor inspection program that enhances communications between regional inspectors, vendor inspectors, and the licensees on vendor performance issues. We are also continuing our information exchanges with the Multinational Design Evaluation Program, or MDEP, and with other international counterparts on vendor performance.

Future revisions to the vendor inspection program are planned based on recommendations from a multi-office working group. These revisions will also take into account considerations from the San Onofre steam generator replacement lessons-learned report.

The staff has endorsed NEI 96-07, Appendix C, to formalize industry guidance on changes to the licensing basis during construction. Appendix C documents the guidelines for evaluating changes to plants licensed under 10 CFR Part 52. The actions for

lesson five are complete. In summary, the staff is making progress toward closing out the lessons-learned action items, and we expect to successfully complete all items by early next year.

Next slide, please. I will now address ongoing staff activities to prepare for our oversight of plant startup. NRC staff is ready to verify that licensees' completion of ITAAC and, if needed, to support hearings associated with initial fuel load at the Vogtle and Summer sites. We expect a surge in ITAAC closure notifications beginning in 2016.

The new reactor business line has adequate resources, processes, and procedures in place to support timely staff decisions to authorize fuel load.

Given the uncertainty of litigation, ITAAC hearings have potentially significant resource implications for the agency. Staff from five offices has worked together for more than a year to develop procedures for the ITAAC hearing process. We have discussed the draft process at a public meeting.

Following Commission approval, the ITAAC hearing procedures will be finalized, internal administrative processes, will be established, and training will be provided more than a year before the ITAAC hearing process may be needed for the first time.

The first operator licensing examinations are currently scheduled for May 2015. These are combined exams for both Vogtle and Summer. The NRC has 36 qualified AP1000 operator licensing examiners. The dual exam is expected to require a minimum of 14 NRC examiners, so we have more than enough qualified staff to

conduct the initial examinations.

Typically, exam preparation begins four to six months prior to the scheduled exam date. The staff started development of the first exam this past July to allow extra time for this first-of-a-kind exam.

AP1000 simulators are in place and are operational at our Technical Training Center. These simulators we use to train and to qualify our examiners. Finally, the licensees have informed us that the development and testing of their simulators required to conduct the exams remains on schedule.

The new reactors will conduct an initial test program, or ITP, covering pre-operational, startup, and power ascension testing. I'm glad to report that the necessary NRC inspection procedures have been developed and are issued for use.

Additionally, the ITP working group has prepared an inspection planning tool that integrates the inspection of ITAAC first-of-a-kind tests and Reg Guide 1.68 test requirements. The ITP working group has conducted a number of public meetings to understand how the ITP requirements will be implemented at the plant sites.

Also, members of the working group have witnessed initial plant testing at Watts Bar 2 to better inform the new AP1000 inspection procedures. Lastly, the staff has supported international efforts on plant commissioning during several trips to China in 2013 and 2014.

In summary, the NRC is ready to inspect the ITP at

Vogtle and Summer.

Next slide, please. As I discuss the vendor inspection program, I would like to recognize Eugene Huang, an inspector in our electrical vendor and inspection branch here in the audience.

The NRC does not license suppliers. Our regulatory framework holds licensees accountable for overseeing their vendors. The staff inspects a sample of the vendors to verify that licensees are performing adequate oversight.

Our process for selecting inspection sites is based mostly on the safety significance of the components being manufactured, the performance history of the supplier, the number of U.S. customers, and the unique or first-of-a-kind nature of the activity being performed. Our inspectors typically review the suppliers' quality assurance program with a focus on the specific technical aspects of the parts being produced or services being performed. This is to ensure that the supplier's actual implementation meets NRC regulations, as well as the requirements in their own program.

Our inspection teams usually include plant system engineers and technical experts in the civil, mechanical, electrical, and other engineering disciplines. Staff from our Region II office also participates on many of our teams. As a matter of fact, if you look at the slide, three of the five inspectors in the pictures above are Region II construction inspections supporting vendor inspections.

We have been performing over 30 vendor inspections per year. Many are focused on suppliers for the Vogtle and Summer

AP1000 units. Notable examples include the inspection of structural module fabrication, the design and qualification of key AP1000 components, and the development and verification of the digital instrumentation and control systems.

Staff has also conducted inspections to look at issues that may affect the operating fleet. Issues identified over the past year include: 1) the inadequate qualification testing of plant batteries; 2) improper radiation doses used to age equipment for equipment qualification; and 3) improper control of the manufacturing process for safety-related power cables.

The staff is also highly engaged with international inspections through the MDEP program. In July of this year, the NRC led a team of French, United Kingdom, and U.S. inspectors to Valinox Nuclear in France, a manufacturer of the steam generator tubes. The team identified several potential issues that could impact steam generators produced for multiple countries.

Next slide, please. I will next discuss some challenges encountered by the vendor inspections and provide some strategies to address these challenges. Glenn and Vic had previously mentioned issues with module fabrication. A history of quality and other issues at the primary module vendor has led to several staff findings and a confirmatory order on the vendor's commitment on safety culture improvement initiatives.

