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U.S. NUCLEAR REGULATORY COMMISSION

STRATEGIC PROGRAMMATIC OVERVIEW OF THE NEW  
REACTORS BUSINESS LINE

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TRANSCRIPT OF PROCEEDINGS

Public Meeting

Before the U.S. Nuclear Regulatory Commission:

Allison M. Macfarlane, Chairman

Kristine L. Svinicki, Commissioner

William D. Magwood, IV, Commissioner

William C. Ostendorff, Commissioner

## APPEARANCES

## NRC Staff:

Bill Borchardt  
Executive Director for Operations

Glenn Tracy  
Director, Office of New Reactors

David Matthews  
Director, Division of New Reactor Licensing

Scott Flanders  
Director, Division of Site and Environmental Reviews

Michael Mayfield  
Director, Division of Advanced Reactors and Rulemaking

Laura Dudes  
Director, Division of Construction Inspection and Operational Programs

Richard Rasmussen  
Chief, Construction Electrical Vendor Branch

Victor McCree  
Regional Administrator, Region II

Justin Fuller  
Resident Inspector, Vogtle Units 3 and 4, Region II

## 1 PROCEEDINGS

2 CHAIRMAN MACFARLANE: Okay, good morning everybody. I'd  
3 like to welcome you here, the staff, the media, industry folks, the public, for  
4 today's meeting. Today we're going to be focusing on new reactors, and as most  
5 of you know, in the last year the NRC, last couple of years the NRC has issued  
6 two combined licenses, combined operating licenses, for the Vogtle site in  
7 Georgia and for the Summer site in North Carolina. The NRC staff worked very  
8 hard to get to this point I know. Now we are moving into a new phase, where  
9 with the start up of construction activities, so there's a, sort of, new set of  
10 inspection and oversight that is occurring now. And I'm looking forward to  
11 hearing more about what's happening on that topic.

12 What we're going to be doing today is having two panels this  
13 morning before we enter into the question forum period, and the two panels are  
14 in two general topic areas. So the first panel, we're going to hear a discussion of  
15 topics associated with the light water reactor licensing, siting reviews and small  
16 modular reactors, then we will change out some seats and will be followed by  
17 panel discussion on the construction oversight and vendor inspections. So first  
18 of all, let me turn to my colleagues and see if anybody has opening remarks.  
19 No? Okay. All right, then we will just plow ahead and I will turn it over to the  
20 EDO, Bill Borchardt.

21 BILL BORCHARDT: Well good morning. The topic we're here to  
22 discuss today is new reactor licensing and the inspection program. We're going  
23 to have to change the name because this new process began in the 1980s. We  
24 actually certified the first design in the 1990s, and as you mentioned recently,  
25 issued the first combined licenses. The work that's been accomplished by the

1 staff, I would like to commend the quality of their work over the many years.  
2 They, I think, have done a remarkable job of not only doing detailed technical  
3 reviews, but they've also been able to anticipate many of the issues that are now  
4 facing us as we prepare to do, for the first time, construction oversight using the  
5 ITAAC element of this new licensing process. I think they've done a remarkably  
6 good job of putting in place the infrastructure and processes that will enable the  
7 NRC to be prepared to do the inspections when they need to be done, and to  
8 support the licensee's construction program. As I mentioned, this has been the  
9 effort of many offices, not just the Office of New Reactors, but support from other  
10 program offices as well as from the General Counsel.

11           If you would allow me just one additional minute, I'd like to  
12 acknowledge the presence of two NRC individuals, Ron Gardner and Tony  
13 Cerne who are over to your left. I think they are still there. They are a wealth of  
14 experience. They did construction inspection in the 1970s and 1980s, and they  
15 have continued to work with us as a rehired annuitant for the last several years to  
16 help us put together a construction inspection program that took the benefit of all  
17 of the hard lessons learned from years ago. And also, I'd like to make a special  
18 thank you to Tony Cerne, who was one of the first experienced inspectors to try  
19 to train me. He failed miserably at that, but it was the quality of people like Tony  
20 and Ron that, when you first came to work at the NRC in the 1980s that you  
21 recognized -- excuse me -- what a valuable set of individuals there are and the  
22 technical expertise that they brought to their jobs. I'd like to thank them and  
23 those that they represent for all of their work over the many years. So with that,  
24 I'd like to turn to Glenn, who will begin the briefing.

25           GLENN TRACY: Thanks Bill. Good morning Chairman,

1 Commissioners. In today's briefing, I will present the current state and plans to  
2 address the future challenges in the new reactor program, including potential  
3 policy issues that we may see over the next three to five years. The New  
4 Reactor Business Line is comprised of 564 full-time equivalent, and \$65 million  
5 contract dollars. It's enabled by a strong network of collaboration with the Offices  
6 of the General Counsel, Nuclear Reactor Regulation, Research, Nuclear Security  
7 and Incident Response, Investigations, Enforcement, and the Regions, especially  
8 Region II. We want to specifically acknowledge our thanks to the Office of Public  
9 Affairs and to the Office of International Programs, noting their support of our  
10 international engagements and vendor oversight, and our other important  
11 activities, such as our participation in the Multinational Design Evaluation  
12 Program. Additionally, I would certainly note that without the dedicated support  
13 of our corporate office partners, we would not be able to achieve our mission.  
14 Next slide please.

15           Today the leadership of each major activity will present the status  
16 and challenges in their specific areas of responsibility. I will first provide an  
17 overview of the new reactor program. Dave Matthews, the director of the  
18 Division of New Reactor Licensing will discuss plans and policy matters in the  
19 area of licensing the new large light water reactors. Mike Mayfield, the director of  
20 the Division of Advanced Reactors and Rulemaking will then describe plans to  
21 address foreseeable challenges in small modular reactors and advanced  
22 reactors. Next slide please.

23           Scott Flanders, the director of the Division of Site Safety and  
24 Environmental Analysis will provide insights regarding the agency's review of  
25 siting and environmental impacts for both large light water reactors and small

1 modular reactors. In the second half of our meeting, we'll have an in-depth  
2 briefing of the status and future of our vendor and construction oversight  
3 programs that will include Laura Dudes and Rick Rasmussen from the Division of  
4 Construction, Inspection, and Operational Programs as well as Vic McCree and  
5 Justin Fuller from Region II. Justin Fuller, Rahsean Jackson, and Tomy Nazario,  
6 there's Tomy, are the senior resident inspectors from Vogtle, Summer and Watts  
7 Bar, respectively. We're extremely pleased to have them with us today, and  
8 hearing their discussion, the insights to the all-important field operations of the  
9 construction inspection program. Next slide please.

10           In 2009, the new reactor program was challenged with several  
11 competing priorities. Several design certification and early site permit  
12 applications, 18 combined license applications, the development of a  
13 construction and vendor inspection program, and preparations to review  
14 advanced reactors. We determined it was necessary to set specific goals to  
15 ensure that we focused on the right activities that would ensure the success for  
16 the overall program. We identified three goals. The first goal was to safely  
17 complete design certifications, limited work authorizations, and combined license  
18 applications needed for plants expected to operate in 2017. We met that goal by  
19 safely completing the AP1000 design certification amendment, the first ever  
20 combined licenses under Part 52, limited work authorizations that allowed the  
21 start of safety-related construction at both Vogtle and Summer. The staff also  
22 met milestones for three other design certifications, 10 combined license  
23 applications, one early site permit, and two applications to renew one design  
24 certification. Next slide please.

25           The second goal was to develop the necessary construction

1 inspection and vendor oversight infrastructure to implement new reactor  
2 construction oversight. We met that goal, and today we have highly qualified  
3 construction inspectors on site. Furthermore, we developed the infrastructure to  
4 support inspection scheduling, reporting, and are prepared to receive closure  
5 notifications for our Inspections, Tests, Analyses, and Acceptance Criteria known  
6 as ITAAC.

7           The third goal was to establish an advanced reactor organization  
8 capable of conducting infrastructure development, pre-application reviews, and  
9 combined license reviews for the next generation nuclear power plant and other  
10 technologies. In 2008, we created the advanced reactor program, a predecessor  
11 to our current division of Advanced Reactors and Rulemaking. This division has  
12 begun developing design-specific review standards, is addressing various policy  
13 issues associated with small modular reactors, and is holding pre-application  
14 interactions with potential applicants. Having met the goals we set out in 2009,  
15 we found ourselves in a transition stage. We're now in an environment where we  
16 have plants under construction, the licensing of large light water reactors is  
17 stable, and applications for small modular reactors are imminent. Taking these  
18 aspects into consideration, the management team set out to develop a new set of  
19 program goals for the period of 2012 through 2016. Next slide please.

20           We assessed the current and future environment for new reactors,  
21 and using key planning assumptions to guide the development of new goals. In  
22 particular, over the next four years, there will be four AP1000 units, and in  
23 collaboration with NRR, one Part 50 reactor under construction. We currently  
24 anticipate the operation of the first AP1000 unit in fiscal year 2017. As part of  
25 construction oversight, we recognize there will be a significant increase in the

1 number of ITAAC closure verifications as licensees work toward closing the 875  
2 ITAAC for each AP1000 unit. Next slide please.

3           We realize that the demands upon our staff in response to  
4 emerging licensing and technical requests will certainly increase as construction  
5 proceeds. In addition, the expertise of the siting, probabilistic risk assessment,  
6 and structural engineering review staff in the Office of New Reactors will continue  
7 support to the operating reactor program for Fukushima lessons learned over the  
8 next several years as a top priority. This is a significant workload and we must  
9 consider this in our future planning for new reactor reviews and we have  
10 communicated such, both internally and externally. Next slide please.

11           We have considered our workload projections through 2017, and  
12 anticipate receipt of applications for one additional large light water reactor  
13 design certification and one additional early site permit. During 2013 and 2014,  
14 we expect to receive applications for two small modular reactors, and will  
15 continue to monitor developments for non-light water advanced reactors. Next  
16 slide please.

17           Reflecting on our prior goals, the drivers, the workload projections,  
18 and the critical elements of our future activities, our management team  
19 developed the following six new goals to guide our staff and our efforts to 2017.  
20 These prioritized goals were established on June 22, and are being used by the  
21 new reactor program staff and leadership.

22           Goal one. We will execute construction oversight at the four  
23 AP1000 units, including the construction inspection program, ITAAC closure  
24 verification reviews, and the necessary license amendments to support the  
25 recommendation to the Commission that provides the regulatory basis for the



1 Commission to make its 10 CFR 52.103(g) finding for a plant ready to operate.

2           Goal two. We will implement the agency's reactor vendor  
3 inspection program plan, including inspection, outreach, communication to  
4 applicants, vendors, licensees and their contractors, as well as ongoing self-  
5 assessments in support of operating reactor safety and new reactor construction.

6 Next slide please.

7           Goal three. We'll develop an integrated transition plan that includes  
8 functions, licensing and oversight in order to support adequate transition from  
9 construction to operations for those sites with the intent to commence operations  
10 during fiscal year 2017.

11           Goal four reaffirms our commitment to support the completion of  
12 three large light water reactor design certifications, one early site permit, and 10  
13 license applications requested by applicants with strong construction plans. Next  
14 slide please.

15           Goal five builds upon the creation of the Division of Advanced  
16 Reactors and Rulemaking and our target to have the infrastructure necessary  
17 and ready to support the licensing review and construction oversight of small  
18 modular applications that are expected to arrive by 2014.

19           And finally, goal six. We will establish a plan for preparing the  
20 agency for the licensing of non-light water reactors or advanced reactors, and the  
21 associated fuel fabrication facilities by fiscal year 2016. At this point, I'd like to  
22 turn it over to Dave Matthews.

23           DAVID MATTHEWS: As Glenn stated in his historical perspective,  
24 and as Bill and the Chairman remarked upon, during the last several years the  
25 new reactor licensing activities have been principally focused -- I think I have to

1 move this -- principally focused on the review of applications for design  
2 certifications, early site permits, limited work authorizations, and combined  
3 licenses for large light water reactors. While we have completed reviews and  
4 issued several certifications, permits, and licenses, there is still much work  
5 underway devoted to large light water reactors. At the risk of some repetition, at  
6 the present time, we are reviewing requests for certifications for three new  
7 designs and the renewal of an existing design certification, 10 Part 52 combined  
8 license applications for 16 new units, and one Part 50 operating license  
9 application, and in addition, we're going to have an early site permit application.  
10 We already have it under review, and have it scheduled for completion. Next  
11 slide please.

12           The new reactor program goals and projections for the 2012 to  
13 2016 time frame that Glenn described identify an increasing number of licensing  
14 actions that will be needed during the construction of the four units that have  
15 received combined licenses. Requests for changes to the original licensing  
16 bases, that were issued on the issuance of those licenses, are being submitted  
17 and are being reviewed using the existing Part 52 change processes and  
18 guidance that were developed to ensure maintenance of the plant's licensing  
19 basis during construction.

20           An obvious concern on the part of those involved in the license  
21 review process is the potential impact of the court's remand of the Commission's  
22 waste confidence decision and temporary storage rule. The staff is developing a  
23 path forward, and will be coming to the commission shortly with an information  
24 paper to describe our approach to implementing the Commission's order as it  
25 relates to ongoing licensing reviews and proceedings. The NRC staff intends to

1 continue to issue draft and final environmental impact statements in support of  
2 ongoing licensing reviews. The NRC staff is developing explanatory text for  
3 these EISs that will state that long-term storage and disposal of spent fuel is a  
4 generic issue that is being addressed through rulemaking. Thus NRC's  
5 obligations under the National Environmental Policy Act regarding waste  
6 confidence will be addressed through rulemaking rather than in those individual  
7 licensing proceedings. With regard to implementation of the Commission's  
8 Fukushima initiatives, the New Reactor Business Line is pursuing resolution of  
9 the applicable requirements and recommendations with all of the applicants prior  
10 to the completion of the design certification or combined license reviews. Next  
11 slide please.

