

UNITED STATES OF AMERICA  
U.S. NUCLEAR REGULATORY COMMISSION

STRATEGIC PROGRAMMATIC OVERVIEW OF THE  
OPERATING REACTORS BUSINESS LINE

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9:30 A.M.

TRANSCRIPT OF PROCEEDINGS

Public Meeting

Before the U.S. Nuclear Regulatory Commission:

Allison M. Macfarlane, Chairman

Kristine L. Svinicki, Commissioner

George Apostolakis, Commissioner

William D. Magwood, IV, Commissioner

William C. Ostendorff, Commissioner

## APPEARANCES

### NRC Staff:

Bill Borchardt  
Executive Director for Operations

Eric Leeds  
Director, Office of Nuclear Reactor Regulation

Jim Wiggins  
Director, Office of Nuclear Security and Incident Response

Brian Sheron  
Director, Office of Nuclear Regulatory Research

1 PROCEEDINGS

2 CHAIRMAN MACFARLANE: All right. Good morning. Good  
3 morning, everybody. I'm Allison Macfarlane. Let me welcome all of the staff who  
4 are here to observe the meeting, as well as any stakeholders, media, and  
5 members of the public. Welcome.

6 I'm pleased to be here today for my first Commission meeting. I  
7 look forward to working with my fellow Commissioners and the NRC staff. I've  
8 been very impressed with the employees I've met so far, and I want to extend a  
9 heartfelt thanks to my fellow Commissioners for welcoming me so warmly  
10 yesterday. I look forward to hearing your views, and the views of the staff as  
11 well, and learning from all of you in this meeting, and in future ones as well.

12 As I'm sure you're aware, I have a lot to learn about what the  
13 agency does, and I request your patience with my questions. As I understand it,  
14 the Commission meets today to discuss -- or for a first-of-a-kind briefing to  
15 discuss the agency's strategic outlook for the operating reactors business line.

16 As you may know, my main area of expertise is the fuel cycle, so  
17 this focus on operating reactors will, I'm certain, provide me with a lot of new  
18 information. I'm looking forward to hearing the staff's presentation, which I'm  
19 sure will be very enlightening. But first of all, would my fellow Commissioners  
20 like to make any remarks?

21 COMMISSIONER SVINICKI: Thank you, Madam Chairman.  
22 Again, welcome. And I know this is early, very early in your tenure, but I think my  
23 experience shows -- and likely the other Commissioners as well -- is that there's  
24 no other way to begin other than jumping right in. So, again, welcome, and I look  
25 forward to this topic today. I think that this is a good area for the Commission to

1 focus on, and it's good that we're looking strategically at a very important area of  
2 our budget. So thank you again.

3 COMMISSIONER APOSTOLAKIS: I will add my welcome to you.

4 And good luck.

5 [laughter]

6 COMMISSIONER MAGWOOD: Chairman Macfarlane, it's a  
7 pleasure to have you with us here today. We've been looking forward to your  
8 arrival for quite some time. And I think you're already off to a very good start,  
9 even though it's only been a single day. We really appreciate your openness and  
10 your collegiality, and we're looking forward to working with you. And let me echo  
11 my colleague in just saying good luck.

12 COMMISSIONER OSTENDORFF: Chairman Macfarlane, I also  
13 want to add my congratulations to that of my colleagues. We're all excited to  
14 have you here. We look forward to your leadership and stewardship. And all  
15 four of us, I guarantee you, will be helping you in every way we can.

16 CHAIRMAN MACFARLANE: Great. I really appreciate that, all of  
17 you. Okay. I think we'll turn it over to Bill, if you'll begin.

18 BILL BORCHARDT: Good morning, Chairman. On behalf of the  
19 staff, let me add my welcome to you in your new position. And you don't need  
20 luck; you've got the staff, okay? So we'll take care of you.