Also, as a result of these issues, Vogtle and Summer has initiated contracts with other module fabricators. NRC staff is conducting inspections at several of the new module fabrication

facilities. We will continue to interface with licensees to identify and to prioritize inspections of module fabrication.

As a result of thorough engineering reviews by our inspection and technical staff, we have identified issues associated with the design of the explosive system relied upon to open squib valves. Our staff will continue to observe additional testing of the valves to ensure that the completed design has sufficient margin to reliably open the valves when needed.

More recently, some 8-inch squib valves have failed submergence testing. The staff will continue to observe and to evaluate future qualification testing following the re-design of valve seats to ensure future leak-tightness of these valves.

Several recent test failures and vendor audits have highlighted design and quality concerns for the reactor coolant pumps. In addition, the vendor has identified concerns with sub-supplier performance in terms of quality assurance requirements.

The staff carried out inspections at the vendor site during May and June of this year. Further inspections will be conducted after the new pump design is finalized so that we can observe critical testing and manufacturing activities.

Multiple issues on the design process and acceptance criteria testing has been identified during NRC inspections of the AP1000 engineered safety features, initiation software design process, and acceptance testing. The staff completed the follow-up inspection in late August to review the interim corrective actions by the vendor. NRC staff will continue to provide oversight of the design,

manufacturing, and testing issues, and additional inspections are planned in early 2015 when the final vendor corrective actions are implemented.

I will next discuss counterfeit, fraudulent, and suspect items, or CFSI. In the past three years, the staff has taken a series of actions to implement strategies to prevent intrusion of CFSI into our regulated activities. This agency-wide effort included actions to assess and enhance our CFSI processes. We looked into industry best practices, regulatory guidance, communication and outreach, training, and inspections.

We are developing an information paper to update the Commission on the progress of our CFSI-related actions. The information paper is expected to be complete in October of 2014.

We also plan to issue a Regulatory Issue Summary to clarify the existing regulatory basis on CFSI. We will publish a draft of the RIS for public comment later this month and expect to finalize the document by January of 2015.

Our activities have been effective in increasing awareness of the CFSI issue. The staff will continue to evaluate CFSI incidents and will continue to share relevant information within the U.S. and with our international counterparts.

Next slide, please. The staff has formed a working group to assess the readiness of new reactors to transition from construction to operations. The workgroup concluded that the NRC has processes and procedures in place to effectively license and oversee current new reactor construction activities and that there are

no immediate readiness issues.

The workgroup also identified longer-term challenges that can broadly be categorized as infrastructure and implementation. Infrastructure issues include completing procedures on the decision to authorize fuel load and developing guidance for new reactor oversight during the transition period. Implementation issues include ensuring the availability of qualified staff for the review of time-sensitive licensing and inspection activities.

The working group recommended actions to address each of the identified challenges. Implementation plans and schedules are being developed, and staff will track all required actions until completion to ensure that the appropriate regulatory oversight is provided as new reactors transition from construction to operations.

I will now turn over the presentation to Frank Akstulewicz, who will talk about our licensing activities.

MR. AKSTULEWICZ: Thanks, Michael. Good morning, Chairman and Commissioners. Fiscal year '14 has been a year of steady progress with the completion of several important milestones that will permit the conclusion of licensing reviews and final licensing decisions for some combined licenses during fiscal year 2015.

Through the safety-focused review and the leadership of our technical organizations, we have satisfactorily completed our review of the Fukushima lessons-learned recommendations for both Fermi and Levy combined license applications.

The business line has also completed a licensing

lessons-learned report that identified seven recommendations for enhancing the licensing reviews, and many of the recommendations have been implemented or are underway. Some noteworthy recommendations are the changes to our acceptance review and pre-application readiness assessment processes that were recently implemented on the KHNP design certification application and a planned multi-year upgrade of our licensing review application guidance.

Our attention to the closure of technical issues has permitted the business line to be about six months ahead of our published review schedule for the Fermi combined license application. As a business line, our focus for next year will be to complete the licensing processes for several combined licenses and the Watts Bar 2 facility, while continuing to complete the technical reviews for the projects that are in our licensing pipeline.

I want to emphasize that the main focus is to take the necessary time to assure that all safety, security, and environmental matters have been satisfactorily resolved.

In 2015, the business line will complete the technical reviews for Fermi, Levy, and the South Texas Project combined license applications and will be requesting the initiation of mandatory hearings for Fermi and Levy. However, our attention for 2015 will not be limited to the Fermi and Levy applications. The business line will continue a strong focus on completing the balance of the combined license applications that reference the AP1000 and the ESBWR design certifications. With strong management focus and continued

substantial support from the applicant, it may be possible to finish the technical review of the Lee Station combined license application next year.

Next slide, please. In addition to our efforts on combined license applications, we will complete the environmental and safety review of the PSEG early-site permit application. The business line will also continue to work with AREVA and Mitsubishi Heavy Industries to resolve remaining technical issues on the EPR and APWR design certification applications, as their resources permit.

We have successfully resolved technical issues on these design certification applications by focusing staff and applicant resources on a limited set of technical chapters and issues. For the next two years, both applicants will continue with this approach to make incremental progress toward completion of both design certifications.