12           As I mentioned earlier, the New Reactor Business Line is giving  
13 high priority to the licensing actions for the reactors under construction, and the  
14 staff and OGC are working closely together to ensure that the review of their  
15 requested amendments are thorough and timely. Maintaining progress on  
16 pending design certification reviews and related rulemaking is essential to the  
17 timely completion of the combined license applications that have referenced  
18 those designs. By continuing to utilize what we have called design-centered  
19 review approaches, and working with industry led by design centered working  
20 groups, we are identifying the critical path design issues that have the highest  
21 potential to impede timely completion of the reviews and we're providing  
22 increased management attention in those specific areas.

23           Many of the applicants for permits and combined licenses have  
24 been stressing the importance of completing the NRC's environmental reviews in  
25 order to move forward on permitting activities by state and other federal entities

1 in advance of the dates expected for final NRC approval of the related licensing  
2 actions. NRC is the lead agency on the environmental impact statement  
3 prepared for new reactor applications, and agencies such as the Army Corps of  
4 Engineers and the National Park Service are cooperating agencies and will rely  
5 on information in that document to support permitting activities unrelated to the  
6 specific NRC licensing decision. These expectations present schedule and  
7 resource challenges, but nevertheless, we are engaging all the affected parties  
8 with the intent of seeking timely resolution. As the construction of the newly  
9 licensed reactors progresses and the licensees ultimately look forward towards  
10 commercial operation, the staff is also looking forward in terms of its preparation  
11 for their transition from construction to operational activities. The staff has begun  
12 preliminary work to assess -- excuse me -- potential future impacts to the agency  
13 as large light water reactors move from construction to operation. The staff has  
14 established a transition working group to develop an integrated plan that  
15 addresses all functions, oversight and licensing, to prepare for implementation of  
16 an effective transition from construction to operations in a seamless and  
17 transparent manner. Next slide please.

18           With regard to policy issues relating to the licensing of large light  
19 water reactors that may require Commission involvement in the near future, the  
20 determination of financial qualifications has presented unanticipated difficulties  
21 for applicants that are viewed as merchant plants. Applicants for combined  
22 licenses are required to demonstrate that they possess or have reasonable  
23 assurance of obtaining the funds necessary for both construction and operation  
24 of the facility throughout its life. A challenge in the absence of identified sources  
25 of funding, the unavailability of information on the cost of financing, and

1 uncertainties related to construction schedules. One applicant has  
2 communicated with us his views that this is a generic issue and has requested  
3 that the Commission take action to address issues related to the provisions for  
4 financial qualifications that currently exist in the regulations. We are planning to  
5 solicit feedback from the public and industry on this issue before formulating a  
6 staff position for Commission consideration. On September 5, we announced a  
7 public meeting that is intended to be held on October 11 to begin that process of  
8 soliciting those views in order for the staff to further formulate proposals for your  
9 ultimate consideration. With that, I'd like to turn the microphone over to Mike  
10 Mayfield.

11                   MICHAEL MAYFIELD: Thank you David. Good morning  
12 Chairman, Commissioners. Since we briefed the Commission on small modular  
13 reactors in 2010, the industry has made significant progress in developing their  
14 designs. The staff similarly has made significant progress in addressing several  
15 policy issues in developing review guidance and in developing training for the  
16 staff to use on these designs. These efforts have emphasized the staff being  
17 ready to undertake the design certification reviews of the new smaller passive  
18 pressurized water reactor designs. We have been making use of the lessons  
19 learned from the large light water reactor reviews and have been emphasizing to  
20 the small reactor vendors that they also need to learn from these reviews. We've  
21 also been considering what we would do to be able to undertake the review of  
22 non-light water reactor designs. For example, we recently prepared a report on  
23 advanced reactor licensing that the Chairman forwarded to Congress month.  
24 Overall, considering these new or newly introduced technologies and designs,  
25 many of them incorporating first-of-a-kind features are creating some unique

1 challenges for the staff. May I have slide 20, please?

2           This slide depicts the four small pressurized water reactor designs  
3 that are being discussed with the staff. Our near-term work is expected to  
4 include pre-application discussions with the vendors and undertaking the design  
5 certification reviews. These designs do present some interesting challenges for  
6 the staff, both in terms of the technical designs and the fabrication techniques  
7 that are being proposed. Some examples include moving components inside the  
8 reactor pressure vessel and significantly extending the time between refueling  
9 outages beyond what we see in the currently operating plants. We have held  
10 several meetings with the vendors to discuss these and other issues and have  
11 begun thinking about how we need to change our technical review process and  
12 the oversight process as these designs are implemented. Next slide please.

13           At the time we created the advanced reactor program in late 2008,  
14 small modular reactors were seen as conceptual designs and there were many  
15 and varied opinions about their viability. Today these projects are rapidly  
16 becoming a reality. The Department of Energy has put forward a cost sharing  
17 program that would support two projects with a goal of having the designs  
18 certified and the plants in operation by 2022. We are currently budgeted to  
19 support the two projects DOE eventually selects, but we're also considering how  
20 we could address other projects that may be submitted. We've been tailoring our  
21 review guidance to the specific designs through the preparation of design-  
22 specific review standards. This effort is making use of risk insights from the  
23 designs to adjust the level of emphasis in the staff's review to be more consistent  
24 with the risk and safety significance of the systems, structures, and components  
25 that make up the designs. At this stage I am optimistic that this approach will

1 provide a more efficient review while maintaining our high safety expectations for  
2 any new design.

3           The bottom line on the staff's effort is that we will be prepared to  
4 undertake the design certification reviews of these small pressurized water  
5 reactor designs and the combined license applications that referenced them.  
6 We're also maintaining awareness of the developments on non-light water  
7 reactor designs and will take the steps necessary to be prepared to conduct  
8 those reviews as the time comes. While the staff has been working hard to be  
9 ready, we continue to emphasize to the industry that progress on the reviews will  
10 depend heavily on them submitting complete high quality applications and on  
11 their overall readiness to enter the review process. May I have the next slide  
12 please?

13           We've worked with the industry and with key NRC offices to  
14 develop approaches to numerous policy issues that have been identified. We  
15 have developed strategies and shared these strategies with the Commission  
16 through papers over the last couple of years to address issues such as control  
17 room staffing, security, emergency planning, licensing of multi-module sites, and  
18 licensing fees, just to mention a few. Generally speaking, the next steps to  
19 implement the strategies rest with the designers and with the potential licensees.  
20 Potential applicants and NEI have expressed an interest to further align on the  
21 policy issue of emergency planning. However, we believe this is a licensing  
22 issue rather than a design certification issue, so there will be adequate time to  
23 discuss future industry proposals. The staff has informed the industry that future  
24 work on emergency planning for small modular reactors must take into account  
25 the various designs, modularity, and collocation with other industrial facilities as

1 well as the size of the emergency planning zone. Next steps on this issue do  
2 rest with the industry, and we know they are working to develop specific  
3 proposals to present to the staff. With that, I'll turn to Scott Flanders to discuss  
4 site safety and environmental reviews.

5           SCOTT FLANDERS: Thank you Mike. Good morning Chairman,  
6 Commissioners. As Glenn stated, our division supports the new reactor  
7 program, both large light water reactors and small modular reactors, as well as  
8 certain operating reactor activities including those associated with the agency's  
9 Fukushima lessons learned activities. My presentation will discuss a few key  
10 challenges and our plans to ensure we successfully address these challenges. I  
11 will also discuss a few other key staff activities that will help assure we are well  
12 positioned to effectively support all of our ongoing and future work activities. Can  
13 I have the next slide please?

14           Our division is the technical lead for the Near Term Task Force  
15 Recommendation 2. This effort is led by my deputy director, Dr. Nilesh Chokshi.  
16 Recommendation 2 includes reevaluating seismic and flooding hazards for  
17 operating reactors, conducting plant walk-downs to assess current seismic and  
18 flooding protection, and initiating rulemaking to require periodic reviews of  
19 external hazards. While our division is the lead, we are working closely with the  
20 Office of Nuclear Reactor Regulation and the Office of Nuclear Regulatory  
21 Research to address the technical challenges associated with the reevaluation of  
22 the hazard and we are working closely with NRR and the Regions on the walk-  
23 downs.

24           The primary challenge we are currently focused on is adapting our  
25 current practices for new reactor seismic and flooding hazard reviews to the



1 particular circumstances of the operating fleet. To address this challenge, and  
2 consistent with Commission direction, we are working with interested parties to  
3 develop guidance that can be used uniformly across the operating fleet to  
4 estimate the new hazard and identify risk insights that can be used to determine  
5 if the plant's design basis or licensing basis needs to be changed. We have  
6 issued one interim staff guidance for public comment, and we plan to issue a  
7 second sometime this week. In addition, we are on schedule to issue final  
8 guidance documents in November. We are also preparing to review licensee  
9 walk-down reports, the first of which are due in November, and we are also  
10 prepared to review the first group of flooding hazard reviews which are due in  
11 March of 2013.

12           Shifting to new reactors. Although the staff has reviewed the new  
13 reactor applications using current day methods, all of the applications currently  
14 under review were submitted prior to completion of the central and eastern  
15 United States seismic source model that operating plants will use to conduct their  
16 reevaluations. As a result, the staff has requested all new reactor applications  
17 still under review to consider how this new information will affect the seismic  
18 hazard evaluation. Some applicants have responded to this request and the staff  
19 is actively reviewing their submittals. Other applicants have either provided  
20 proposed submittal schedules or plan to do so soon. Next I would like to switch  
21 to the next key challenge I want to discuss is associated with the expected  
22 receipt of the first Part 52 application for a site in the western U.S. Western sites  
23 pose unique challenges in the areas of seismic hazard evaluation, hydrological  
24 hazards, and meteorological conditions. While the existing requirements and  
25 guidance are sufficient for the staff to begin a timely review of this application, the

1 unique siting challenges may require additional analysis. The next slide is helpful  
2 to appreciate this challenge. Can I have the next slide please?

3           On this next slide you'll see that the black outline covering the  
4 central and eastern portions of the United States. For that portion of the country,  
5 the NRC, working with the Department of Energy and the Electric Power  
6 Research Institute, has developed the seismic source model which I discussed  
7 earlier. And also for that portion of the country, in the past the Electric Power  
8 Research Institute and others have developed ground motion prediction models,  
9 and these models can readily be used by combined license applicants and early  
10 site permit applicants as well as the operating fleet to assess their seismic  
11 hazard.

12           For the western U.S., there are several unique geologic settings  
13 which make establishing a regional model impractical. Therefore, establishing  
14 appropriate ground motion levels for the western U.S. requires greater effort both  
15 on the part of the applicant to complete and for the staff to review. To help  
16 manage some of the anticipated challenges associated with a western site, the  
17 staff has already initiated pre-application activities. These early interactions  
18 should help provide for a higher quality application and a more efficient review.  
19 Can I have the next slide please.

20           In addition to working on the key challenges I just discussed, the  
21 staff is also undertaking some other key activities that are noteworthy. The  
22 existing siting guidance is applicable to both large light water and small modular  
23 reactor reviews. To address unique aspects related to the design of the small  
24 modular reactors, the staff has updated several standard review plan sections  
25 and developed standard -- excuse me -- several design specific review

1 standards. For example, unique technical aspects that need to be considered  
2 are establishing the appropriate source term for small modular reactors and  
3 seismic evaluation for embedded structures. While these technical aspects are  
4 not complex, the staff will need different information to complete their review.  
5 The updated guidance addresses these additional information needs. Likewise,  
6 small modular reactor reviews present unique considerations for the  
7 environmental review. For example, consideration of establishing a reasonable  
8 range of alternatives will be different than that used for large light water reactors.

9           Crucial to everything I have discussed is having staff with the right  
10 critical skills to complete the work. In our case, a diverse set of technical skills  
11 are needed, including earth sciences such as geology, seismology, and surface  
12 water hydrology. We have developed a strategy to ensure that staff with these  
13 skills are available to support all of our activities on agreed upon schedules. The  
14 strategy includes working with other offices to leverage staff with the requisite  
15 critical skills. For example, the Office of Research has provided tremendous  
16 support in the areas of seismology and hydrology. In addition, we have  
17 estimated a long term sustainable staffing level to support our hiring strategy,  
18 and we intend to use contractors to serve as surge capacity for times of heavy  
19 activity.

20           With that, I thank you for your time and attention. I look forward to  
21 your questions, and next I'll turn it over to Laura, Victor, Rick, and Justin to  
22 discuss the construction and vendor oversight program.

23           LAURA DUDES: Good morning Chairman, Commissioners. I'm  
24 Laura Dudes. I'm the director of the Division of Construction, Inspection, and  
25 Operational Programs. Next slide please.

1           The construction oversight program has been developed over 15 or  
2 more years, taking into account lessons learned from the past including many of  
3 the conclusions and recommendations from NUREG-1055, which is the  
4 document depicted on this slide. This is a comprehensive collection of lessons  
5 learned from construction activities conducted in the 1970s and '80s. As a result  
6 of this study, the NRC developed and codified the Part 52 regulation that  
7 resolves design and siting issues early in the licensing processes, and we have  
8 developed our inspection and oversight program with Part 52 in mind. Namely,  
9 we will verify that the plant has been built in accordance with the licensing basis.

10           Numerous program and policy issues have been resolved through  
11 public interactions and Commission decisions, the most recent being the ITAAC  
12 maintenance rule which will become effective this week, I believe September 27,  
13 2012. So at this time we have no policy issues under review for the construction  
14 oversight program, and we are in full execution mode. We have a rigorous safety  
15 focused program being implemented for the oversight of the four AP1000s under  
16 construction in the United States. Similar to our first implementation of early site  
17 permit design certification and combined license applications, we do expect to  
18 learn lessons that will strengthen our construction and ITAAC closure programs  
19 over time. Next slide please.