21 As you mentioned, this is the first-of-a-kind briefing. This is an  
22 opportunity for us to discuss some strategic and long-term view, a longer-term  
23 view than we normally have at a Commission meeting of this type. We're going  
24 to focus today on some internal and external drivers that have influenced the  
25 work that we have. We think that this information will be useful as the

1 Commission considers future budgets, the update to the Strategic Plan.

2           The Operating Reactor Program represents more than 50 percent  
3 of the total NRC budget and staff. As always, our number one priority has been,  
4 and will continue to be, our primary mission of protecting public health and  
5 safety, promoting the common defense and security, and protecting the  
6 environment. We do this by adhering to the principles of good regulation, by  
7 adhering to the NRC organizational values, and an open and collaborative work  
8 environment. We also do this through the efforts of a highly skilled and  
9 dedicated staff located here in headquarters as well as the four Regional offices,  
10 the resident inspectors at each operating reactor facility. And we also do this by  
11 assuring that we have the NRC in-house technical expertise to make all  
12 regulatory decisions within the NRC staff's purview, and to provide technical  
13 oversight of contractors when we need to use them for the quantity of work. But I  
14 reiterate that we have the technical expertise to make all decisions within the  
15 staff capabilities.

16           Our specific work activities are influenced by a number of things,  
17 including the licensee safety performance and the operational events that  
18 happen at sites. We are influenced by changes in technology, as Eric will be  
19 discussing. And in a very direct way, but one that we obviously don't control, our  
20 workload is influenced by the overall U.S. economy and our licensees' business  
21 environment, which has a direct relationship to how much work they put on our  
22 plate through license amendments, new applications. And finally, our work is  
23 influenced very strongly by a wide range of stakeholder input.

24           While Eric will be giving the entire briefing this morning, just like to  
25 note that in addition to the Office of Nuclear Reactor Regulation, the work in this

1 program area is accomplished by many other program offices as well as the full  
2 range of corporate support offices across the agency. It truly is a collective effort  
3 by the 4,000 people of the agency to have success in the Reactor Program as  
4 well as all of the other program areas of our responsibility.

5 So, with that, I'll turn the presentation over to Eric.

6 ERIC LEEDS: Thank you, Bill. Thank you, Bill. Good morning,  
7 Commissioners, Chairman. Let me get right into the agenda. There are three  
8 major parts of this agenda. The first I'll deal with are the constants. These are  
9 the items that we don't expect to change over the next five years. Then I'll get  
10 into the environmental drivers. These are items that are outside of the staff's  
11 control, but that we believe have a potential to impact our work. And then we'll  
12 get to the strategic outlook, and I want to discuss our major product lines in the  
13 operating reactor business line and what we'll be doing over the next two to five  
14 years, the major trends, and our challenges going forward.

15 Our first constant is our agency's mission. As Bill mentioned, it's  
16 been a constant since the agency was formed in 1975. Our focus will remain on  
17 protecting the public health, promoting common defense and security, and  
18 protecting the environment. I'd like to remind our external stakeholders that the  
19 NRC is a regulatory body. We do not promote nuclear power. We do not decide  
20 to build nuclear power plants. And we certainly do not decide on what  
21 technology is used in operating reactors. We make sure it's used safely. The  
22 staff embraces its mission. We believe in our mission, and we take great pride in  
23 our commitment to the mission. I believe that this constant, our dedication to  
24 public health, security, and protecting the environment, is one of the reasons why  
25 the NRC has historically been one of the best places to work in the Federal

1 government.

2           The operating reactor product lines are another constant for the  
3 next two to five years. While activities within each of these product lines will  
4 change over the next several years, we anticipate the product lines themselves  
5 will remain constant. Let me discuss each product line briefly.

6           Licensing: We modify plant licenses based upon new safety  
7 regulations as well as upon requests from licensees to incorporate new  
8 technologies into the existing operating reactors.

9           Oversight: I think of oversight as our inspection and enforcement  
10 programs. They focus our attention on the safety of the day-to-day plant  
11 operations. Rulemaking is a shorthand for the regulatory framework, which  
12 includes rulemaking, our regulatory guidance documents, our interim staff  
13 guidance, and even our generic communications, our generic letters and  
14 bulletins.

15           And finally, incident response: When an event occurs at an  
16 operating reactor, that becomes our focus. We always answer the bell. The  
17 regions and headquarters, we always respond when an event occurs. We also  
18 constantly practice. And it's not just the staff that practices. You, the  
19 Commission, you practice with us. And the staff is very proud that you take that  
20 time and you practice with us.

21           We've listed four environmental drivers that I'll discuss in more  
22 detail: technological, societal, economic, and international. Let me start with  
23 technology as an environmental driver.