We also look forward to the receipt of an enhanced APR1400 design certification application from KHNP in the first quarter of next fiscal year. We will enter that application into our acceptance review process and hope to reach a docketing decision by mid year.

Next slide, please. Fiscal 2015 will also present many challenges to large light water reactor licensing program activities. At the top of the implementation challenges will be the documentation activities related to the new continued storage rule for each of the combined license applications. The staff is in the process of finalizing its documentation guidance, and the first applications to

implement the guidance will be both Levy and Fermi.

Some technical issues that have challenged the staff reviews for the past several years remain unresolved. Digital instrumentation and controls remains a central challenge for the EPR, US APWR, and the pending APR1400 design certification reviews.

New site-specific seismic information has required additional evaluations from applicants to support some combined license applications. Examples are the Lee and North Anna combined license applications where the new site-specific seismic design curves exceed the certified seismic design curves and have required substantial structural design re-analysis by the applicants. The business line has instituted a safe closure process to focus management attention on safety or environmental matters such as those to assure the safe resolution of those technical issues in a timely manner.

Next slide, please. Resource management will be an area of emphasis for 2015. The resource needs to support at least two mandatory hearings while still supporting the technical reviews of active combined license, and design certification applications will likely strain our limited resources in certain critical skill set areas.

Similarly, the loss of personnel through retirements, promotions, and opportunities outside the business line will present a continuing challenge to the licensing knowledge of the remaining staff. The departing staff take with them important knowledge about the regulatory bases supporting licensing decisions across many technical disciplines.

The business line uses tools such as resource staffing plans, budget formulation, and our business line priorities to assure that all critical skill sets will be available to support mandatory hearings and the application reviews, when needed.

We recently identified a licensing process challenge with emerging issues identified during the design finalization process on the AP1000 design. The staff has begun a series of public meetings with the AP1000 licensees and Westinghouse to discuss emerging design or regulatory issues to assure that important safety or regulatory matters are raised promptly.

Next slide, please. Workload volatility and uncertainty will require us to be resilient and agile to the changing business plans of our applicants. As construction of the Vogtle and Summer plants advances beyond the structural design aspects into system and component installation, the number of license amendments necessary to support timely construction will likely increase above the projected estimates we have been given by the licensees.

The EPR design certification review will continue at a reduced rate for the next two years, and the full-scale implementation of the US -- resumption. Excuse me. The full-scale resumption of the US APWR design certification review is not likely for the foreseeable future.

The APR1400 design certification application appears to be fully funded and supported by KHNP and will be a substantial staff review activity over the next two to three years if docketed.

The business plans for the combined license applicants referencing the EPR have been delayed and remain dependent upon the progress of the EPR design certification review. We see strong support for the completion of the North Anna and Turkey Point applications, and these applications will be a continued agency focus for the next two years.

The resumption of any of the suspended combined license applications currently appears unlikely, and we have not been officially notified of any new combined license applications to be submitted in the next two to three years.

We are awaiting the receipt of a new early site permit application for the Blue Castle site in Utah during fiscal year 2016. We are not aware of other prospects for additional early site permit applications at this time.

We continue to actively support many international activities either through the Multinational Design Evaluation Program structure or through bilateral agreements with countries that are constructing U.S. technologies, such as China, or are constructing technologies that have been submitted to the U.S. for certification.

This concludes my presentation, and I'd like to turn the presentation back to Glenn for some concluding remarks.

MR. TRACY: In summary, our presentations today have hopefully demonstrated how the new reactor business line has been agile in the face of volatility, that construction and vendor oversight are adding value and having a positive impact on safe construction, and how proactive planning and disciplined execution of

our lessons learned and our safe closure initiatives have focused our activities. With that, we look forward to answer your questions.

MR. SATORIUS: And if I could, Chairman, since I still have a green light, I thought I'd just provide a perspective. It was about a year ago, one of my first opportunities to sit and lead the staff in a Commission briefing was on the status of the new reactor business line. And I recall from that briefing making a remark towards the end of it of what a good example that the coordination that you're seeing here amongst a business line and their partners, both in Region II and others, demonstrates the kind of coordination that's going to make this business line successful in moving forward with the oversight of construction of nuclear power new builds. And I see nothing from the presentation that I've seen here today and the demonstrations that we've seen through the past year that makes me think otherwise, that this is the right type of relationship to be successful as we move into the next steps of the new build.

So with that, we'll be ready for your questions.

CHAIRMAN MACFARLANE: Great. Thank you very much. All right. We're going to start off with Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Chairman, and thank you all for your briefings. This was very well done, as always.

I want to start off with just a high-level comment. I think Commissioner Svinicki noted appropriately, from her experience as the longest-serving member of the Commission, how the

environment has changed since you joined the Commission in 2008.

And that theme, I think, is present in the remarks, Glenn, that you made today and your focus on the words volatility and agility. And I just want to applaud the leadership team in NRO and the EDO's office and across the business lines to react to changes in the construction environment and the projections of what's happened with nuclear power in this country. And I think that agility is so important, and it's very difficult to lead and manage in times of change, much more difficult than it would have been if all the COLs that were on the table when I joined the Commission April 2010 were still there today.