20           Today I want to focus on the multiple facets of the program and the  
21 organizations that are working together in the business line to implement safe  
22 and effective construction oversight leading to a technically sound  
23 recommendation to you, the Commission, which will support the decision that the  
24 facility was built in accordance with the prescribed conditions in the license and  
25 the licensees can commence operation. I'm going to move around this slide in a

1 clockwise manner beginning with construction inspection on-site, which includes  
2 inspection of safety-related systems, structures, and components, as well as  
3 inspections of the licensees' programs such as quality assurance and corrective  
4 actions. These inspections are led by Region II with support as needed from  
5 technical staff here at headquarters. Over the next few years, the NRC will  
6 inspect thousands of systems, structures, and components to verify safe  
7 construction of the units. As we are implementing the program, we are realizing  
8 a great benefit from having a staff that has just completed a review of the  
9 licensing safety analysis report available to assist the inspectors by either  
10 participating in the inspection activities or providing technical assistance when  
11 questions are raised in the field.

12           Moving onto assessment and enforcement. We are implementing  
13 the construction reactor oversight process, which evaluates the significance of  
14 the construction inspection findings and provides for periodic assessment of the  
15 licensee's performance which will inform our need to adjust inspection activities  
16 or resources in a particular area. We will conduct annual self-assessments of  
17 our oversight program and make necessary changes in a timely manner. I do  
18 want to note the collective efforts of the team, both Region II, Office of General  
19 Counsel, Office of Enforcement, and the Office of New Reactors all provide input  
20 into the assessment and enforcement process to assure a technically sound,  
21 consistent, and legally defensible application of our programs. Also, the Office of  
22 Enforcement updated the Enforcement Policy to reflect the Part 52 construction  
23 environment and oversight program.

24           Moving onto inspection, tests, analyses, and acceptance criteria  
25 closure verification. It is the licensee's responsibility to perform the inspections,

1 tests, and analysis and ensure that the acceptance criteria are met. We have a  
2 robust program to verify that these activities are being done in a quality manner.  
3 We do know that the licensees will be submitting the majority of the ITAAC  
4 closure notifications towards the end of the construction period and we have the  
5 procedures, processes, and information technology tools in place to assure that  
6 the NRC will be able to fulfill our mission in an effective and timely manner. In a  
7 few moments, Justin will walk you through an example of how our inspection  
8 activities will feed into our ITAAC closure program.

9           Moving onto vendor inspection. In April of this year, the NRC  
10 created a center of expertise for the reactor vendor program, which now resides  
11 in the Office of New Reactors. The vendor inspection program verifies that  
12 licensees are fulfilling their regulatory obligations with respect to providing  
13 effective oversight of the supply chain. It accomplishes this through a number of  
14 activities including performing inspections to verify the effective implementation  
15 of a vendor's quality assurance program. The vendor inspection program has  
16 also assumed the lead for inspections that cover certain types of generic  
17 activities associated with ITAAC closure such as equipment qualification testing.  
18 Rick will provide some examples of those inspections and discuss some of the  
19 early results in a few moments. Now before I leave this slide, I would also like to  
20 recognize other partners in the New Reactor Business Line. In addition to  
21 Region II, Regions I, III, and IV have resources to support operator licensing; and  
22 the Office of the Chief Human Capital Officers Human Resources Training and  
23 Development staff is on track to deliver the AP1000 simulator which will help train  
24 our license examiners.

25           We are expecting a large number of initial operator exams for these

1 four plants and we will be prepared to license the personnel who will operate  
2 these new facilities. We're also working with our colleagues in the Office of  
3 Nuclear Security and Incident Response to assure timely development of security  
4 and emergency preparedness inspection procedures. Next slide, please.

5           So as we look forward for the oversight program, we continue to  
6 pursue both international and domestic construction experience to assure timely  
7 dissemination of early lessons learned. Early challenges for licensees include  
8 maintaining design fidelity with a certified design in a highly dynamic construction  
9 environment, and assuring alignment and oversight with their suppliers and  
10 constructors as field modifications are implemented. We are open to  
11 enhancements to our program as a result of issues that arise during construction.  
12 However, we do need to evaluate these issues thoroughly; make sure we  
13 understand the root causes, and engage in public dialogue prior to making any  
14 changes to our current regulatory process.

15           As both Glenn and David mentioned, the Office of New Reactors is  
16 leading an agency-wide effort to develop an integrated transition plan to assure  
17 the smooth transition of agency functions as these plants go into operation. One  
18 of the key areas within the purview of the oversight program is assuring  
19 resources for the transition are planned and budgeted to support the licensee's  
20 operational timelines. As we move into the 2015 budget development cycle we  
21 will begin accounting for operational resources the Region will need such that we  
22 can provide adequate time for hiring and training the operational staff. And  
23 finally, we are engaged with the small modular reactor community to understand  
24 their design and construction models, such that we identify policy issues early, as  
25 it is likely that a significant portion of the safety-related fabrication activities will

1 take place at a large-scale manufacturing facility rather than at the final site  
2 location.

3 So that concludes my prepared remarks. I will turn it over to Victor  
4 McCree.

5 VICTOR MCCREE: Thanks, Laura. Good morning, Chairman,  
6 Commissioners. In April 2006, Commission Staff Requirements Memorandum  
7 created a dedicated organization in Region II to implement the Construction  
8 Inspection Program. As such, Region II provides oversight for all reactor and fuel  
9 cycle facilities under construction in the United States. Currently this includes 10  
10 CFR Part 52 licensees, four of those, one CFR Part 50 applicant, Watts Bar, and  
11 several fuel cycle facilities. In order to accomplish these activities we've hired  
12 and trained and qualified a number of construction inspectors. Over 50  
13 inspectors in Region II are now fully qualified. After completing an inspection  
14 qualification process, it takes about two years. In addition, over 20 operator  
15 license examiners are completing cross-qualifications in the AP1000 technology.  
16 I'd also note, as Laura mentioned, that a small amount of construction resources,  
17 one FTE each, are assigned to the other Regions.

18 Currently, the Vogtle, Summer, and Watts Bars 2 sites each have  
19 three construction resident inspectors assigned to the sites. As Glenn  
20 mentioned, the senior construction resident inspector at Vogtle is here today,  
21 Justin Fuller, who will be speaking shortly. Also, Rahsean Jackson, the senior  
22 resident inspector at Summer, is here; and Tomy Nazario, the senior resident  
23 inspector at Watts Bar Unit 2 are in the well, and are available to answer  
24 questions. Fred Brown, my deputy regional administrator for construction, is also  
25 here in the well. As work ramps up at each site, we may assign additional



1 construction resident inspectors at each site. Next slide, please.

2           Schedule changes such as those at Watts Bar Unit 2 are a  
3 challenge to our management of the program, but we have worked closely with  
4 the program offices to maintain a flexible inspection resource so that we're able  
5 to provide timely and high quality inspections within a fluid environment. I should  
6 note that Watts Bar Unit 2 is covered by a customized inspection program that  
7 reflects its construction history and status. To date, we've not experienced major  
8 schedule changes on the 10 CFR Part 52 plants, Vogtle and Summer, but if we  
9 do, we will be prepared to deal effectively with those changes.

10           As you know, China is building AP1000 reactors. Since they are  
11 ahead of the U.S. plants, we are sending or have sent our construction  
12 inspectors to Sanmen, China, which is one of the sites currently constructing the  
13 AP1000 design, so that they can observe and learn. So far, we've sent civil,  
14 mechanical, welding inspectors for three months assignments, and a week ago  
15 we sent an electrical engineer inspector. We will continue to monitor the  
16 construction activities at Sanmen, and will likely send additional inspectors there  
17 to observe key construction and pre-operational activities. During the visits by  
18 the first three inspectors that we sent to Sanmen, our inspectors tested out a  
19 number of NRC inspection procedures and gathered information to improve our  
20 processes.

21           While we observed many positive things such as the high quality of  
22 the welders and their work at Sanmen, much of which is manual welding, we did  
23 identify several lessons learned. For example, our inspectors noted that the  
24 construction schedules for the actual site and vendors providing structures,  
25 systems, and components, SSCs, were constantly in a state of flux. And based

1 on the constant changes in construction and fabrication schedules, those SSCs  
2 available for inspections were continuously moving and evolving. So in  
3 response, we -- to ensure an efficient inspection planning process, we've  
4 enhanced our communications with the licensees, the vendors, as well as the  
5 construction staff.

6 Our inspectors also observed several areas where difficulties were  
7 experienced during the installation and fabrication of some SSCs. These items  
8 were added as specific inspection attributes and NRC planning documents,  
9 which Justin will talk about here briefly, to increase the focus of our inspection  
10 efforts. Next slide, please.

11 As Laura noted, NUREG-1055 identified lessons learned for both  
12 the organizations building nuclear power plants as well as NRC. While licensees  
13 have addressed many of those lessons learned, some of the same issues are  
14 still being seen. For example, the design-as-you-build process or approach was  
15 a challenge in the construction of the current operating fleet. A related challenge  
16 today involves implementation of the design change process in conjunction with  
17 the license amendment process. Under 10 CFR Part 52, license amendments  
18 are required for certain types of design changes. Some of the more important  
19 NRC lessons learned from the NUREG-1055 are shown on the slide, and they  
20 include inspecting early and ensuring the resident inspection force is large  
21 enough, and as you implement the construction inspection program, that you  
22 compile an accurate inspection record. And finally, that you perform a good  
23 scrub of the licensee's corrective action program.

24 As Rick and Justin will illustrate in a moment, we have a solid  
25 oversight program. We are identifying problems at an appropriate threshold, and

1 we believe they've added value. The inspections we've conducted over the last  
2 couple of years have prompted licensees to take timely corrective actions.  
3 They've also focused licensee attention on the need to better manage the ITAAC  
4 to improve their oversight of contractors and to focus more attention on the  
5 review of changes that may affect the licensing basis.

6 In summary, we're verifying that licensees construct the facilities  
7 according to the approved design and licensing basis using quality practices and  
8 materials. Ultimately, our efforts will contribute to us determining whether an  
9 ITAAC is being completed satisfactorily and ensure that there are no latent  
10 defects in the constructed plants. At this point, I'd like to turn it over to Rick.

11 RICHARD RASMUSSEN: Thank you. I'm Richard Rasmussen,  
12 the chief of the Electrical Vendor Inspection Branch in the Office of New  
13 Reactors. I'm going to briefly describe the role of vendor inspections and how  
14 they contribute to the oversight of new reactor construction. Next slide.

15 The Division of Construction Inspection and Operational Programs  
16 has been conducting vendor inspections since the inception of the Office of New  
17 Reactors in 2007. Vendor inspections are unique because the vendors are not  
18 licensed by the NRC, and the quality assurance requirements of 10 CFR 50  
19 Appendix B do not directly apply to the vendors. The requirements are passed to  
20 the vendors through contracts by the licensees, and we require that the licensees  
21 oversee performance of the vendors. However, the requirements of 10 CFR Part  
22 21 are directly applicable to the vendors, and these requirements are also  
23 sampled through vendor inspections. Approximately 30 vendor inspections are  
24 planned for fiscal year 2013. Next slide.

25 Between 2007 and 2011, the focus of vendor inspections was

1 primarily on vendors supporting license applications and on vendors producing  
2 the long lead reactor components. Inspections of engineering firms sample  
3 compliance with the attributes of Appendix B that are necessary to ensure the  
4 engineering products are developed by qualified individuals using appropriate  
5 codes, standards, and that the engineering is appropriately reviewed, controlled,  
6 and stored. Next slide.

7           For the inspections of reactor vessels, nozzles, and other heavy  
8 components, the inspectors review work in progress to independently assess the  
9 compliance with the design codes, standards, and NRC requirements.  
10 Inspectors also sample procedures and programs to make sure the vendors have  
11 the infrastructure in place to meet NRC requirements. Beyond the NRC, the  
12 licensees and the American Society of Mechanical Engineers authorized nuclear  
13 inspectors devote significant resources to the inspection of these components.  
14 Next slide.

15           In 2012, the focus of our inspections shifted based on industry  
16 activities. We are now heavily engaged with the inspection of qualification  
17 testing, type testing, and engineering design work. Examples include design and  
18 qualification testing being performed for the AP1000 Squib valves. These large  
19 Squib valves are risk-significant components that are unique to the AP1000  
20 design. The Squib valves use an electrically-activated explosive charge to  
21 mechanically shear the valve seal and depressurize the reactor in case of an  
22 emergency situation. Other inspections include environmental qualification  
23 testing of motor actuators and containment penetrations. Electromagnetic  
24 compatibility testing of electrical components and engineering work being  
25 performed to translate the certified design into construction details. Beyond

1 2013, our priorities will likely shift again as the procurement activities for the new  
2 reactors move towards accumulating parts and equipment necessary to complete  
3 the construction. In this phase, many of the vendors will also be supplying goods  
4 and services for the operating reactors. Next slide.

5 Vendors are selected for inspection using the guidance contained in  
6 the NRC Vendor Inspection Program Plan. Factors affecting our current  
7 selections are related to the complexity and uniqueness associated with the new  
8 designs. The association with ITAAC is also a significant factor. The vendor  
9 inspection staff interfaces with Region II weekly to make sure inspection priorities  
10 are aligned to gain insights from the regional inspectors and to share schedule  
11 information. In addition to the vendors supporting the new reactors, the vendor  
12 inspection center of expertise also conducts vendor inspections in response to  
13 allegations and operational programs -- operational events. Next slide.

14 The vendor inspectors are also the primary contributors to the  
15 agency strategy for keeping counterfeit, fraudulent, and suspect items out of the  
16 nuclear supply chain. When appropriately implemented, the requirements of 10  
17 CFR 50, Appendix B, provide a strong defense against counterfeit and fraudulent  
18 items. Vendor inspections also review the reported incidents and facilitate  
19 internal and external communications. The vendor inspection branches have a  
20 strong engagement with the international community. Through the Multinational  
21 Design Evaluation Program, Vendor Inspection Cooperating Working Group, we  
22 have improved our understanding of other countries' quality assurance  
23 requirements and their inspection practices by participating in witnessed and joint  
24 inspections. Additionally through bilateral agreements, we have sent a vendor  
25 inspector to work with the French regulator for one year rotation and sent another

1 to work with the Chinese regulator for three months. These rotations have  
2 provided insights into the regulatory environments and established professional  
3 contacts that continue to facilitate our communications and technical exchanges.