24           The nuclear power plants that we built in this country in the '60s,  
25 '70s, and even '80s are not the same plants that are operating today. These

1 plants have been upgraded with safety enhancements required by the NRC, as  
2 well as with the application of new technologies by the licensees themselves.  
3 With the application of these new technologies in the existing nuclear power  
4 plant, it's very important that we keep the technical expertise in the staff strong.  
5 We need to continue to hire the technical expertise required, even in a time of  
6 declining budgets. We need to continue to train our current staff on new  
7 technologies. And, certainly, we need to maintain our graduate fellowship  
8 program so we can take our best and brightest, send them back to the  
9 universities to get the technological expertise that we need.

10 Now, the first picture I want to show you with regard to technology  
11 has to do with the circulating and service water piping at the Catawba nuclear  
12 power plant. Here you see carbon steel piping, which is subject to a number of  
13 different corrosion mechanisms, including microbiologically induced corrosion,  
14 has been replaced by high-density polyethylene piping, which is resistant to this  
15 type of corrosion. I have in front of me a sample of this piping. And what I'd like  
16 to show the Commission, because the staff are the ones that approve this  
17 application in a safety-related way in a nuclear power plant, this is a cross-  
18 section of the piping. The piping was actually two pieces of round piping. And  
19 what we approved was the method to join these pieces of pipe.

20 What you have here is two pieces of pipe that were joined under  
21 high pressure and high temperature. And you can see where the high-density  
22 polyethylene was extruded in the joining process. This is actually a joint of two  
23 separate pieces. I'm going to pass this around so that you can take a look at it.  
24 It's surprisingly heavy, so just to warn you as we go.

25 The next slide I'd like to go to on technology has to do with digital



1 instrumentation and control. Licensees are replacing their old, outdated, analog  
2 instrumentation and control systems with digital instrumentation and control  
3 systems for improved accuracy, reliability, and greater operator control. The  
4 picture above is one of the new cabinets installed at Oconee.

5           Let me go to the next picture. This attached picture shows the  
6 detection module at the Shearon Harris plant for insipient fire detection. This  
7 was the first time that we approved this technology for use at a nuclear power  
8 plant. What this shows you is the monitors in the center with individual electrical  
9 cabinets that are being monitored. You can see four sensing lines. Each one of  
10 those lines goes to an individual cabinet. Each of these pipes draws a small  
11 volume of air from the cabinet being monitored and passes the air past the  
12 sensitive fire detector in the monitor so that an operator can be aware if there is a  
13 breakdown of the insulation within these cabinets.

14           Another environmental driver that'll affect the NRC as we go  
15 forward is societal. Certainly, our external stakeholders -- Congress, the  
16 industry, the states, the nongovernmental organizations, and the public -- will  
17 continue to have a great impact on our future activities. We need to stay  
18 engaged with our external stakeholders. We'll continue to meet this challenge by  
19 following the principles of good regulation and the NRC values, as Bill  
20 mentioned. We'll continue to outreach to our stakeholders through our use of  
21 social media, as well as our website and through the conduct of public meetings.  
22 For example, for the Fukushima lessons learned, we've already conducted over  
23 50 -- five zero -- public meetings on the Fukushima issues. Our public website is  
24 a treasure trove of information, and I urge anyone interested in what the NRC is  
25 doing to access our public website. We will continue to be an open and

1 transparent agency, and we'll continue to respond to our stakeholders.

2 Obviously, U.S. Government policies will continue to be a driver.

3 Budget considerations will certainly influence the prioritization of our work and  
4 what work gets delayed and deferred. If Congress decides to enact a carbon tax,  
5 this may also shift the economic models, which could impact our workload going  
6 forward. If nuclear power is more economically attractive, we could see more of  
7 a demand for extended power uprates.

8 Government policies with regard to greenhouse gases will influence  
9 us as renewable energy sources are being added to the electrical grid. This has  
10 a potential to affect us in many ways. First, wind and solar energy are not stable  
11 base load energy sources. This makes the electrical grid less stable, and we'll  
12 need to monitor its impact such that it doesn't adversely affect the operation of  
13 the nuclear power plants, which rely on a stable grid to maintain operations.

14 Secondly, the electrical grid operations will rely more and more  
15 heavily on stable base load plants to maintain the grid. These sources of power,  
16 the nuclear power plants, the large fossil-fired plants, as well as the hydroelectric  
17 plants will be even more important in the future as we add renewable energy  
18 sources to the grid.