So I think it is what it is as far as the environment. You have adapted and carefully managed this in a professional way. My hat is off to you for that, this entire team across the entire agency.

I'll also make a high-level comment that, in my interface with licensees and vendors, the entire reactor team, and this is predominantly NRO but also across other offices, I continue to hear comments from external groups commending the technical competence and the professionalism of the NRC staff. I think those are themes that I'm very proud to hear. I want to pass that on publicly to all of the people that are here and those that are not here because I think that's important for us to keep at the forefront, the technical competence and the professionalism. So greatly appreciate it.

And I think, Mike, this is your first time to appear in your new position?

MR. CHEOK: Yes, it is.

COMMISSIONER OSTENDORFF: Congratulations and thank you for being at the table today. I've got a lot of questions, and I'm going to try to go through these fairly quickly. And I'm going to start with Victor.

I always appreciate the presentation and the focus on what the construction residents are doing. Coleman, good to see you again. I've had a chance to visit Watts Bar and Vogtle and Summer this year. And I think that on-site presence that you had with your resident inspectors in the region and inspector team and headquarters support is so important.

I've got a question that I'm going to throw out to Victor, and then I'm going to ask Mike if he wants to chime in here from his perspective. But the first question, I guess, is both of you have highlighted issues with module construction. That's been a, you know, a problem, and I think that's probably been a surprise. Is that a fair statement across the board?

So are you seeing improvement in the, you know, here we are in September 2014, the former Shaw issues, Lake Charles, turnover at CB&I, the challenges? Are we seeing improvement by the licensees and the vendors in the module construction area? I'm going to ask Victor to respond, and then if Mike has something feel free to chime in.

MR. McCREE: So, Commissioner, I appreciate the question, and I would lean forward a bit in saying that Glenn and I are going to be at both Vogtle and Summer next week and we'll be given

an up-to-date briefing on a number of issues, including improvements that the COLs and CB&I is seeing in the quality of module construction.

Having said that, there remain issues. As you know, CB&I, strategically, has identified other vendors to produce sub-modules, in large part because of the challenges formally at Shaw, Modular Solutions, now Chicago Bridge and Iron, the Lake Charles facility. And some of those challenges still remain, and they've identified strategies to alleviate some of the module quality issues, whether it's the quality of the sub module itself and/or the quality control, quality documents associated with it. But they and we still identify issues that are being addressed, fortunately, before the module is completed there. The fabrication is complete and it's placed in its final resting place. But there do continue to be challenges, and we're continuing to engage them on that.

COMMISSIONER OSTENDORFF: Okay. Mike, do you have anything you want to add?

MR. CHEOK: I would support everything Vic said. This is an improving process for CB&I. They have incorporated a lot of the lessons learned, but they have a ways to go. And we also have increased licensee oversight of CB&I and staff oversight of CB&I, and they are implementing a lot of the lessons learned, but there’s a ways to go.

And also, in terms of the other module fabricators, they have also taken into account the lessons learned from CB&I, and they are starting off performing a lot better.

COMMISSIONER OSTENDORFF: Okay. Mike, I'm going to stay with you just for a minute here. You mentioned the AP1000 supply chain inspections and the vendor inspection program, very, very important. And I know that the agency entered into this whole process with some assumptions that give you a sampling methodology to not look at everything, you can't, but look at certain things on a percentage basis or most risk-significant, safety-significant aspects of pumps, valves, whatever it may be.

Are you comfortable with where we are as far as our sampling methodology and what we're looking at on these inspections, recognizing you can't look at everything?

MR. CHEOK: I am comfortable with where we are at this point. I mean, we continue to prioritize our inspections based on several criteria and operating experience, first-of-a-kind type construction activities will continue to dominate what we go look at. And, you know, we will also continue to work with the licensees and with people like NUPIC to see what they have looked at to prioritize what we need to look at. But at this point, we are comfortable with where we are in terms of our sampling.

COMMISSIONER OSTENDORFF: Okay. Glenn, do you have anything you want to add on that? You've been looking at this for a long time, as well. I'm just curious because I know this is a big part of the program.

MR. TRACY: It is. It's a significant emphasis area that I have with the vice presidents and the presidents of the companies that are currently constructing. And the onus is on them

to be identifying these issues and Mike Cheok and the Region II staff, our concerns arise when it's the NRC inspectors that are identifying these things, as compared to the licensees and the vendor identifying and reporting.

And so Mike continues to do appropriate self-assessments of the vendor group. He's not shy about asking for either revisions or enhancements to the program. We're not shy about providing resources when we think, and Mike and the team is, in fact, underway with a review at this point in time and I'm looking forward to hearing that overview. We'll share that with the Commission when it's complete.

COMMISSIONER OSTENDORFF: I'll also, as a side bar, add the impression I have talking to licensees, in particular Southern and SCE&G, that they realized after seeing what you guys were finding that they needed to up their game and have more of a presence and activity. And so I think your leadership by example has had a significant impact there with the utilities.