4 Next slide.

5 Vendor inspections result in our understanding of vendor  
6 performance and of how vendors are contributing to the system structures and  
7 components and in some cases the ITAAC that will comprise a completed facility.  
8 Inspections also result in inspection findings and other useful insights related to  
9 vendor activities, component limitations, or future inspection needs. Inspection  
10 results are documented in inspection reports and have three possible outcomes.  
11 If we identify inspection findings, we issue notices to formally engage the vendor  
12 to take corrective action. We review the vendor's response letters and engage  
13 through docketed correspondence or follow-up inspections as necessary.

14 In most cases, this engagement is early in the process and  
15 promotes safety by identifying issues at the earliest opportunity. In some  
16 instances we identified issues that are not violations or non-conformances.  
17 They're best described as inspection insights that are worthy of further follow-up.  
18 In many cases, these issues should be followed up by Region II in the field. An  
19 example of such an issue is the cable resistance requirements for the AP1000  
20 Squib valve firing circuit. A vendor inspection team reviewed the design details  
21 during a design review inspection. Because of the safety significance of the  
22 Squib valves, the team felt that the installation and testing of the cables should  
23 be inspected. Therefore, we were utilizing a technical assistance request to  
24 formally task the Region to perform this follow-up inspection. In other instances  
25 we identify inspection insights that would be useful to inspectors but do not rise

1 to the level expressed in our previous example. An example of this type of  
2 information is bounding configurations of qualification testing that in some  
3 instances could limit how a component should be installed or utilized. For these  
4 cases we document our inspections so that the regional inspectors can use them  
5 when they're planning their inspections. And now I'll turn it over to Justin to  
6 describe the inspections at the construction site.

7           JUSTIN FULLER: Thanks Rick. Good morning. My name is Justin  
8 Fuller, I'm the senior resident inspector at the Vogtle Units 3 and 4 construction  
9 site in Waynesboro, Georgia. The purpose of my presentation today is to  
10 describe the processes and tools that we use, the inspectors, the region-based  
11 inspectors and the resident inspectors, are using every day to plan, schedule,  
12 document, and manage our construction inspections. Slide 46 please.

13           This slide shows at a high level what our construction inspection  
14 process looks like. My following slides will show how a specific construction  
15 activity was planned, how it was scheduled, and then how it was inspected. We  
16 planned our inspections using what we call Smart Plans. And then I'll describe in  
17 detail how we perform the inspection and then used the database we call CIPIMS  
18 to document the results. And CIPIMS stands for Construction Inspection  
19 Program Information Management System. Slide 47 please.

20           When planning our construction inspections, we created generic  
21 and site-specific inspection plans we refer to as Smart Plans. The Smart Plans  
22 serve several purposes, but the main goal is to provide the inspectors with more  
23 detailed information that will help them perform better inspections. Since some  
24 ITAAC may take a licensee years to complete, we needed to help the inspectors  
25 identify the most opportune times to perform their inspections in the field. We

1 accomplished this by linking each Smart Plan to a specific activity in a licensee's  
2 construction schedule.

3           This slide shows one Smart Plan that we've created for an ITAAC  
4 associated with the construction of the AP1000 containment vessel. In this  
5 example, the Smart Plan helps the resident inspector to inspect the installation of  
6 the fuel transfer tube insert plate. This is very helpful to the inspector because  
7 there are over 60 welds on a containment vessel bottom head alone and we  
8 need to know which welds to focus our inspection efforts on. We've created  
9 other Smart Plans for this ITAAC to cover activities such as the post weld heat  
10 treatment, installation of the personnel and equipment hatches, and installation of  
11 the steam line and feed line insert plates into the containment vessel. The Smart  
12 Plans also provide the inspectors with an estimate of the number of hours  
13 allotted for their inspection, and also relevant construction or fabrication insights  
14 for the inspector to consider during their inspection such as those that Rick  
15 referred to in his presentation. Next slide please.

16           This slide shows the example ITAAC that the Smart Plan on the  
17 previous slide was for. This ITAAC requires the pressure boundary welds and  
18 components listed in a reference table meet the applicable code requirements.  
19 The ITAAC requires that the licensee perform an inspection of the pressure  
20 boundary welds, and the acceptance criteria is that the non-destructive  
21 examination is acceptable. There are over 75 components in the table listed -- in  
22 the reference table listed in the ITAAC. The NRC's inspection planning process  
23 reviewed all components from that table and then selected a representative  
24 sample for inspection. The containment vessel was one component from that  
25 table and we've selected it for direct inspection. Next slide, please.



1           So once we've identified our inspection sample, the next step in the  
2 process is to schedule the inspection. Each week, Region II publishes a report  
3 that summarizes the upcoming inspections or the upcoming Smart Plan items  
4 that may be available for inspection. And that is based on the licensee's current  
5 construction schedule and feedback from the resident inspectors at the site.  
6 Although it's a little difficult to read on the slide, this slide shows one page from  
7 that weekly schedule report, the circles are around the Smart Plan item which we  
8 discussed on the previous slide. Each Smart Plan item, as I mentioned before,  
9 was linked to an activity in the licensee's construction schedule. Therefore, as  
10 the construction schedule changes, so does our inspection schedule, it will adjust  
11 with it. Next slide please.

12           Now we've planned, scheduled -- now that we've planned and  
13 scheduled our inspections, the next step in the process is actually performing the  
14 inspection. This is a picture of a fuel transfer tube insert plate for Vogtle Unit 3.  
15 As I mentioned a moment ago, this example ITAAC requires that the licensee  
16 perform an inspection of the as-built pressure boundary weld and the acceptance  
17 criteria was that a report exists and concludes that the code requirements were  
18 met for the non-destructive examination. What I want to share with you on this  
19 slide is that our inspections cover much more than just the review of that non-  
20 destructive testing report referenced in the acceptance criteria. We perform our  
21 inspections using guidance of the NRC's construction inspection procedures.  
22 And these procedures direct us to observe and review licensee activities,  
23 construction activities, to determine whether they were performed in accordance  
24 with all the applicable quality and technical requirements.

25           In this case, an acceptable non-destructive examination is just one

1 of those technical requirements. The inspectors, and me personally, this was an  
2 inspection I performed at the Vogtle site, we observed the cutting of the  
3 containment vessel bottom head, along with the fit-up and in-process welding of  
4 the insert plate. Inspectors observed the licensee's non-destructive inspection of  
5 this weld and reviewed the associated testing report. We also performed our  
6 own, independent visual inspection of the weld. In doing so, we looked for  
7 cracks, porosity, undercut and even measured the weld reinforcement using our  
8 own NRC supplied gauges. In addition to that, we performed an independent  
9 review of the radiographic film for that weld. No findings were identified during  
10 this inspection. And the results of this inspection provide us confidence that  
11 other similar welds that we didn't target for direct inspection will meet applicable  
12 code requirements. Slide 51.

13           Once the inspection is complete, the inspectors document the  
14 results in CIPIMS, where they are linked to the ITAAC. The graphic here on this  
15 slide is simply the home screen of the CIPIMS database. CIPIMS is a tool that  
16 we use to record our inspection results and track the completion status of our  
17 inspection program. We use CIPIMS to generate the inspection reports that will  
18 then be entered into the Agency-wide Documents Access and Management  
19 System, ADAMS, as the official agency record. I also wanted to mention here  
20 that the NRC is preparing to pilot the use of tablet devices at Vogtle and Summer  
21 which should provide us the ability to more efficiently access information such as  
22 procedures, codes, specifications, and drawings directly from the field. Although  
23 we are not quite ready yet, a future vision would be that we could access CIPIMS  
24 directly from those tablet devices and input our inspection results in real-time.

25           So in closing, the message that I want to leave with you today is

1 that the inspection staff, at the sites and in the regional office, use these tools on  
2 a daily basis to manage our inspections. And I can say from personal experience  
3 that these tools help us complete our part of the NRC's inspection program. So  
4 on that note, I'd like to turn – that concludes my portion of the presentation and I  
5 like to turn that back over to Glen to summarize key messages.

6           GLENN TRACY: Thanks Justin. In closing, I'd like to highlight four  
7 key messages from today's briefing. First, the staff has demonstrated its  
8 effective use of the programs and processes developed to evaluate new reactor  
9 applications. Next slide, please. The staff will be prepared to evaluate small  
10 modular reactor applications by applying its experience with the large light water  
11 reactor reviews. Next slide please. The new reactor construction oversight  
12 program is built on lessons learned. And last, the inspection program confirms  
13 that the plant has been built in accordance with the license. With those key  
14 messages, I'd like to turn it over to Bill.

15           BILL BORCHARDT: That completes the staff's presentation and  
16 we're ready for questions.

17           CHAIRMAN MACFARLANE: I think what we're going to do is take  
18 a short break before we head to questions, so five minutes.

19           [break]

20           CHAIRMAN MACFARLANE: Okay. We will get moving on to the  
21 rest of everything. So thank you all very much for a whole bunch of excellent  
22 presentations. And I know I have a whole lot of questions and I'm sure my  
23 colleagues do too, so I think we'll turn immediately to that and we'll turn first to  
24 Commissioner Svinicki.

25           COMMISSIONER SVINICKI: Thank you very much, Chairman.

1 And we have had a number of presenters so although I usually try to direct my  
2 questions to a presenter, I think in this instance, partly because of I won't  
3 remember who discussed what topic, I will just make my questions more general.  
4 But I do have to comment and extend a welcome to Justin. It seems very  
5 recently we stood in the rain in Georgia getting our shoes very muddy. I'm sure  
6 your shoes are muddy most of the time probably, but we talked about at that time  
7 there was some notion that you were going to be asked to be here today, but  
8 you've done an astounding job in representing you and your counterparts from  
9 Watts Bar and Summer. I want to thank you for that presentation and I'm very  
10 glad that we got to hear directly from you. You and I were also attired rather  
11 differently that day. I almost didn't recognize you, but that's a good fortification of  
12 the fact that you and your colleagues are doing a lot of really important hands-on  
13 work. The other quick thought I've had was I met your additional colleagues who  
14 are inspecting on-site so lest anyone thinks that things are going on un-inspected  
15 today at Watts Bar, Summer, and Vogtle, we can assure them that that is not  
16 true. You've left that in the capable hands of your colleagues to take care of  
17 today so that the three of you can be here.

18 I'm going to start out with something very general. I think that most  
19 of us that have any exposure to large manufacturing or construction projects, we  
20 know that when you get into the project, change is going to be a fact of life. And  
21 so as we begin this process, I don't know who best could reflect at a, you know,  
22 fairly high level on whether or not we've struck the right balance between having  
23 very disciplined and well-documented processes and the fact that we need to  
24 accommodate change. You know, there's been mention made about license  
25 amendments that were -- maybe we were beginning to see perhaps more than

1 we predicted. I think at the mandatory hearings if my memory's right, I asked the  
2 then applicants for Summer and Vogtle if they knew already of license  
3 amendments that were going to be needed. And I think both of them indicated  
4 that they weren't aware of any at the time. So do you think we've struck the right  
5 balance in our processes because not everything can be done through the  
6 amendment process. And I notice that you already have someone at the  
7 microphone willing to address that.

8           DAVID MATTHEWS: And I'm probably the best equipped at this  
9 point, although I'm sure many of us have been involved in the oversight that's  
10 taken place up to this point in time since the license had been issued could  
11 probably answer this question. At this point in time, I'll just give you by way of  
12 example, there's expected even in this calendar year to be a total of maybe 16 or  
13 17 license amendment requests from Southern Company with regard to the two  
14 Vogtle units. Several of those amendment requests also have associated with  
15 them a preliminary amendment request which is a process we developed prior to  
16 the licenses being issued that would permit the timely resolution of issues such  
17 that we would make a determination that the ITAAC wouldn't be interfered with  
18 and that there's no significant hazards considerations and environmental reviews  
19 wouldn't be disturbed such that they could continue construction while we  
20 actually evaluated the request itself for final approval. That process has been  
21 exercised two or three times already. It was exercised for the base mat  
22 membrane thickness and base mat tolerance thickness. It was exercised for the  
23 change to use a higher PSI concrete to address concerns associated with the  
24 rebar.

25           We think those processes are working well. But these are the first

1 application of those processes and so we're learning as an organization, the  
2 licensees are learning. Recently the licensees have requested us to consider  
3 processes that would provide them some additional flexibility associated with  
4 those conditions which are viewed as as-found, or non-conforming. And we just  
5 had a meeting last week to consider some proposals by NEI that would propose  
6 processes that would address some of those -- some of those issues that would  
7 allow them to continue construction activities while they evaluate whether or not  
8 a change to the licensing basis is going to be needed. So we're still in the  
9 process of working through those proposals and we'd be of course consulting  
10 with OGC and Region II as to whether or not we'd be in a position to endorse  
11 those kind of guidance.

12 COMMISSIONER SVINICKI: And I appreciate that information. I  
13 know there was an emphasis in a number of the presentations today about that  
14 the entire Part 52 process was built off of lessons learned. And I think, though,  
15 that we can't have had perfect foresight about everything, so that's not a human  
16 kind of expectation. So there must continue to be areas as we -- as you're  
17 mentioning, exercise some of these processes for the first time. The other thing  
18 is that if we're not accurate in our predictions about perhaps how frequently  
19 something would occur, a process that if you're doing five or six might be  
20 sustainable, maybe become unsustainable if you got many dozens of something.  
21 So I think that as we learn new information and it sounds like we're already doing  
22 this, we just need to continue that, I think lessons learned orientation as we move  
23 forward.