19 Other environmental drivers include natural gas prices. As fracking  
20 has increased the availability and lowered the cost of natural gas, the industry  
21 has turned to burning natural gas as a cheaper way to make electricity. And  
22 certainly natural gas emits much less carbon than coal. This economic impact  
23 could result in less demand for new nuclear power plants and less of a business  
24 case for licensees to pursue power uprates for their existing nuclear power  
25 plants.

1                   Another environmental driver is electricity demand. Electricity  
2 demand is tied directly to the economic health of our country. In times of  
3 recession, manufacturing is down; demand for electricity goes down. Less  
4 demand for power translates to less need for licensees to pursue changes to  
5 their plants to make them more efficient or to generate more power. And, of  
6 course, the inverse is also true.

7                   We anticipate that international activities will continue to be a driver  
8 in the foreseeable future. As you're well aware, the NRC devotes considerable  
9 resources to learning from operational experience, and we've been doing so  
10 since the accident at Three Mile Island. Operational experience is the feedback  
11 loop for the regulator. Operating experience informs all of our product lines. And  
12 we feedback the lessons learned from operational experience into our licensing,  
13 oversight, regulatory framework, and incident response.

14                  With over three-quarters of the world's reactors operating outside of  
15 the United States, we need to continue to stay engaged with the international  
16 community. We need to take the lessons learned from operating experience  
17 from other countries and incorporate them into our product lines. Certainly, our  
18 response to the Fukushima Dai-ichi plant accident will continue for the next  
19 several years. Last year, we spent 74 full-time equivalents, the equivalent of 74  
20 people working full-time, on the Fukushima event, and we expect to continue to  
21 devote considerable resources to implementing the Fukushima lessons learned  
22 as we go forward.

23                  The supply chain for replacement parts used in operating U.S.  
24 reactors is global. We are also working with our international colleagues to  
25 ensure the fidelity of the equipment being installed in the U.S. reactors. At least

1 10 countries are expected to supply parts for new reactors, including Canada,  
2 Spain, France, United Kingdom, Germany, Italy, China, South Korea, and Japan.  
3 And we know that there are interested suppliers in other countries as well.

4 As we continue to stay engaged with the international community of  
5 regulators, we'll work through the International Atomic Energy Agency and the  
6 Nuclear Energy Agency to share information, our best practices, and pool  
7 resources to resolve issues of common interest.

8 Now I need to move on to the major operating reactor product lines.  
9 The first product line I want to address is our regulatory framework. And the  
10 major strategic consideration we see moving forward is our continued efforts to  
11 risk-inform the regulatory framework. As you're aware, since the 1975  
12 publication of WASH-1400, which was the first major study using probabilistic risk  
13 assessment to estimate the risks associated with a severe accident at a nuclear  
14 power plant, the staff has used probabilistic risk assessment as a tool to focus  
15 our resources and attention on the systems, structures, and components that  
16 provide the most safety benefit to nuclear power plants.

17 Over the years, we've incorporated risk insights into all of our major  
18 product lines, and there are many examples of how we use risk insights. For  
19 example, we've risk-informed plant technical specifications through licensing.  
20 We've focused our inspections on those areas of greatest risk significance. And  
21 we've published a number of regulations that include risk insights, making those  
22 regulations more performance-based. These include the maintenance rule, 10  
23 CFR 50.56, the alternate fire protection rule, 50.48(C), which allows the use of  
24 the National Fire Protection Association Standard 805, and also 10 CFR 50.69,  
25 which is the risk-informed categorization and treatment of system structures and

1 components important to safety.

2           Going forward, we anticipate the continued application of risk  
3 insights into the regulatory process. We've just begun the examination of the risk  
4 task force report to glean insights that we can incorporate into our processes.  
5 We're preparing a Commission paper to address the Fukushima near-term task  
6 force recommendation 1 on the extended design basis. The Commission's policy  
7 direction on these issues could include additional direction on the implementation  
8 of risk insights into the regulatory process.