Frank, I want to go to you right now. I appreciate your mentioning the Fermi/Levy applications. I wanted maybe just to ask a question on the context of those, and it deals with technical consistency of post-Fukushima actions between existing reactors, operating reactors, and the new reactors. And let's just take the context of the mitigating strategies order. Were there any significant deltas between what your team is looking at for the new reactors for mitigating strategies compared to the operating reactor fleet?

MR. AKSTULEWICZ: Commissioner, I'm going to

defer that question to John Monninger because that is his critical area.

COMMISSIONER OSTENDORFF: John, we welcome a response from the podium.

MR. MONNINGER: Good morning. I'm John Monninger. I'm the Division Director for our Safety Systems and Risk Assessment Division.

With that said, I think first you have to look at what we do for global technical consistency. It's been an issue for the staff and an issue with the Commission ever since new reactors was established. So, globally, we apply the same requirements, we use the same guidance documents and the same analytical methods.

In addition to that, our sister and brother organizations have periodic meetings. On a weekly basis, you know, I meet with my counterparts in Research, I meet with my counterparts in NRR. So that's, you know, globally, what we do.

With that said, though, over the years, the Commission has had various policy decisions that they've put in place for new reactors. As an example, the advanced reactor policy statement expressing the views for higher-level safety for new reactors. In addition to that, the applicants have put in enhanced levels of safety.

So sort of with that framework, then we go to mitigating strategies where we're applying that same framework. It's the same requirements out there mitigating strategies. As an example of that, there's the three-phased approach, and we're using the same guidance documents. However, the outcomes are different.

I mean, just look at the ESBWR which is in front of the Commission. For phase one, as an example, the passive designs can go for 72 hours with essentially no operator actions. You know, this is significantly different from the fleet, the operating fleet, whereas they have to declare extended loss of all power within a very short time frame, you go through deep load shedding operations at DC Power, and it requires, you know, significant manual and operator actions.

So, you know, with that, the passive designs, it's very straightforward. Recently, we've looked more at the new reactors with active systems, and we've asked ourselves, you know, how do we apply the requirements, the mitigating strategies orders in a manner commensurate with the Commission's advanced reactor policy statement?

So with that in mind, our thought is, to the extent possible, some of these issues should be designed away, to the extent possible. You know, if possible, for the active new designs, you would prefer them to not have to declare in a very short time frame an ELAP event or to go into deep load shedding operations.

So we're trying to work through that issue currently, and we've discussed that issue with our partner division in NRR, the Japan Lessons-Learned Division. So they're aware of our ongoing thought process, and if, you know, any policy issues arise, we'll, of course, engage the Commission.

COMMISSIONER OSTENDORFF: Thank you, John.

MR. TRACY: I'll just add that I keep Mike Johnson

very aware of this in his key role, and he's cognizant of where we're heading and what our thinking are. And he's been very supportive, and we will obviously keep very close to him and the Commission, as John stated, should any policy issues arise.

COMMISSIONER OSTENDORFF: Okay. Thank you. Thank you all. Thank you, Chairman.

CHAIRMAN MACFARLANE: Okay, great. Again, let me thank you all for all your hard work. Glenn, let me offer some words of praise for your look forward and your constant attention to being agile. I think it's a model for the agency. It's a model for the agency because you pay attention to the corporate side, as well, and I think it will really help lead into the work that the EDO's office is doing on Project Aim. So thank you for that.

And let me welcome the inspectors here. Thanks for joining us today. We appreciate all your hard work.

So let me -- I've got a bunch of questions, but let me go to something that came up yesterday at the hearing for the two nominees for new Commissioners. In that hearing, Senator Whitehouse was concerned about the NRC's processes in regards to Gen IV reactors and the traveling wave reactor. I don't know if you guys got a chance to see any of that, but yes.

But so he was basically saying that the NRC is getting in the way and our processes are getting in the way of bringing these technologies on faster. So I thought maybe you all might be the appropriate folks to have a response to that.

MR. TRACY: We do. I'd offer, if you don't mind, the

key spokesman of the area, Mike Mayfield, and I'd like to offer him to come up and give any insights he'd have. We work on this issue regularly, Chairman, and trying to stay proactive with the resources we have with the focus on our prioritized goals is the key. And we have a strategic plan. We all reported this to Congress, ma'am, and I think that Mike will state very crisply, in my perspective, our overview in that area.

CHAIRMAN MACFARLANE: Great.

MR. MAYFIELD: Chairman, two years ago we were trying to get some resources allocated in the budget to deal with the non-light water reactor technologies, which is what the Senator was really going at. And the feedback from the Commission is you're welcome to do anything you would like to do, so long as it's in a non-resource intensive manner. So we've been trying to figure out exactly what that means, but I don't have budget to work those areas.

What we have been doing is working with DOE to leverage their resources. So we have an activity ongoing now where they are looking at how to revise general design criteria to go to exactly the kind of technologies that you're mentioning. We have recently reviewed a report that the Generation for International Forum put together and provided comment on that. That goes to a sodium-cooled fast reactor technology.