24 BILL BORCHARDT: And I think you make a good point,  
25 Commissioner. But I also don't want to lose sight of the fact that we need to stay

1 true to the principles of Part 52. We, the Commission, approved the design  
2 based on a certain level of design information that we need to make sure  
3 remains valid or they go through the change processes, which could go all the  
4 way to a revised rulemaking, if that was the necessary requirement. But there  
5 needs to be discipline. I mean, at the risk of sounding too much like a regulator,  
6 you can't let the process, the applicants, benefit from the design finality of the  
7 design certification, and then give them the flexibility to build it the way we built  
8 plants in the '70s. There needs to be enough discipline to maintain the integrity  
9 of this new licensing and inspection process. And we'll find the right balance, I  
10 mean, we do not under any circumstances want to be unreasonable but it's very  
11 important that it be done right. We shouldn't sacrifice quality or come up with a  
12 onetime process just because these are the first set of plants. You know, I think  
13 we really need to maintain a high level of quality from the very beginning.

14 COMMISSIONER SVINICKI: And I appreciate that. I'm glad you  
15 got that on the record. Again, I had begun my question talking about striking a  
16 balance. I think that when you're designing a process, you strike one balance,  
17 but when you're in that process I think it's useful to continue to look at that and it  
18 isn't a matter of either/or. I think that it will be a process of balancing what needs  
19 to be done here, so I appreciate your perspective on that, Bill.

20 The one other thing I'll turn to quickly is the -- I hate using things  
21 like this because they don't have much meaning to the public, but the 10 CFR  
22 52.103(g) finding ultimately this finding that things have been constructed in  
23 accordance with the discipline processes that Bill Borchardt was just discussing.  
24 Laura, you had touched on that in your presentation. And I know that, you know,  
25 years ago there was a -- this is a complex -- it sounds very, very straight-forward

1 but it's actually complex and Laura's kind of laughing and shaking her head in  
2 agreement that it is much more complicated than it appears. People have used  
3 this term in the past that you have to have this magic moment or magic day  
4 where a lot of things are frozen in their closure and finality and so, Laura, could  
5 you expand a little bit on the staff's thinking as we approach the staff  
6 recommending that that finding is ready to be made and a resolution of issues  
7 and complexities that we found associated with that? Also, is there any planning  
8 for -- I don't know if table tops would be useful here, other ways to exercise the  
9 process prior to actually trying to carry it out?

10 LAURA DUDES: Yeah, well, first of all, we have done tops --

11 COMMISSIONER SVINICKI: Okay.

12 LAURA DUDES: -- as part of the Department of Energy ITAAC  
13 demonstration. So we've done --

14 COMMISSIONER SVINICKI: That went all the way through to the  
15 findings?

16 LAURA DUDES: Yes.

17 COMMISSIONER SVINICKI: Okay, great.

18 LAURA DUDES: Yes. And we learned a lot of lessons which have  
19 helped us update our guidance with respect to that. So at this point, I think with  
20 the NEI, Nuclear Energy Institute, guidance document, we have about 80 percent  
21 of the ITAAC closure notifications or examples of them which have been  
22 established in the guidance documents. So there's two things that are going to  
23 happen. The staff is going to get ITAAC closure notifications under 52.99. We're  
24 going to review 100 percent of those closure notifications. And that's where we  
25 verify that all of the inspections, tests, and analyses have been complete.



1           Then we're going to go into and look at our inspection program, the  
2 completed the numerous thousands of systems, structures, and components that  
3 Justin talked about that we will have inspected. And within the Construction  
4 Inspection Program Information Management System, CIPIMS, we will have a  
5 body of information that's beginning today that will go all the way up until the last  
6 ITAAC closure notification comes in that tells us and gives us confidence that  
7 we've inspected the areas that we planned on inspecting and probably others  
8 that will come up over time. And then we will look at that inspection record  
9 against the ITAAC closure notifications and then provide a recommendation to  
10 the Commission that, yes, we have reasonable assurance based on the  
11 inspections we've done, based on ITAAC -- 100 percent ITAAC closure  
12 notification review that we will do here in headquarters.

13           So that paper will be very succinct, I hope, in terms of our  
14 recommendation, but with a lot of background in terms of how we came to that  
15 finding. And in fact, we are developing a paper for the Commission now, and I  
16 believe it will go up in November sometime, being developed under Mike  
17 Mayfield's policy group which will talk about 103(c) which is interim operations,  
18 the Commission had asked about that. And the SRM associated with the ITAAC  
19 maintenance rule. We're going to touch upon 103(g) and walk you through  
20 here's what we think that finding or our recommendation will look like at that time.

21           COMMISSIONER SVINICKI: Okay, that's very helpful. Thank you  
22 for that answer. And, Madame Chairman, depending on the questions of my  
23 colleagues if we do a second round, I might have one more, thank you.

24           CHAIRMAN MACFARLANE: I was thinking a second round might  
25 be appropriate because I have a long list. So let me now turn to Commissioner

1 Magwood.

2 COMMISSIONER MAGWOOD: Thank you, Chairman. Good  
3 morning. Let me -- let me echo back some of what Commissioner Svinicki led off  
4 with. The word she used is balance that Part 52 represents. I had the  
5 opportunity to talk with Tony and Ron during the break and you'll be happy to  
6 know that they said exactly the same thing that you did, so they trained you well.

7 [laughter]

8 Let me push a little bit more on that because, you know, I do think  
9 that as I, you know, visited the construction sites and I'm going back to Summer  
10 next week, next week I think, and visit Shaw modular Construction and had  
11 discussions with licensees and talked to, you know, our staff during the process.  
12 It's becoming clear to me that we are learning a lot about how this actually works.  
13 And I think that we've learned that Part 52 is a very -- as you characterize it -- it's  
14 a very descriptive, a very detailed process where in order to achieve an ITAAC  
15 closure, you have to have built exactly what you promised to build.

16 And you alluded to the aspect, the character of the Part 50 process  
17 being that there's always this sort of mushiness at the end, you know, you sort of  
18 fabricate it, people look at it and say, well, that looks about right to us and you  
19 kind of move forward. But there does seem to be this characteristic of building  
20 anything, that when you get down to a certain level of detail, it gets hard to be  
21 absolutely sure that 10 years ago you designed, you know, a girder or you  
22 designed a part, and now you're fabricating it and then you're on the ground and  
23 you're welding this thing or drilling holes in it and now you say, you look at it and  
24 say, this doesn't make -- this wasn't the best way to build this part. We should  
25 build it this way. And the question now becomes all right, does this now turn into

1 a license amendment, or is this something we can do in the 50.59 process.

2 And I wonder, you know, I wanted to just challenge a little bit for a  
3 second. I agree with you philosophically but from a practical standpoint, is it  
4 possible that there needs to be some modification on how we approach Part 52  
5 in that there are these very practical, very low level changes that licensees may  
6 need to make in construction that have no impact on safety but nevertheless are  
7 slightly different from what was anticipated. I mean, is it -- I know this is  
8 something that the staff has been thinking about so I just wanted to get your  
9 thoughts about that.

10 BILL BORCHARDT: I'll start. Something that has no impact on  
11 safety wasn't relied on to make the decision to certify the rule or to issue the  
12 combined license. So, we don't go into that level of detail throughout the entire  
13 design of the facility. And so there a lot of areas where flexibility exists, as long  
14 as the facility is being constructed in accordance with the reference code and  
15 standard. So that flexibility does exist today and always will.

16 The point I was trying to make is that when changes are made,  
17 though, that impact the safety review and the decision that was the basis for the  
18 Commission's approval of the either the certification rule or the combined license,  
19 that that needs to go through a change process that's well laid out in Part 52.  
20 And that flexibility exists. Now, the downside -- maybe I'm getting a little off on a  
21 tangent -- the downside is that that'll take time. We have to review it and if we  
22 have to amend a rule, that's not something that happens instantaneously. So the  
23 licensee needs to make a decision, is it better to stick with the approved design  
24 and build that even though maybe it will cost more or takes a little more -- you  
25 know, there is a schedule impact. Or take the time to do a licensing and

1 regulatory review. In my view, we can't compromise and play fast and loose with  
2 Part 52 because we're faced with that reality.

3 COMMISSIONER MAGWOOD: Again, philosophically, I agree with  
4 that. I do think, and I don't want to point to specific examples in this forum. But I  
5 do think there have been -- there has at least one case that I've become aware of  
6 where there was a fabrication issue that arose on the ground during the  
7 fabrication of a part. Where it really came down to the placement of essentially a  
8 bolt. You know the case I'm thinking about. I don't think that was -- in anyone's  
9 judgment that was a safety issue. But there was something wrong, and -- I see  
10 Vic's eyes moving -- if there was a safety aspect to that, it was -- maybe Vic can  
11 correct me.

12 VICTOR MCCREE: Commissioner, I believe what you're referring  
13 to is the Nelson set placement on some of the submodules.

14 COMMISSIONER MAGWOOD: I was trying not to get that specific.

15 VICTOR MCCREE: I understand. And I -- the issue was that we --  
16 the licensee had -- the vendor had not analyzed that issue per the change  
17 process and did not identify. We identified the issue. And the resolution of that is  
18 still incomplete, that's not --

19 COMMISSIONER MAGWOOD: Which is what I was trying not to  
20 get into it. But again I -- well since we now have identified that issue, let me stop  
21 the conversation there, I'll talk to you about this more offline. But as long as we  
22 are talking about changes that can be made, that -- where there are no safety  
23 impacts and licensees can proceed to make those changes -- Glenn you're  
24 nodding -- I don't see this as a big problem. But if there are issues where we  
25 have -- because of the way the ITAACs were constructed, have gotten down to a

1 low level of detail. Are we able to identify those and make those corrections?

2 GLENN TRACY: I believe that Dave Matthews and other members  
3 of the staff and the inspectors have been able to have those types of discussions  
4 with those that we regulate to have them understand the dividing line, sir,  
5 between what is going to be affected and what is not affected. And I think that  
6 that's getting more clear every day as we implement the process. I agree with  
7 the principles, obviously, that we we're all agreeing to that Bill has stated. We're  
8 trying to stay open-minded to what is it being experienced because changes and  
9 non-conformances are going to occur, there's no denying that. So as a result,  
10 the devil's in the details, which is what Dave has mentioned, is going on now.

11 The time constraints that should be potentially applied -- the fact  
12 that the licensee has to be fully accountable for these design control changes  
13 and fully aware that it's not some vendor somewhere making some bolt  
14 discussions without having full cognizance of the licensee in terms of that design  
15 control. The fact that Justin has to have the ability to inspect to something and  
16 know where he stands the day that he's inspecting to it. These are the details  
17 that need to be further elaborated on if anyone is to have an open mind for  
18 further flexibility.

19 COMMISSIONER MAGWOOD: Dave, did you want to add  
20 anything?

21 DAVID MATTHEWS: I don't think I can add anymore to that.

22 GLENN TRACY: You taught me well David.

23 [laughter]

24 COMMISSIONER MAGWOOD: Let's see here. Let me, this is  
25 probably dangerous to get into too -- let me ask a question on -- we had a long --

1 I'll direct this at Vic. But we a conversation, the Commission, I think this was a  
2 year-and-a-half ago, about how to pursue security. I know, you know, industry is  
3 also represented here today. How to look at security at construction sites and  
4 the Commission made the decision to use essentially an industry-established  
5 process. How is that going? Is that working? Have we found any issues with  
6 that at this point?

7 VICTOR MCCREE: Thank you for the question, Commissioner. It  
8 is going well. The industry guidance that you are referring to is NEI, Nuclear  
9 Energy Institute, 09-01. We have not identified any findings associated with that,  
10 which is good. I would note that based on a recent visit, actually, with the deputy  
11 for Nuclear Security and Incident Response, Mark Dapas and Fred Brown, they  
12 actually talked about the licensee's programs and procedures to transition from a  
13 construction to an operational environment for security access controls and  
14 physical security, and they're developing that, that's ongoing. We have our  
15 procedures already developed and we're working on a schedule to implement  
16 that. But thus far we haven't identified any issues associated with the  
17 implementation of the NEI 09-01.

18 COMMISSIONER MAGWOOD: Okay, fantastic. And just to be  
19 clear, it's not simply that they're implementing it correctly, the guidance correctly,  
20 is that we've -- we have confidence that it's working and that security at the sites  
21 is being maintained appropriately.

22 VICTOR MCCREE: That's correct.

23 COMMISSIONER MAGWOOD: Excellent. All right. Thank you.

24 CHAIRMAN MACFARLANE: Okay. Commissioner Ostendorff.

25 COMMISSIONER OSTENDORFF: Thank you, Chairman. Thank

1 you all for your presentations today. Bill, I want to continue to add my strong  
2 support for the business line approach to these meetings. I think it really helps  
3 us to see not just what's going on in NRO with interfaces across the entire  
4 agency, I think it gives us a more holistic view of the entire NRC staff's  
5 contributions in various areas. So I really applaud this approach to Commission  
6 meetings.

7 I was just asked about four or five months ago to ask Laura Dudes  
8 some hard questions on construction inspection back in April or May and I was a  
9 little bit of a skeptic on some of the -- I felt there were resources that were being  
10 brought to bear for new construction inspection down in Vogtle and Summer.  
11 And I had done inspections 1982 and 1987 to '88, new construction submarines  
12 being built at Newport News shipyards, I had done limited inspections of nuclear  
13 component and system testing and those prior experiences. So I had a little bit --  
14 you show me kind of approach to it and when I visited Summer July 12th and  
15 13th -- then Vogtle, maybe the dates are flipped -- I can't help but comment on  
16 how impressed I was with the team that Glenn and Laura and Victor has  
17 assembled on site at those two locations. And I'm going to maybe use this as an  
18 opportunity to comment on how impressed I was and how wrong I had been  
19 about the readiness of our team to take on these construction inspection tasks in  
20 a very fulsome manner.

21 I know that Justin, he -- nobody said this, but he has a degree in  
22 metallurgy, which impressed the heck out of me, he's qualified to read  
23 radiographic film results. And Rahsean back there, seeing his experience in the  
24 private sector before coming to the NRC in construction areas, and Tomy, who I  
25 had seen at two different visits to Watts Bar with his 10 years with the agency I

1 just -- these three individuals who happened to be here, but are really great  
2 representatives of the NRC staff and how competent a team you guys have  
3 assembled and so my hat's off to you for that.