9           As you know, Research is currently working on conducting a Level  
10 3 probabilistic risk assessment, which should be completed in the next four years  
11 and should provide insights to additional benefits we can gain on the use of risk  
12 analysis. And within the next four years, we anticipate that most licensees will  
13 have fire probabilistic risk assessments completed, not only because of the  
14 transition to the National Fire Protection Association Standard 805, but also  
15 because the fleet-wide decision made by operators of plants that are non-NFPA  
16 805 applicants.

17           Also, in response to the Fukushima accident and the near-term task  
18 force recommendations, we anticipate an increase in PRA models for external  
19 events like flooding and seismic events. We also expect our work on this state-  
20 of-the-art reactor consequence analysis to help facilitate our safety decision-  
21 making as we go forward.

22           Now, going forward, we do have challenges in this area. In order to  
23 continue making progress and incorporating risk insights into our regulatory  
24 decision-making, we need to continue to recruit and retain staff with expertise in  
25 probabilistic risk assessment. That's easier said than done. The expertise is

1 highly valued not only here in the agency but also by the National Labs and by  
2 the industry. As Commissioner Apostolakis knows very well, there are precious  
3 few universities that teach this expertise. We've launched our Grow Your Own  
4 program that allows highly qualified NRC staff with a strong systems background  
5 to get the necessary training, including hands-on experience using risk models,  
6 to qualify as PRA analysts. And we continue to train all of our technical staff on  
7 the concepts and use of probabilistic risk assessment.

8           Another challenge going forward in this area is that not all of our  
9 stakeholders are positive about the use of probabilistic risk assessment. Some  
10 are skeptical of its value, and others believe it's too inaccessible for the general  
11 public's understanding and should not be used. We will need to continue to be  
12 an open and transparent agency in using probabilistic risk assessment. We will  
13 need to explain its benefits as we go forward.

14           The next product line I'd like to discuss is licensing. After the initial  
15 operating license for a commercial nuclear power plant is granted, the license  
16 may be amended, renewed, transferred, or otherwise modified depending on  
17 activities that affect the reactor during its operating life. For example, a licensee  
18 may submit a license amendment request to the NRC that would allow them to  
19 make changes to safety-related plant equipment or changes to the technical  
20 specification that places limits on plant operation. With the maturing of the  
21 industry, the total number of licensing actions submitted to the NRC has been  
22 trending downward. However, licensing actions are becoming increasingly  
23 complex, requiring greater staff resources and longer review schedules.

24           The slide that we just showed has three examples that I want to  
25 discuss with the Commission. The first is digital instrumentation and control.

1 The second is extended power uprates, and the third has to do with the National  
2 Fire Protection Association Standard 805 for review. And I'll start using the  
3 acronym NFPA 805 just so I don't become tongue-tied.

4           The application of digital instrumentation and control in safety-  
5 related systems in nuclear power plants is expected to increase significantly over  
6 the next few years as existing plants upgrade their analog-based systems. The  
7 safety benefits are many. Digital systems are more accurate; they're more  
8 reliable; they require less maintenance; and they offer improved human factors.  
9 However, there are challenges going forward with digital technology, including  
10 ensuring our principles of diversity and redundancy are met, as well as on the  
11 cyber security front. And I'll address cyber security later in this presentation.

12           We have improved the use of digital instrumentation and controls  
13 for the reactor protection system at the Oconee nuclear power plant. Last  
14 summer, the new system was installed on Unit One. Unit Three will install the  
15 system this summer, and Unit Two will install the digital I&C reactor protection  
16 system next summer. We're currently reviewing an amendment request to  
17 replace the Diablo Canyon nuclear power plant's reactor protection system with  
18 digital technology. We expect many more requests over the next five years.

19           The next area I'd like to talk about are power uprates. Utilities have  
20 used power uprates as a way to generate more electricity from their existing  
21 nuclear power plants. The NRC has already approved 143 of these uprates,  
22 resulting in a gain of approximately 6,400 megawatts electric at the existing  
23 power plants. Collectively, these uprates have added generating capacity at  
24 existing plants that are equivalent to about six new reactors. Extended power  
25 uprates are one type of power uprate request where thermal power is increased

1 greater than 7 percent. These involve significant modifications to major balance  
2 of the plant equipment, such as the high-pressure turbines, the main generators,  
3 the condensate pumps and motors.