What we're trying to do is gradually build a regulatory infrastructure so that we can deal with those technologies. We have met with a number of the vendors over the last several years, TerraPower just last week, and the notion is what we can do to license

them is to take it on using Part 50 as the basic technical infrastructure approach and then adapt that through exemptions or additional license conditions. It's not the optimum scheme, but we can do it. We can move it forward. We know how to do it. We have the technical expertise on staff, and what we don't have we know where to go contract for it.

So the notion is bring us something and let's start working on it, rather than just say, well, NRC is the impediment. So we do have a strategy. We've been looking to the international community to build on it, build on what they're doing.

CHAIRMAN MACFARLANE: Do you think anybody is at all within five years of actually delivering some kind of application?

MR. MAYFIELD: No, ma'am. Well, I know that you recently met with the British regulator on the PRISM, so that one is probably the closest we have to actually engaging in a licensing discussion. The TerraPower folks were very clear with us that their expectation is to work with the Chinese, and they were looking at how NRC might work with the Chinese regulator. We'll see if that develops and, if so, how.

But we have been looking at how likely are the non-light water applications. Not very, at least not in the five-year time frame. We hear regularly deployment of sodium-cooled technology in the U.S. in the 2030 time frame. Deployment.

So I start working backwards. Well, it's not my prediction, ma'am. So we start working backwards from 2030.

Being wildly optimistic, five years to construct. Being equally wildly optimistic, five years to license. We're at 2020, right?

Now, when are we going to build that licensing infrastructure? That's the challenge that my staff and I are starting to work on with what support we can gather from DOE.

CHAIRMAN MACFARLANE: Okay.

MR. TRACY: I'd just add it's the onus of myself and my business line and Michael to ask for resources from the Commissioners and not expect. So in the opening clarity, I just want to make it clear I'm comfortable in terms of where our situation is. I'll, again, be agile when something arises and ensure that we're informing that and consistent with the Congressional report we've had in this area and Mike's leadership. At this point, based upon the goals that we've already presented and our priority, I believe Mike is using the resources we have effectively, and we will notify you immediately if we need additional resources.

CHAIRMAN MACFARLANE: Great, great. Thank you. Thanks, Mike. Okay. Let me turn to some other questions.

So in the pre-application discussions that you all have with prospective applicants for the new and the advanced reactors, I'm interested in how much attention is paid to the back-end, you know, how much discussion is had over the spent fuel pools, the long-term storage plans, you know, the planning for space at the site, that kind of thing.

MR. TRACY: I'll take that on first and then allow Frank or anyone else, Mike Mayfield. Ever since, clearly, your arrival,

Chairman, you know that that's been a main lead item and a goal of yours, and that's been quite clear to office directors like myself.

So in terms of the discussions, Gary and I, as well as my team, looked at the back-end associated with those activities and reviews that we have ongoing with us at this time. The historical look of that in terms of where we have been is what it is, and I will tell you that, you know, we will follow Commission policy and all that guidance. But I will tell you that in all the discussions we're having for the new builds and the advanced designs, the reflection of the current thinking of the Commission and the interest the Commission has on the back-end has been a part of our dialogue.

CHAIRMAN MACFARLANE: Okay. Victor, nice to see you here.

MR. McCREE: It's good to see you, too.

CHAIRMAN MACFARLANE: How are the pre-operational inspections going at Watts Bar?

MR. McCREE: So the inspections of pre-operational testing at Watts Bar started earlier this year, and a few front-line safety systems have completed pre-operational testing. Open vessel testing was completed, was started, actually, back in May and completed just recently. And our inspection of those pre-operational tests that had been conducted have gone well. There have not been any significant issues identified. And, of course, you were out there a couple --

CHAIRMAN MACFARLANE: Right.

MR. MCCREE: -- of months ago, and, in fact, they

were setting up for open vessel testing. We'll give a more complete presentation and status on October 30th when we meet with the Commission.

But no major issues have been identified. The challenge, as we indicated when you visited a couple of months ago, is really just the number of pre-operational tests that have to be conducted between now and, of course, fuel load. And we have positioned resources in an agile manner, a flexible manner, to be able to deal with that.

CHAIRMAN MACFARLANE: Okay. Good, good. Thanks. All right. Too many questions for Mike here. I have to pick and choose. So let's talk about -- which one? International vendor inspections, okay? I know that's been an issue, will be an issue.

Do you feel like or is it true that the international vendors get the same amount of inspection as domestic vendors?

MR. CHEOK: We will go through our prioritization process in terms of, and I discussed this a little bit on safety significance, the operating experience, the number of U.S. customers, etcetera. And if an international vendor would fall, would prioritize as high, we will treat it just like we would treat a domestic vendor.

CHAIRMAN MACFARLANE: Okay. And, you know, on one of your slides, I think you talked about vendor inspection enhancements. Have you incorporated any lessons learned from the experiences of the San Onofre steam generator into --

MR. CHEOK: We have not at this point. A workgroup has made recommendations as to what they would do, and

this is a multi-office workgroup from NRR and from the regions and NRO. They have made recommendations as to what we need to be looking at, given the San Onofre lessons learned.

At this point, the draft report is with me and I will be coordinating this at the division and office level with the other offices before we come forth to the EDO and the Commission with a recommendation.