4           So thanks for bringing them here to the table today here and give  
5 us a chance to see them face-to-face and it's really important. Victor, that said,  
6 let me ask you a question with respect to the resources. Now I think you said, in  
7 your presentation, Laura, that you have the ability and the flexibility to perhaps to  
8 add additional resources where appropriate based on situational-dependent  
9 circumstances. Do you need anything further from the Commission at this stage  
10 as far as resources or any budgetary approval?

11           VICTOR MCCREE: Commissioner, thank you for the question. I'd  
12 also add regarding your observations regarding the seniors that they also clean  
13 up very well.

14           [laughter]

15           Commissioner, we're very well resourced and supported by the  
16 program offices in our oversight of all the new construction, particularly at these  
17 sites. As I indicated, we have three resident inspectors at each site, we have the  
18 capacity and the plan, actually, to increase those numbers as the work load  
19 increases. At each of the three sites we have at least one civil engineer you  
20 alluded to with metallurgical background, University of Utah, he's a Ute, by the  
21 way, at Vogtle, but very capable resources, both at the sites back in the regional  
22 office. There's expertise that Glenn has in his office that we call upon routinely  
23 as matters arise using the TAR process or just dialogue consultation given their  
24 knowledge of the design. So I believe we're positioned very well right now and in  
25 the future to conduct the inspections that we plan to do.



1                   COMMISSIONER OSTENDORFF: Okay. Thank you. Laura, I  
2 think this question's for you, but I'll -- if you want to pass off to somebody else  
3 obviously, I encourage you to do that. But I want to get into the modular  
4 construction inspection. You know, any high level lessons that we learned so far  
5 in the experience to date down at Lake Charles or elsewhere about what to look  
6 at and what we're seeing in modular construction area?

7                   LAURA DUDES: Yeah, I think -- well, first of all, we're very early on  
8 in the process and what we've looked at the Shaw Modular or some of the other  
9 vendors is really early fabrication activities. When we talk about modular  
10 construction for these reactors, we really look down towards the full assembly on  
11 site in the modular assembly building. We've seen some quality issues, and  
12 we've seen some issues associated with the design requirements and  
13 engineering requirements being translated accurately into the facilities. But it's  
14 early on. We're inspecting. We're focused that and as these things come on to  
15 the site and we do the full, full modular, where they lay -- fit up the walls, and they  
16 start putting the components and piping and fit-ups in there. We'll keep the early  
17 issues, the fabrication and quality issues, in mind, and then continue to inspect at  
18 the level we have when they're doing the broader modular construction. I don't  
19 know if someone wants to add to that, or if that --

20                   COMMISSIONER OSTENDORFF: Okay. Rick, let me shift to you  
21 for a minute here. Kind of staying in the same theme area, the vendor inspection  
22 piece. I had a chance to participate in your workshop back in June up in  
23 Baltimore and was really impressed with the very significant turnout you had,  
24 about 500 or so people there the day I was there. What are some of the key  
25 takeaways you're seeing, or lessons learned to date, on the vendor's side of the

1 house, and what challenges, if any, do you see as a concern to you?

2 RICHARD RASMUSSEN: Well, we see challenges through our  
3 inspections, and we got a lot of feedback at that workshop, and those are very  
4 helpful for us. But a lot of issues still continue with Part 21, and it highlights the  
5 importance of that rulemaking and how we need to just make it easier for the  
6 vendors to understand their requirements for evaluating issues and then  
7 reporting if they find a safety concern.

8 The arena of commercial-grade dedication -- and this applies to  
9 both mechanical components and then the new frontier, which is digital and  
10 software -- and those two areas, we picked up a lot in the workshop with regard  
11 to the various opinions that people have, how much is enough. I think we're still  
12 a ways out. We're working through developing some agency guidance. But  
13 those, I think, are the areas that we learned the most about.

14 COMMISSIONER OSTENDORFF: Do you have any concerns --  
15 Bill, are you getting ready to punch a button there?

16 BILL BORCHARDT: Yeah, I was just going to add, from the  
17 international perspective, I think one of the things regarding vendors is the  
18 importance of licensee oversight and ownership of vendor activities. The places  
19 around the world where we're seeing problems is where they're not as closely  
20 tied and don't display the responsibilities that they have for making sure that what  
21 they're being provided meets quality standards. Can't be a turnkey. It's not as  
22 simple as writing up a contract and then taking whatever comes in through the  
23 loading dock. And I think that is the broadest lesson learned that I'm getting from  
24 overseas. You can apply this to other areas, but especially in the vendor area.

25 COMMISSIONER OSTENDORFF: Is it your sense -- and whoever

1 wants to take this on, please do so -- but is it your sense that the licensees have  
2 the human capital expertise in order to provide that effective oversight?

3 LAURA DUDES: Well, I mean, they're expected to, and they  
4 should. I mean, I think if you look at what the NRC does and how we apply our  
5 resources, if they're writing a contract for these vendors and suppliers, they need  
6 to be able to expend some level of resource for oversight, as well as to leverage  
7 other entities, including NUPIG, which is the Nuclear Procurement Issues Group.  
8 So --

9 RICHARD RASMUSSEN: Right. I would say it's a mixed bag,  
10 Commissioner. The heavy components overseas, the licensees have actually  
11 devoted quite a few resources, either a full-time dedicated person or people that  
12 travel on rotations, so they're familiar with the concept -- or with the project, and  
13 see it routinely. I think those are good examples. I think other examples, some  
14 of the testing work that we've seen, and things that go a couple layers down the  
15 supply chain is where the real problems are. And it could be tied to resources.

16 COMMISSIONER OSTENDORFF: One follow-up to that. I know I  
17 saw this in the Naval Nuclear Propulsion Program back at the end of the end of  
18 the Cold War, where a lot of the vendors that had provided different components  
19 -- valves, pumps, et cetera -- decided it's no longer economically feasible to stay  
20 in that business line. And so the mid-1990s, you saw people exiting that market  
21 to provide Naval reactors certain parts. Do you have any concerns on the lack of  
22 competition or lack of market suppliers from where you sit?

23 RICHARD RASMUSSEN: We do. We, of course, have those  
24 concerns. And then there's concerns with people that are trying to balance those  
25 costs by doing their own commercial-grade dedication work, and the problems

1 that they run into, adequately dedicating things that they don't have the design  
2 rights for. And so those are challenges.

3 COMMISSIONER OSTENDORFF: Okay.

4 GLENN TRACY: The industry is aware of these challenges. I've  
5 spoken directly, as I know Victor has, with the senior executives of the licensees,  
6 and they are seeing a ramp-up of the awareness and the needs and the  
7 expectations and the requirements in that area. But I think that the comments  
8 that you've heard, especially when Bill did his overview, that message is one of  
9 our key messages that we're stating to these executives, and that is that you  
10 have to have this direct licensee oversight of these vendors, especially when it  
11 comes down to qualification testing and design verification testing, because that  
12 ties directly to ITAAC, and they are the ones who are going to confirm that the  
13 ITAAC had been closed, and it's that simple an equation.

14 COMMISSIONER OSTENDORFF: That's very helpful. Thank you.  
15 Thank you all. Thank you, Chairman.

16 CHAIRMAN MACFARLANE: Okay. Like, I said, I have a stack  
17 here. We'll see how far I get, until the next round. So thanks a lot, and thank you  
18 guys for coming up to headquarters here and spending the time with us today.  
19 Really appreciate it.

20 All right, let's start off at the beginning, or the end, depending on  
21 how you look at it. So this is probably going to be for Mike or Scott or Glenn. So  
22 you know that I'm interested in the back end of the fuel cycle, and so I'm curious  
23 as to how much thinking has gone into the back end as you're going through the  
24 design certifications and planning for things. So I'm interested in what has been  
25 done and is being thought through in terms of management of spent fuel on site,

1 in terms of the pool design and the density of the pool and dry casks, and, you  
2 know, I know there have been issues at some reactors now about transferring  
3 dry casks. You know, are the right cranes in place? You know, some of these  
4 reactors have to be modified to move the spent fuel and move the casks to other  
5 parts. So is this getting the attention that it should? That's question one.

6           DAVID MATTHEWS: Well, I'll speak to the ongoing -- prior and  
7 ongoing reviews with regard to large light water reactors and safety issues  
8 surrounding the management of spent fuel, its relocation, the fuel transfer pools,  
9 and, in fact, I think one of the drawings you saw was the fuel transfer hatch  
10 associated with one of the large light water reactors. Those processes, including  
11 issues associated with the capacity of the cranes, the protection of the pool from  
12 leakage, issues recently focused on in the Fukushima lessons learned,  
13 associated with spent fuel pool instrumentation. A Tier 2 item is spent fuel pool  
14 makeup capability beyond design basis events. That's integral to what the safety  
15 review for the large light water reactor addresses.

16           So the issue associated with size of the fuel pools and the  
17 subsequent potential relocation of dry cask storage is yet another licensing  
18 decision to be made. So at the time that we license these plants, we license  
19 them for the capability of storage, but if they have the need for additional storage,  
20 then they have to address that in the context of an additional licensing action.

21           CHAIRMAN MACFARLANE: Okay. And so, in terms of the sizing  
22 of the spent fuel pools, is this -- is it different -- substantially different from the  
23 current suite of reactors?

24           DAVID MATTHEWS: No.

25           CHAIRMAN MACFARLANE: Because one would think that might

1 be because, you know, the original suite of reactors were designed with the idea  
2 that the spent fuel would be reprocessed and taken off site pretty quickly and all  
3 of that.

4 DAVID MATTHEWS: Which has driven them to consider, as you  
5 well know, multiple license requests and use of the general license for dry cask  
6 storage. These newer reactors will probably be faced with the same challenges.

7 CHAIRMAN MACFARLANE: So why wasn't this addressed more?  
8 You know --

9 DAVID MATTHEWS: It's not an issue of safety in terms of their  
10 capacity. It's an issue related to their willingness to design a pool sufficient to  
11 accommodate all of the fuel that might be generated for the 60-year life of that  
12 plant.

13 CHAIRMAN MACFARLANE: Okay. Well --

14 DAVID MATTHEWS: That was with regard to large light water  
15 reactors. I don't know whether Mr. Mayfield wants to address the small modular  
16 reactor situation.

17 CHAIRMAN MACFARLANE: Sure.

18 MICHAEL MAYFIELD: Chairman, one of the things that we  
19 mentioned in the presentation is we've been doing lessons learned and we've  
20 been urging the vendors to do lessons learned, pool size is one of the lessons  
21 that they have been talking to us about pretty much since they first came in the  
22 door. We've also been talking with the industry about different fuel. Of -- all but  
23 one of the four small PWR vendors is talking about half -- essentially half-height  
24 fuel. Doesn't fit conveniently in the dry casks. They're going to have to do  
25 something, whether that's design new casks and get them certified. So we've

1 been pushing them. In fact, a year ago I guess -- is Kathy Haney -- yeah, she's  
2 still back there. She went to a utility working conference in Florida and made a  
3 point about, "Why should SMR vendors be thinking about the fuel cycle, and  
4 particularly the back end?" And she made some points about how long it takes  
5 to certify new cask designs, what all is involved in that. And it was kind of  
6 interesting. When she started the presentation, you know, she just won a trip to  
7 Florida. She got about two slides in, and the pins came out. And it turned out to  
8 be one of the best presentations with the most follow-up questions we've had.  
9 So we've gotten their attention -- they, the industry. What they actually do with it  
10 remains to be seen. They haven't submitted specific designs yet, but we  
11 certainly have motivated the conversation. So we'll stay tuned and see.

12 CHAIRMAN MACFARLANE: Okay. Good. Back end is important.  
13 Anyway, I think so. Okay. Dave, back to you. So you talked about -- you now,  
14 thinking about this request from merchant plants, or a merchant plant in  
15 particular, and so I'm interested in what the downside would be for the NRC of  
16 changing the requirement to demonstrate adequate funds, you know, if they don't  
17 end up actually being able to finance a new build. I mean, I'm trying to  
18 understand what the downside is.

19 DAVID MATTHEWS: Well, let me first start out just with a little  
20 background. The changing economic marketplace and the emergence of  
21 merchant plants presents a departure from the circumstances that we faced  
22 licensing the prior 104, and even the additional four licenses we just granted, in  
23 that they were, for all intents and purposes, vertically integrated monopolies that  
24 had the ability to get a rate of return from public utility commissions approved  
25 through their rate payers. We have several, and they're not all the same. So

1 when you use the term "merchant plant," you haven't got a single definition for  
2 merchant plant, because of the degrees of regulation that vary from state to state  
3 to state.

4           So, to the extent that a merchant plant has a significant portion of  
5 its proposed output that will be, in effect, put on the open market in a wholesale  
6 generation environment, it raises that question in direct contrast to our previously  
7 established processes for ensuring safety by, from one aspect, by ensuring  
8 sufficient funds for construction and operation. And our regulations are  
9 structured right now to have the staff -- and the center of expertise in this area is  
10 the Office of Nuclear Reactor Regulation -- is to have the staff make an  
11 evaluation that, based on their project financing and business plan, that there is a  
12 reasonable assurance that they'll be able to obtain the funds for both those  
13 activities. That is the regulatory framework we have in place, and this changing  
14 marketplace and the advent of market generation requests for applications, in  
15 effect, although we might have been able to anticipate it when we revised Part 52  
16 in 2007, we didn't, and we did not go back into those portions of Part 50 which  
17 caused this reasonable assurance finding to be made. Okay. So I hate to put all  
18 that context around a simple question.

19           Whether there's a, quote, "downside" to alleviating an applicant  
20 from providing that kind of reasonable assurance, given that they likely would not  
21 go forward with a project in a merchant environment if they couldn't ensure the  
22 funding for both safe construction and operation, there may not be a, quote,  
23 "downside," in that we could put restraints and constraints on them to ensure  
24 that, before they started or turned their first shovelful, that they had a  
25 commitment to us that they wouldn't do that in the absence of a project financing



1 circumstance and a business plan that would result in the success of their  
2 project. So there may not be a downside to doing that, but the challenge right  
3 now is that our regulations are based on a different model.