4 Extended power uprates present several technological challenges.  
5 They require a multi-discipline review to ensure that safety margins are  
6 maintained at the plants. Some licensees take the opportunity to improve their  
7 plant's risk profile and increase safety margins during these major power uprates  
8 by adding safety improvements, such as additional feed water pumps or jockey  
9 diesel generators.

10 Looking at the next five years, we expect seven extended power  
11 uprates that are currently in house to be completed, and if they are approved,  
12 they would add another 1,000 megawatts electric to the grid. That's the  
13 equivalent of about a new nuclear power plant. These will continue to challenge  
14 the staff due to the complexities of the submittals. However, we see a drop off in  
15 submittals after these seven. Informally, we've been told that the current  
16 economic climate does not favor extended power uprates due to the economy, in  
17 general, and the cheap cost of natural gas.

18 Now, moving on, following the serious Browns Ferry fire in 1975,  
19 the NRC issued new fire protection requirements in Appendix R, Part 50. Those  
20 new Appendix R requirements were very prescriptive, such as specifying the  
21 separation distance between trains of safety systems, specifying the rating of fire  
22 barriers, for example, one-hour barriers or three-hour barriers, and the  
23 established requirements for fire protection and suppression. The general  
24 philosophy was to ensure that one train of a safety system was protected in the  
25 event of a fire. However, because many of the plants were designed and



1 constructed prior to 1975, it was often difficult, and sometimes impractical, to  
2 modify these plants to meet all the Appendix R requirements. Many licensees  
3 relied on compensatory measures, such as fire watches, or manual operator  
4 actions, to ensure that the equivalent level of safety was maintained. However,  
5 in using this approach, it is assumed that all of the equipment in a particular area  
6 of a plant designated as a fire area was equally affected by a fire regardless of  
7 the real risk.

8                 Now, the approach in NFPA-805 relies on risk insights from fire  
9 PRA to identify plant design features that result in the greatest contribution to risk  
10 from a fire initiator. Based on these insights, licensees can then decide what  
11 plant modifications to make in order to reduce the risk. This approach helps  
12 ensure that the most risk-significant equipment is protected, not just one train of  
13 a safety system.

14                 Another important aspect of NFPA-805 is that it allows certain  
15 plants to eliminate self-induced station blackouts. That's an approach that  
16 deliberately de-energizes safety systems as a strategy to mitigate a fire.  
17 Currently, two plants have been approved to transition to NFPA-805, Oconee  
18 and Shearon Harris. We have 10 applications under review for plants to  
19 transition to NFPA-805, and we expect five more this year. Eleven applications  
20 are expected in 2013, and then two more applications are expected in 2014.

21                 Challenges in this area continue to be resources. We've dedicated  
22 a great deal of our probabilistic risk assessment expertise to this initiative based  
23 on its safety payoff. Our challenge is also to continue to apply lessons learned  
24 from each review to improve the effectiveness and efficiency of our process and  
25 to feedback those learnings to the licensees so that they can improve the quality

1 of their applications.

2           The picture that was shown up here was the Harris reactor coolant  
3 pump backup seal injection system. At the Shearon Harris plant, their licensee  
4 installed this system as part of their transition to NFPA-805. Their fire PRA  
5 indicated that one of the greatest contributors to plant risk from a fire would be a  
6 fire that disabled the charging system. Losing the charging system would cause  
7 a loss of coolant to the reactor coolant pump seals that could cause failure of the  
8 seals, which would result in a small break loss-of-coolant accident. The thing  
9 that I want to illustrate with this is that the transition to NFPA-805 is not a  
10 paperwork exercise. It results in significant modification to the plants that  
11 improve plant safety.

12           Continuing with this product line, the next issue I'll address is  
13 license renewals. The license renewal processes have been established for over  
14 15 years. During that time, the NRC has renewed a total of 73 licenses. We are  
15 currently reviewing applications for 13 units. During this time, we've gained a lot  
16 of experience in implementing the license renewal rule, and many significant  
17 aging issues have been encountered.

18           Some examples of these issues include degraded electrical cables,  
19 degraded unburied piping, and alkali silica reaction in concrete. Experience with  
20 license renewal has also resulted in improvements to the processes, which have  
21 been captured in the NRC guidance. For example, in late 2010 the staff  
22 published its second revision of the Generic Aging Lessons Learned Report, and  
23 just this April the staff provided the Commission with the first revision of the  
24 generic environmental impact statement for license renewal and final rulemaking  
25 for Part 51.