MR. TRACY: I was just briefed on it, Chairman, for the first time yesterday, and it's got some really neat ideas that I really appreciated. It will be coming formally to me shortly.

CHAIRMAN MACFARLANE: Okay, great. All right. Excellent. We'll look forward to that.

With that, I will turn it over to Commissioner Svinicki.

COMMISSIONER SVINICKI: Well, I want to thank each of you for your presentations, and I agree that this is a discussion of the business line and you've really made clear all of the contributing organizations that have led to some of the successes we've talked about today. I'm not sure, though, that we've shown a spotlight on some of these, I think, very commendable and noteworthy and I'll go so far as to say innovative -- although I think that term is overused -- practices that have been and are being utilized in the accomplishment of this work.

Mike, I'll talk about the vendor workshop that you have been conducting in new reactors. I participated in the most recent one, and I don't think it's noteworthy or commendable because I participated in it, but it was a very, very interesting event because I

think, if we step back, not that many government agencies that are permit, that issue permits and licenses, I think, do that kind of awareness building and outreach to the entire supply chain. And I think the reason we do it, of course, is not if we build awareness and people are informed of our program then we avoid work for ourselves later in terms of having findings and enforcement actions and things like that. But I think it's a very noteworthy practice, and we mentioned it but I don't think that we've drawn enough attention to it. I think we build in a lot of smart things at the front end of what we do, and I think that that's commendable.

The ESBWR final design certification rule has been mentioned. Embedded in that is an efficiency measure that, as a result of looking at how ITAAC were structured across design certifications, the staff, realtime, incorporated an improvement while they were busy getting the ESBWR package together of looking at the inspectability of some of the ITAAC. And so that's the kind of realtime improvement cycle that we have going on that I think is noteworthy.

Victor, a compliment, you, Fred, and your team, on working on construction inspection and oversight. But, specifically, I went down to Atlanta recently and we spent the better part of a day in a deep dive on the ITAAC processes, looking at the software, looking at the work process itself. I know you have done some Lean Six Sigma or similar process on that.

But, again, as busy as the individual staff people are, we are trying to build in a realtime continuous improvement cycle.

And I think that that's noteworthy, and I wanted to draw a little more attention to that.

I do think we talked about a lot of the successes in the program before we began. I said I was excited about this meeting because I wanted to get that a little bit more front and center again. But I do now want to pivot to some of the challenges, and I think Frank's presentation was the most forthright in terms of his commentary. And this is related to the corpus of the work on design certifications, early site permits, COL, kind of that body of reviews that sits before the agency.

And although new reactors has been complimented on being agile, you know, I want to acknowledge why you're agile. You're agile because I think that we, Glenn, have forced you and your leadership team to be extremely quick on your feet. We're all a product of our experiences and, certainly, our professional experiences, and I have commented probably more than a time or two that I was privileged for many years to work as a staff member of the Senate Armed Services Committee.

And if you have the privilege of working in service of our men and women in uniform and our military services, you know that often they have weapons systems modernization and new weapon systems that are under development. And Glenn is nodding his head because I think he's heard this analogy a time or two from me.

As budget decision-makers have to look at making tough choices, often the tendency is to take all concurrent

developments and say I'm going to resource them at a level that keeps them going forward. And it feels like a kind and merciful thing when you're doing it, but, at the end of the day, you can sometimes be resourcing an activity. And for NRC, this isn't so much about money, it's more about critical skill sets. And Frank was very honest about that.

But we can resource, in this case in terms of people and critical skill sets, at a level that the progress is coming at a pace that it becomes very, very difficult to take these key milestones that you know you're trying to reach in a review schedule and create some kind of certainty about that and then communicate that to the applicants.

So, you know, years from now, when I'm asked did I do everything I could to equip the Office of New Reactors to get done the important work that it needs to get done, I don't want to second guess some of the resource shifts that I've supported in terms of the Fukushima activities. But I think, Glenn, you and Frank were kind not to mention the fact that you have been asked to relinquish some critical personnel to go do some other activities within the agency, and I don't think that that has made your success path any easier. Again, each of those decisions were made for good and justifiable reasons, but your agility in some ways is an outgrowth of the fact that we've challenged you to be able to kind of keep key milestones in process and be moving forward in that way, even though we were going to pull some of those critical skill sets to do some post-Fukushima work on the operating reactor side and the flooding and seismic reviews you

had to give up some of your experts or, at least before they were transferred over in totality, they were devoting their time to those activities.

So I'm going to ask you real, real candidly, Glenn, because I know you're thoughtful about this. We meet and talk about these activities a lot. Do you think that we're getting to a point where we're resourcing some of these reviews at a level that is making it a challenge to kind of know what the closure path is on some of these things?

MR. TRACY: No, ma'am, not to my current perspective at all. I do think, though, I'm accountable for monitoring the point at which I'm placing the business line in jeopardy, to be able to answer the bell and to ensure that I have all the critical skills should there be an immediate resurgence at any point in time or some non-light water reactor timing that is unexpected and to still be able to answer the U.S. NRC's mission of, obviously, being able to safely do those reviews and those licensing actions.