4 CHAIRMAN MACFARLANE: Okay, great. All right. Before I get  
5 into another question, let me just -- I'll stop, and I'll turn back to Kristine.

6 COMMISSIONER SVINICKI: I'll try to be brief. I just wanted to hit  
7 a couple of other topics. Glenn, you started out defining the Office of New  
8 Reactor goals, and you stepped through those. Is it appropriate for me to  
9 assume that if the agency were hit with any kind of sequestration -- I'm talking at  
10 a philosophical level -- would your proposal be that NRO work to preserve and  
11 sustain its activities based on the prioritization that you laid out in your goals.  
12 And, again, I'm just talking about -- do your goals then, philosophically, represent  
13 somewhat of a prioritization of where activities need to be sustained?

14 GLENN TRACY: They do, philosophically, give that prioritization.  
15 The staff often seeks, at the various divisions, from their directors, priorities on a  
16 day-to-day or week-to-week basis in terms of things that arise. And so, as an  
17 example, should Victor or Justin need some specific action taken for a licensing  
18 action at the construction site to ensure the safe construction of that site, there is  
19 a prioritization of addressing that issue compared to what might be on the desk of  
20 the engineer on the 10th floor. I've explained that to applicants who have come  
21 to visit me, and they do understand these concepts.

22 COMMISSIONER SVINICKI: I think, even as the agency -- again,  
23 previous Commissions had to look at how NRC might prioritize if it was faced  
24 with a large number of applications, which, ultimately, with the passage of the  
25 Energy Policy Act of 2005 and the incentives there, we were faced with that.

1 There needed to be some sort of publicly communicated framework so that  
2 people would know that, you know, not everything can have the same level of  
3 priority. So, you know, I commend you for that. I know, in our first meeting,  
4 when you took your new responsibilities, you stepped through that. And so I  
5 think it's helpful, just because whether or not people might agree with priority,  
6 they know what it is, and that's, I think, our first obligation, is to be very public and  
7 be communicating that if we're faced with making decisions on prioritization,  
8 we're communicating to the world that that's what we're going to do.

9           So the other question that I might ask on this -- stepping way back,  
10 one hears statements from the industry -- I haven't heard it lately, but I'm sure I  
11 heard it within the last year -- that, depending on, you know, the energy  
12 landscape, largely, low natural gas prices, that there is at least a scenario where  
13 the four plants -- and I get corrected on this, so Watts Bar as well, but the four  
14 new reactors under construction and the Watts Bar site -- the phrase people use  
15 is, "That might be it for a while," meaning that once these constructions move  
16 forward, there may be some period of time where there would not be such active  
17 construction of new nuclear reactors in the United States.

18           If that scenario were to unfold, would the NRC then, essentially, be  
19 overstaffed? Some of the presentations this morning talked about the fact that  
20 we have been hiring up for construction oversight. I'm wondering, maybe  
21 embedded in this question is are the expertise -- Victor talked about a two-year  
22 training and qualification program, could the individuals who are qualified for  
23 construction inspection or vendor inspections -- inherent in that is a lot of nuclear  
24 reactor understanding. Could those individuals potentially also be employed  
25 fully, you know, as resident inspectors and other things at operating sites?

1           And then, also, as the construction of the units that are under way  
2 now, we would also, in theory, by our own programmatic plans, have completed  
3 some of the COL reviews and other things. So might we reach a point where, if  
4 there is this gap, we would suddenly have a real surplus of NRC employees in  
5 certain areas that weren't active anymore?

6           VICTOR MCCREE: Right. And Commissioner, thank you for your  
7 question. I'll try to address it from an inspection and oversight perspective. As I  
8 alluded to in my opening, Region II has a responsibility for both new reactor and  
9 new fuel cycle facility construction. And the resources, the budget that we've  
10 been provided, provides the capability to do both, if you would. Based on the  
11 schedules for not only the four AP1000s and Watts Bar, but also the fuel cycle  
12 facilities under construction, which there are six across the country, we anticipate  
13 being involved in construction inspection and oversight through at least the end  
14 of this decade on just those facilities alone. So we will need to have some  
15 capability to do that.

16           And, in addition, in the staffing of our construction organization in  
17 Region II, we've been fortunate to hire individuals who, quite frankly, do have  
18 fungibility, both as construction inspectors as well as operational inspectors. So,  
19 over time, one of the challenges that Fred and I have is to build that transition  
20 plan so that as the construction workload declines and the operational workload  
21 increases, that we have both the numbers as well as the quality, the capability to  
22 meet that out. So I don't envision --

23           COMMISSIONER SVINICKI: And that was -- that was really the  
24 core of my question, was, as we do year-to-year planning, are we thinking about  
25 different scenarios that might occur? And it sounds like we are, so thank you for

1 that. That's really what I was looking for, at bottom. And then, Victor, the other  
2 question is, of course, if you're going to operate a reactor, you have to have a  
3 populated roster of licensed reactor operators. So can you talk about -- of  
4 course, the NRC licenses them, so we'll have, you know, I guess at least a mini-  
5 surge, Vogtle and Summer, in a fairly concentrated period of time. We'll be  
6 needing to have NRC address their need to get people through exams and  
7 licensed. Can you talk about how we're preparing for that little mini-surge?

8 VICTOR MCCREE: Yes. Thank you for the question. We have  
9 been preparing, and we have a plan that we're executing now to hire, to train, to  
10 qualify operator licensing examiners, both in Region II and, in fact, in the other  
11 three regions, as well as here in headquarters in NRR, to be able to handle the  
12 operator licensing workload that we anticipate. One of the challenges that we  
13 are aware of has to do with the delivery of the full-scope simulator for the  
14 AP1000. Some uncertainty about when that might happen. And if there is a  
15 change or a delay in that, we may need to qualify or use a larger pool of  
16 examiners than we had initially envisioned. But we have the capacity to do that.  
17 In fact, in Region II, we plan to qualify all of the operator licensing examiners in  
18 Region II to cross qualify them in AP1000 and have already reached out to the  
19 other regions, again, and NRR, to -- as well as the technical training center,  
20 because we have a number of former examiners. Actually, they're fully qualified  
21 there as well.

22 So we anticipate being able to handle the surge, but we need to still  
23 communicate well, not just with Vogtle and Summer about their schedules, but  
24 also with the other operating licensees in Region II, because we'll have to sustain  
25 that workload as well.

1 COMMISSIONER SVINICKI: Okay, thank you. That's very helpful.  
2 Thank you, Chairman.

3 CHAIRMAN MACFARLANE: Okay. Commissioner Magwood.

4 COMMISSIONER MAGWOOD: Thank you, Chairman. Let me  
5 start out with taking another run at Borchardt. We've -- we heard in the  
6 presentation on the NRO program that there's some anticipation of future  
7 technologies. At least we're keeping staff cognizant of the things that might  
8 come down the road, but we are also -- we've done work in gas reactor  
9 technologies. We have some small module reactors that are beyond the light  
10 water that we're aware of. And we also have had some interesting technologies  
11 presented to the agency -- or, I think, will be presented to the agency for medical  
12 isotope production. We've been forced to rely on Part 50 and Part 52 for all  
13 those technologies so far. Is that it? Should we stand pat on those two tools? Is  
14 that where we should be thinking for the long-term future, Part 50 and Part 52?  
15 And that's where it sits forever?

16 BILL BORCHARDT: Well, nothing's forever. I think if we learn  
17 some lessons out of this Part 52 process that it would be appropriate to come up  
18 with a new rule or revise Part 52. I mean, there's certainly no assumption that  
19 this is perfect. So we're obviously going to learn some lessons. I think any  
20 applicant that we -- application that we see coming down the path, we could use  
21 either Part 50 or Part 52 and, using a variety of tools that we have available to  
22 us, do a meaningful, and appropriate review. High-temperature gas reactors  
23 would require changes or amendments, or we would have to deal with it  
24 somehow in legal space. But we could get through the process without coming  
25 up with a new Part.

1           COMMISSIONER MAGWOOD: I know the agency, several years  
2 ago, looked at developing a -- I think the term was "technology-independent risk-  
3 informed process." And eventually that just -- apparently it bogged down,  
4 became very complicated. Was there any lesson from that, now that we've gone  
5 through Part 52 to this degree, that you want to revisit?

6           BILL BORCHARDT: Yeah, I don't know. I mean, I think it was  
7 going to be a difficult task, and I might ask Mike Mayfield if he --

8           COMMISSIONER MAGWOOD: Looks like he's about to leave.

9           BILL BORCHARDT: -- some background. But, you know,  
10 Commissioner Svinicki raised a bunch of budget-related questions. And given  
11 the priority on current licensees, we can't sacrifice that under any circumstances.  
12 And then the desire -- well, the need to, for the current construction facilities, to  
13 stay up to speed, because you can't delay ITAAC verification, right? You have to  
14 be there to witness certain activities. Then that really reduces the flexibility that  
15 we have to do some of this work that we know ought to be done, we would like to  
16 do, but we just don't have the resources to do it. And that rulemaking that you're  
17 talking about falls into that, in my judgment.

18           MICHAEL MAYFIELD: Well, the technology-neutral licensing  
19 framework, then, was going to go into the infamous Part 53. As NGNP, the Next-  
20 Generation Nuclear Plant Project was moving forward, Commission had directed  
21 us to take that technology-neutral framework out and test it on the NGNP plant,  
22 the design that was ultimately submitted. We were working towards that. In the  
23 interim, with the delays in NGNP moving forward, we were, and are, looking to try  
24 some of the concepts from the technology-neutral structure on just the small  
25 PWRs to see what works, what doesn't. How that's actually going to play out is

1 something that Charlie Ader and his staff are working with counterparts in  
2 Research to line out exactly what that project's going to look like on what pace. It  
3 hinges, largely, on the willingness of the vendors to engage, and at least one of  
4 the vendors has told us they would like to be the pilot. So that's a limited test of  
5 that technology-neutral approach. As DOE has backed away from licensing, the  
6 Next-Generation -- the licensing phase of the Next-Generation Nuclear Plant, we  
7 frankly don't have anything to test the framework against. Last week -- as  
8 recently as last week, we met with John Kelly and some of his colleagues at  
9 DOE, talking about ways to move forward some technology-neutral concepts on  
10 just the general design criteria and start small and let that grow if it gets some  
11 traction with the DOE and with the industry, let that grow into something that  
12 could become Part 50X, to address different technologies. But right now there's  
13 not a lot more you can do, absent some specific designs that actually go beyond  
14 where folks were with high-temperature gas and get into some specifics of the  
15 design, specifics that we can test that framework against.

16 COMMISSIONER MAGWOOD: Thank you. Good. Why don't you  
17 stand there for a minute. I have a question that you're probably best equipped to  
18 address. The -- you know, as we -- I thought it was really useful to hear Glenn's  
19 prioritization, as Commissioner Svinicki highlighted in her questions. These --  
20 the technologies that we focused on, largely, it seems to me, are led by one of  
21 two things. Either we know applications are coming in and we want to be ready  
22 for them, or there is some significant DOE initiative to do something and we're  
23 reacting to that. And I think that if you look at the history of those indicators over  
24 the last 20 years, it's kind of a crap shot, quite frankly. I mean, sometimes these  
25 applications come in; sometimes they don't. Sometimes DOE follows through;

1 sometimes it doesn't. Has NRC ever really had an independent process to  
2 prognosticate where it should be putting its attention in terms of future  
3 technologies?

4           MICHAEL MAYFIELD: We've done that a few times. And Kathy  
5 Gibson from Research may be in the best position to answer. But Research has  
6 had those kind of initiatives over time. They, by and large, predate NRO. As  
7 some of you may know, I've got 20 years in the Office of Research before I  
8 managed to get into licensing, so I have some history on this dating back, sir, to  
9 when you were at DOE. So we've had random starts on this. The difficulty is  
10 budget restraints come in every time and thwart some good thinking that goes to  
11 it. I think Research in the last three or four years had initiative looking at long-  
12 range activities to be undertaken. How that will structure us going forward, I think  
13 you still need to look at what technologies are being developed in the research  
14 community, rather than us, we're not promoters, as you certainly know. So  
15 you've got to look at what's coming out of the research community, and then  
16 what do we need to do to be positioned to address those as they come forward  
17 to licensing? The time horizon for these new technologies -- molten salt, 20, 25  
18 years -- it's difficult to sustain a developmental activity for regulation for  
19 something that's that far out.

20           COMMISSIONER MAGWOOD: Well, one technology that's -- is  
21 still some distance away, but we know there's some active work on is Terra  
22 Power . We've heard a lot about that. In fact, I saw an article in the press where  
23 some representative of Terra Power indicated that there were conversations  
24 taking place with NRC. I think we ran that to ground and discovered that wasn't  
25 really quite --



1           MICHAEL MAYFIELD: We were keenly interested in just who that  
2 was.

3           COMMISSIONER MAGWOOD: Yeah, it wasn't me.

4           MICHAEL MAYFIELD: I was going to blame Kathy, but --

5           COMMISSIONER MAGWOOD: Have you looked into Terra  
6 Power? What is the stature of thinking on that as far as NRC's activities?

7           MICHAEL MAYFIELD: We were part of one of their overview  
8 presentations when they were going through the part eight application process.  
9 We have subsequently seen presentations from them at some technical  
10 conferences. But they haven't brought anything specifically to us. The basic  
11 technology is something staff understands, but then you get into the specific  
12 implementation, and we're just going to have to wait and see what they bring us,  
13 and on what kind of schedule, to see what we can do with it.