1           Within the next five years, we're expecting applications for all but  
2 one of the remaining operating units. That unit that we don't expect an  
3 application from is Watts Bar Unit One, which just began operation in 1975.  
4 Also, within the next five years, 47 plants will enter their period of extended  
5 operation. Currently, we have 12 plants that are operating beyond 40 years.

6           Now, moving to subsequent renewals, the industry intends to  
7 submit applications for subsequent license renewal and what we refer to as "life  
8 beyond 60." It's up to the industry to ensure that they have sufficient technical  
9 basis for an adequate application. To support subsequent renewal, we're  
10 planning to evaluate aspects of the current regulatory process to assess its  
11 continued applicability or to see how it can be strengthened. This past May, we  
12 held our first public meeting to receive comments on issues for consideration for  
13 subsequent license renewal. Over the next five years, we plan to conduct  
14 activities such as participating in workshops with the industry on the research  
15 that they're conducting to support subsequent renewals. We plan to assess the  
16 effectiveness of our current aging management programs. And we'll continue to  
17 develop domestic and international partnerships on license renewal issues. We'll  
18 also be looking to update our inspection procedures and our significant  
19 determination processes to better address aging management with the reactor  
20 oversight process.

21           I'd like to conclude the license renewal segment here with two  
22 pictures to illustrate why aging management is so important. The first picture  
23 shows a fouled segment of fire protection piping which was actually found  
24 through implementation of the license renewal aging management program.  
25 License renewal considers this finding a partial success in that the NRC reviewer

1 required a one-time inspection of this piping; however, the timing certainly could  
2 have been better such that we could have found this fouling before full blockage  
3 of this pipe occurred. The blockage shown here is from the internal pipe  
4 corrosion byproducts, which resulted in a clay-like substance.

5 This next picture is of a broken containment hoop tendon, which is  
6 a passive and long-lived component within the scope of license renewal. This  
7 event occurred this past May. A similar event occurred back in 1985. Although  
8 the cause is still being evaluated, this picture demonstrates the importance of  
9 continually evaluating aging-related degradation mechanism.

10 This is a circumferential containment tendon. Three of these could  
11 be disabled and the containment can still perform its intended function. So the  
12 containment is still safe. However, the end of this containment should be  
13 anchored in a buttress that would be to the right of this picture.

14 Now I'd like to move on to medical isotope production. The medical  
15 community relies on radioactive isotopes for a variety of diagnostic and treatment  
16 options. Currently, the U.S. relies on other countries to produce molybdenum-99,  
17 which is a key radioactive isotope used in diagnostics. In 2008, and continuing  
18 today, there became a shortage of moly-99 due to the aging of the reactors  
19 overseas that produce the isotope. Based on Congressional direction, the  
20 Department of Energy has promulgated initiatives to produce -- or to provide for a  
21 domestic source of moly-99 production using low enriched uranium targets. In  
22 response to the Department of Energy program, the staff issued a Regulatory  
23 Information Summary requesting potential applicants to provide the NRC with a  
24 letter of intent to support us in identifying the resources and support infrastructure  
25 we'll need in order to license a moly-99 production and utilization facility. While

1 there have been a number of entities that responded to our request, it appears  
2 that we may actually receive up to three applications for moly-99 production  
3 facilities over the next few years. Two of the three potential applications would  
4 require us to license new reactors, with a third using an accelerator in a  
5 production facility. While we're confident that we have the technical expertise on  
6 staff to review such an application, the challenge will be acquiring the resources  
7 needed to conduct the reviews in light of our continuing flat budgets and the work  
8 that we need to do to implement the Fukushima lessons learned. Currently, we  
9 are only budgeted to review one application, not three.

10 Our next major product line is the reactor oversight process. The  
11 current reactor oversight process was implemented in 2000 to replace our  
12 previous oversight process. Our current process is designed to be objective,  
13 risk-informed, and predictable. Regulatory response is based on an action  
14 matrix. Inputs include inspection findings and performance indicators across  
15 seven cornerstones to ensure reactor safety, radiation safety, and physical  
16 security. Over the years, we've improved the reactor oversight process based on  
17 operating experience, including the 9/11 terrorist attacks and lessons learned  
18 from the Davis-Besse head degradation event. We've also added new features,  
19 such as a mitigating systems performance index. This past July 1st, we began  
20 the security integration into the reactor oversight process assessment program.