So Frank is extremely articulate in terms of that. He keeps me informed of what we can and cannot do, as does Mike Mayfield. I'm accountable to ensure that I don't bring the new reactor business line or NRO resources into an area of distress. And, yes, I am constantly -- you asked for frankness -- concerned that I am monitoring that, especially out through 2016, as we project to 2020. And I will be very open and timely in indicating to you where I think I'm getting into an area where I am in distress and potentially not able to do it.

Right now, I would not have said anything other because I should have come to you already, and I would have come to you already.

COMMISSIONER SVINICKI: Well, I appreciate that. I think, you know, we should have a lot of transparency into this process. And reference was made to my long service on this Commission. I guess I'm starting to feel like -- you know how you invite your most elderly relative at any family gathering? You're afraid of like the honest assessments of people and things that they'll come out with, so I'm beginning to feel like that person.

But, you know, we did have some targeted time frames for these various reviews, which, in terms of how long the reviews are actually taking, are looking pretty out of step. And this is something that I get asked about, and I'm sure other members of the Commission do. And the other thing we get asked about is the obligation of leaders to equip the staff here for success. I mean, whether or not they achieve the success is theirs and theirs alone, but you do need to be equipped so that success is within your grasp. You know, you need to be able to have what you need to get that done.

And there's been some talk about Generation IV reactors, SMRs, but the Chairman telegraphed this, so I'll say it, as well, is that the Commission will act very, very soon on the ESBWR final design certification rule any day now. But that was filed in 2005.

So when we look at this, SMRs, from what I understand -- and I'm no great expert on how those projects might be

structured, but I know enough to know this, is that if a review is going to take eight, nine, ten, it's going to take a decade, I don't think there's going to be SMR projects because it's not, they can't be structured in a way that sustains a review schedule that long.

So I think we need to come to terms, and it's hard for me to answer the question of NRC had this much touted Part 52 and you said this was a wholly new way of looking at this and this stuff of legends that it takes NRC 10 years, 15 years, you know, to do this, and projects in the 70s and 80s had these multi-decade review schedules. Well, now I'm being asked the question, well, what is so different about this now?

So I think that, going forward, in addition to how busy you are, we need to think about what are we going, you know, what do we want to be able to establish about that and going forward, as people might desire to apply -- right now, our body of work looks pretty static, you know, as far as what Frank covered. We're not aware of too much on the horizon. He mentioned maybe an ESP and some things here and there.

But I think that a deep look at this and telegraphing something as the nation looks at carbon regulation, as it looks at a portfolio for energy that is full of a lot of intermittent power sources and without some substantial, an increase in our ability to do energy storage, we need to look at nuclear may or may not be part of the equation going forward in terms of some expanded new interest. But we need to be able to look at this small body of activities of our experience with Part 52 and really be able to talk to whether we could

capture greater efficiencies in this process.

But right now I think it's fair for external critics to say this is looking a lot like Part 50. That's just -- you can disagree with that if you want.

MR. TRACY: I appreciate your insights, Commissioner. And that is why I try to focus so heavily with the executive team on lessons learned and trying to show a proactive stance of trying to, as doing processes, improving processes.

We're going to have a RIC session for the Regulatory Information Conference -- excuse me -- where outstanding performance and interaction between an applicant and the NRC has been displayed. An example might be, in our view, Detroit Edison, of how that has gone to date and the interaction. That does not mean the metrics that were initiated when this was first envisioned; no, ma'am.

So I did want to point out --

COMMISSIONER SVINICKI: Do you think we should update those metrics based on experience today?

MR. TRACY: I've looked at that, and I will take that as an action item that -- I'm already doing that. I have those charts. I know what our time frames have been. It's identifying the basis and the reasons and whether that was resource or performance or genuine external business decisions or quality of submittals or cognizance of how 52 works. All this is getting better, as is the construction and the construction oversight --

COMMISSIONER SVINICKI: Well, can I just close

with one thing? Because I can't disqualify that there isn't a feedback loop here because I don't have data. We talk a lot about the fact that maybe applicants are not supporting their applications at the same level, and I acknowledge that as a fact that you've observed. But Frank also was honest about the fact that when a review takes ten years -- he didn't put it this way, these are my words -- we have loss of personnel and we lose continuity on regulatory conclusions that we made. And so it's very, very difficult. When a review takes eight, nine, ten years, we don't have continuity. Well, guess what? The applicants don't either, and it's very difficult to hold a review team and have a coherency of issue resolution.

And so, you know, this is another kind of tough nut that underlies this whole thing, that I don't know that we have time to do it this year or next year, but at some point we need to have a kind of an intellectual look at this.

MR. TRACY: Understood. Thank you, ma'am.

COMMISSIONER SVINICKI: Thank you. Thank you, Chairman.

CHAIRMAN MACFARLANE: Nobody else? All right. Well, with that, we thank you very much for the discussion, for the presentations. I think it was very helpful, and we look forward to more good work out of your office. Thanks a lot, Glenn. Thanks, everybody. We're adjourned.

(Whereupon, the above-entitled matter went off the record at 10:59 a.m.