14           COMMISSIONER MAGWOOD: Okay. All right, thank you. One  
15 last thing. I just wanted to echo the Chairman's comments about spent fuel. I  
16 think that, as I recall -- Glenn help me out -- I think that the current -- the AP1000  
17 plants have 20-year, I think, capacity pools. I think that's right. And it was  
18 interesting, because earlier in the design process, I think they were aiming at 40-  
19 year, and they cut that back. But when I was listening to the Chairman asking  
20 about this, I was thinking -- I won't speak for you, but I was thinking you were  
21 probably thinking, "Why weren't they planning for longer storage?" It may  
22 actually -- especially after Fukushima -- it may actually turn out that that going  
23 small makes more sense, as opposed to going larger, because you may want to  
24 get the spent fuel out of the pools faster. So it's an evolving situation. And even  
25 right now I can't sit here today and say what the right answer is, because it's

1 something we'll be talking about soon.

2 But one thing that does raise for me is, you know -- with 12  
3 seconds left, I'm not going to get to a lot of this -- but it does make me wonder  
4 what our responsibilities are in terms of -- I heard someone say that it's not a  
5 safety issue how big the pools are. Well, you know, it is and it isn't. You know, I  
6 mean, is there a point where NRC would make it a design requirement to have  
7 pools of a certain size and characteristic, as opposed to simply reacting to a  
8 particular application? That's not typically the way NRC licenses, but I think it's  
9 something probably staff should give some thought to.

10 GLENN TRACY: Understood, sir.

11 COMMISSIONER MAGWOOD: All right. Thank you, Chairman.

12 CHAIRMAN MACFARLANE: Okay. Commissioner Ostendorff.

13 COMMISSIONER OSTENDORFF: Thank you, Chairman. I want  
14 to go back to a question that Chairman Macfarlane asked in her first round on the  
15 financial qualifications for merchant plants. I appreciate the staff bringing that up  
16 as a potential policy issue. And I was not surprised by anything Dave said, and  
17 here's how we historically looked at this. And I think your answer was spot on. I  
18 would just, you know -- I can't direct here. I'm not going to. But I think it's  
19 important for us, as an independent regulatory agency, to be willing to evolve and  
20 consider the dynamic changes of the marketplace. If one looks at the last 20 or  
21 30 years, what's happened with the breakup of AT&T and the whole advent of  
22 the cellphone industry, you look at the FCC regulation of broadband space, you  
23 look in the Federal Trade Commission, International Trade Commission, they  
24 have all taken significant changes in their approach to different issues with  
25 respect to how the globalization of the economies have changed their domain of

1 what they regulate.

2           So while I understand Dave's answer about the current regulatory  
3 framework for the NRC has certain constraints and constrictions on financial  
4 qualifications, I just hope that we're able to take a look at the fact that this is a  
5 dynamic economy, it evolves, and that a static approach may not be the  
6 appropriate one. So I'm not trying to say that to advocate for a position, but I just  
7 hope that we're able to separate out the question of what our current regulations  
8 allow and what potential policy issues may be appropriate to come to the  
9 Commission to evaluate changes to our existing framework.

10           Bill, if you have anything you want to say, or --

11           BILL BORCHARDT: Well, only that the licensees that did submit  
12 this letter to us did it because of some informal discussions we'd had with them,  
13 that they'd identified an issue. I think it's important that the industry present an  
14 argument for their position. We were certainly open to considering that, and we  
15 recognize it as a significant policy issue, and that's why we raised it today and  
16 why we asked for this input. I think the industry's in a far better position to  
17 understand the implications of the deregulated marketplace, but the ownership  
18 and operation of a nuclear facility is a long-term commitment, and we need to  
19 make sure that there are sufficient financial resources to carry out those  
20 responsibilities, but we're wide open as to what the right answer is at this point  
21 and are looking forward to engaging the licensees.

22           COMMISSIONER OSTENDORFF: I appreciate that, and I  
23 commend you and your team for bringing that to the Commission today in the  
24 meeting. I think it's helpful for us to have a heads-up on issues that we might see  
25 in the future.

1 I want to turn back to -- you didn't call them the wise elders -- but  
2 the Ron and Tony team here. And I did note, and I think Commissioner  
3 Magwood noted that he had a discussion at the break. I want to comment that,  
4 at the very first -- when you introduced these, you said that Tony had failed in  
5 trying to train you. Tony nodded his head.

6 [laughter]

7 So using this corporate expertise that we have -- very fortunate to  
8 have these two gentlemen -- a question I have -- and whoever wants to take it,  
9 take it -- but, you know, if you go back 30 years or so and you see what mistakes  
10 were being made in the last round of nuclear construction projects in this country  
11 and you fast-forward to 2012, I guess, from this corporate history perspective,  
12 are there any surprises as to where you are today based on the failure to learn  
13 lessons in the past? Were there any things that have really caught people's  
14 attention about not capitalizing on lessons learned from 30 years ago?

15 LAURA DUDES: Everyone's looking at me, and I know I happen to  
16 take over for Mr. Tracy, so as we're going through the early implementation of the  
17 construction inspection program, we're talking about some of the findings. He  
18 says, I told them, I told them in 2006, I told them in 2007. I had the poster up. I  
19 think Glenn, when he was in my job, he did make every effort to communicate  
20 NUREG-1055 and those lessons learned. And whether we're surprised or not, I  
21 don't know. I think we're very early on. I think Victor had mentioned that we are  
22 trying to make the most of these early inspection findings and drive home the key  
23 messages in terms of oversight of contractors, making sure you have the design  
24 completed, that you understand, that you're translating the design into  
25 construction drawings, and that you're doing the necessary engineering reviews

1 when you're doing that. I know there was a discussion before about change  
2 process and, you know, small changes versus large changes. We haven't seen,  
3 to date, too many examples where a high-quality engineering review was done  
4 and the NRC still took issue with it. I mean, you can do those engineering  
5 reviews and have -- make lots of changes. The portion of the certified design  
6 where there's a lot of restriction is small compared to the other information. So I  
7 think the short answer to your question is that I don't -- you know, surprised? No.  
8 But we're working through the issues, and we're very diligent in early  
9 communication of issues and trying to drive home these inspection findings so  
10 that the licensees will take responsibility.

11 COMMISSIONER OSTENDORFF: Okay. Anybody else? Okay,  
12 thank you. Thank you, Chairman.

13 CHAIRMAN MACFARLANE: Okay. All right, let me try to go as  
14 quickly as I can. So I don't know who wants to handle this question, but it's sort  
15 of in the line of the previous one about spent fuel pools. So, thinking about fire  
16 protection, I'm interested in what thinking has gone in the area of fire protection  
17 for new plants. You know, how are we applying the lessons learned from the sort  
18 of previous and still current situation, to deal with fire protection for new plants?

19 CHARLES ADER: Charles Ader, for the record. We learned from  
20 the history from the PRAs that were done on fire protection, the Commission put  
21 in place enhanced fire protection requirements, so we have wide separation. We  
22 assume an entire fire area is lost. No operator action.

23 CHAIRMAN MACFARLANE: Okay. All right. So we have been  
24 doing lessons learned incorporation. Good, good. Okay. Next question.

25 BILL BORCHARDT: Sorry, Chairman, just to make sure everybody

1 understands, you know, a lot of the problems on fire protection that we spend so  
2 much time talking about were because we established a regulation after the plant  
3 had been built. That's not the case here. There was very great clarity as to what  
4 the regulatory requirements were. It's very easy to design a plant to meet those  
5 if you do it in that order. So I think we won't see the same kind of problems that  
6 we have with Appendix R and the currently operating reactors for these.

7 CHAIRMAN MACFARLANE: Okay. Thanks, Bill.

8 CHARLES ADER: The reviews of the fire protection program for  
9 new reactors are almost boring, because they're so separated. There are so few  
10 issues that come out. We do have multiple spurious, but we've addressed that  
11 issue in all of the designs.

12 CHAIRMAN MACFARLANE: Okay.

13 CHARLES ADER: So I think I'm very confident that we've  
14 addressed the issues.

15 CHAIRMAN MACFARLANE: Good, good. Okay. Thanks.

16 Thanks, Bill, for that clarification. Next one is for Scott. You should know that  
17 you were going to get a question from me, right?

18 SCOTT FLANDERS: By the way, I thought I was going to get away  
19 with that one.

20 CHAIRMAN MACFARLANE: No. Okay. So, in terms of the  
21 western U.S., you said that, you know, the western U.S. poses unique challenges  
22 in terms of seismic hazards and flooding hazards -- hydrological hazards, I  
23 should say -- and meteorological conditions. And so I'm wondering if there's --  
24 you know, what areas you believe that additional research needs to be done on  
25 this, and then I'm also interested in a timeline for the seismic hazard review of the

1 western U.S.

2 SCOTT FLANDERS: Okay. Related to the operating reactors or --

3 CHAIRMAN MACFARLANE: New.

4 SCOTT FLANDERS: New reactors.

5 CHAIRMAN MACFARLANE: Yeah.

6 SCOTT FLANDERS: Okay. As it relates to research, we've been  
7 working with Research for some time. We have an integrated research plan that  
8 helps support our review activities. We recognize that the western U.S. would be  
9 a challenge, given the number of active faults, and really the challenge in terms  
10 of trying to define how far out you go in terms of determining whether or not a  
11 particular fault has the effect on the site. So we had a lot of research done in the  
12 past, and so we feel that we're well-positioned to do that work.

13 It really gets into the details of the particular site that you have to  
14 evaluate. We do anticipate it taking a little bit more time and more effort to do the  
15 reviews. It's hard to put an exact year timeframe on the reviews, but we expect  
16 that they would be somewhat longer than the current reviews. However, one of  
17 the things that we're really trying to do is have the early engagement. The  
18 applicants have started their processes to develop their models and techniques,  
19 and we've been engaging them to understand how that process is going to work,  
20 so we're hoping that that early interaction and engagement will help for us to  
21 have a better, higher-quality application. That was one of the challenges with the  
22 current set of reviews that we've had, that a lot of time was spent going back and  
23 sending requests for additional information to have them supply us with the  
24 appropriate level of technical information. So we're really hoping that early  
25 engagement will help at least ensure we get the initial application information

1 needs that will help accelerate the time. So it may not be as much of a difference  
2 as we thought.

3 CHAIRMAN MACFARLANE: Okay.

4 SCOTT FLANDERS: So we're learning from that experience.

5 CHAIRMAN MACFARLANE: All right, good.

6 MIKE WEBER: How about tsunamis and probabilistic hydrologic  
7 analysis?

8 SCOTT FLANDERS: Well, I was talking primarily about seismic,  
9 but the same applies true for tsunami hazards as well, although right now --

10 CHAIRMAN MACFARLANE: But tsunami hazards aren't limited to  
11 the western U.S.

12 SCOTT FLANDERS: Right. Right. And we've been doing that  
13 work. We have an updated guidance document, so we're planning to put that out  
14 here in the near future, that reflects the lessons learned on that part of the  
15 process.

16 CHAIRMAN MACFARLANE: Okay. Thanks, Scott. Okay, so, for  
17 maybe Glenn, I don't know, in terms of the steam generator issues at San  
18 Onofre, I'm interested in the vendor component, okay? And so are there any  
19 lessons learned that NRO is taking from this whole experience at San Onofre to  
20 inform the vendor inspection program?

21 GLENN TRACY: Yeah, if you'd like to, feel free.

22 LAURA DUDES: Yeah. I think -- well, first of all, I think we're still  
23 early on in terms of lessons learned, because I know they're still evaluating a lot  
24 of that. But I will say, from a vendor component, we actually had one of our  
25 vendor inspectors participate on the AIT with Region IV to look at, you know, the



1 vendor's role in the design and deployment of those steam generators. And so  
2 there was some findings there. And then, as a follow-up to that, we are working  
3 with Region IV to actually go on a vendor inspection associated with their steam  
4 generators and focus a little bit more, so we can not only look at licensee's root  
5 cause, but also vendor issues out at MHI.

6 GLENN TRACY: And then we'll apply them accordingly.

7 LAURA DUDES: Yes.

8 CHAIRMAN MACFARLANE: Okay. Okay. All right. I wasn't going  
9 to leave you guys out, so, for Victor and Justin. So, you know, we've had this  
10 little bit of discussion about this issue with the steel plates, the embeds. And  
11 Victor, you and I got a chance to chat about this yesterday. You know, good job  
12 for finding this, first of all. But more generally, you know, and the findings that  
13 you had on the base mat rebar, do you feel like you're seeing a trend in terms of  
14 construction material quality, or is this just to be expected, these issues?

15 VICTOR MCCREE: And I'll let Justin share some thoughts here.  
16 There have been issues that we've identified, and licensees have identified,  
17 associated with vendor quality. As for it being a trend, we've not characterized  
18 them that way. There were opportunities. And again, in the cases -- in instances  
19 where we identified the issues that the licensee didn't, and that was noteworthy.  
20 But there have been other examples, and I'd like Justin to share his thoughts  
21 where the licensees did identify them, which is a good observation.

22 JUSTIN FULLER: Yeah, I think a lot of the issues that we've seen -  
23 - that the licensees have seen during their oversight of their vendors are typical  
24 construction issues. They're not standing out like something's broken. It's, you  
25 know -- of course, we want everything to be perfect. But it's not going to be. And

1 where we have had issues -- and some of our issues have really added value.  
2 You can go back to, you know, the first issue we had at Vogtle had to do with  
3 their oversight of the contractor building the containment vessel. Well, they took  
4 that finding, and they changed their oversight, and their contractor also changed  
5 their inspections and quality control to focus more on NQA-1, that's a quality  
6 assurance requirement. So my point is. We are finding -- the NRC is finding  
7 issues, and the licensees are learning from those issues and making changes to  
8 improve. And that's really, I think, what we -- all we can ask for at this stage in  
9 the game. And having more inspectors at the site, like we do, I think we're in a  
10 better position to identify trends when they come up, and we'll be quick to  
11 address those.

12 CHAIRMAN MACFARLANE: Okay. Great. Great. I think that's it  
13 for me. So let me see if any of my colleagues want to make any closing  
14 statements. No? No? Nothing? Okay. Well, then, I really, again, appreciate all  
15 your presentations. And for those of you who traveled to get here, for all your  
16 hard work. And I think this was a great opportunity to review the New Reactor  
17 Business Line. I know that I learned a lot, and I will now say that we'll adjourn.

18 [whereupon, the proceedings were concluded]