21 Currently, new significant determination process tools are being  
22 developed for spent fuel pool and operator performance issues. We're also in  
23 the process of establishing a working group to review significant determination  
24 process timeliness and our resource needs. We realize there will be additional  
25 Fukushima-related inspections and other program enhancements coming out of

1 the near-term task force recommendations. In addition, we'll be working on the  
2 transition of new plants from the construction reactor oversight process to the  
3 operating reactor oversight process. This will include how we handle risk in our  
4 process for new reactors based on Commission direction. We anticipate  
5 completing this work in time to transition Watts Bar Unit 2, Vogtle, and Summer  
6 nuclear power plants by 2015. That's the earliest we expect Watts Bar Unit 2 to  
7 be completed.

8           Now, moving on to cyber security. Cyber security with respect to  
9 the Nation's critical infrastructure is a current high-interest topic in the executive  
10 branch and in Congress. Operating nuclear power plants are part of our critical  
11 infrastructure. In this case, the NRC is ahead of the power curve in that we have  
12 in place a regulation, 10 CFR 73.54, and guidance that address cyber security  
13 issues using current state-of-the-art methods. All 104 operating plants have their  
14 cyber security plans currently approved by the NRC. The plants are in the  
15 process of implementing those plans, following schedules imposed in their  
16 licenses through license conditions. Those plans involve eight milestones, the  
17 first seven of which have the highest cyber safety benefit, and those will be in  
18 place by the end of this calendar year. The schedules for the eighth milestone  
19 cover the next two to five years.

20           We will begin programmatic inspections of licensee cyber security  
21 plans in 2013, and we'll continue through the full implementation process. Likely,  
22 for most plants, this would involve two rounds of inspections, one to cover the  
23 implementation milestones one through seven, and then one later on for  
24 milestone number eight. In addition, the staff will develop procedures for routine  
25 coverage of cyber security under the baseline inspection program. This includes

1 inspection procedures and a significant determination process.

2 Now, moving on to incident response. We have new operation  
3 centers in headquarters and in the Regions, and those provide added capabilities  
4 through better space management and improved, more modern information  
5 technology. This, coupled by an enhanced emergency response data system  
6 that has been implemented at each operating nuclear power plant, has improved  
7 our capability to handle complex events, including those affecting multiple site  
8 and units. We expect that we would be perfecting the use of these new centers  
9 over the next several years.

10 The new emergency preparedness rule requires licensees to  
11 perform hostile action based exercises at least once every eight-year exercise  
12 cycle. Also, FEMA is requiring that state and local entities be involved in these  
13 hostile action based exercises. To meet the scheduling requirement, we expect  
14 a number of these types of exercises will occur over the next few years.

15 By presidential direction, FEMA has implemented a national  
16 exercise program to provide for an all-of-the-nation response to a myriad of  
17 threats and events. All-of-the-nation refers to an integrated response by Federal,  
18 state, local, and even private sector entities. You can see an example of this  
19 integrated response in the national level exercise this past year where all the  
20 sectors were actively involved in dealing with simulated cyber security events.  
21 The national exercise program establishes a two-year exercise cycle. We expect  
22 requests for NRC participation in these exercises to increase going forward.  
23 Most of that increase would be handled by the Office of Nuclear Security and  
24 Incident Response.

25 And although the Japanese tsunami and the resulting accident at

1 the Fukushima Dai-ichi plant is not a major product line, I'd be remiss not to  
2 discuss it in some detail, because it's one of our focuses over the next five years,  
3 and there's a tremendous amount of external stakeholder interest in how we  
4 apply the lessons learned from that event to our domestic industry. Our actions  
5 will affect all the major product lines; however, because we provided a  
6 Commission paper on our – we're providing a Commission paper on our  
7 Fukushima activities later this month and we've scheduled a meeting with you on  
8 this topic on August 7th, I'll only provide a very high-level summary for this  
9 meeting.

10 In the coming years, the NRC will continue the work necessary to  
11 advance the recommendations from the near-term task force. In the near future,  
12 we'll continue working on developing options to address the policy issues, such  
13 as the overall regulatory framework issues on filtering and also on containment  
14 venting systems. We will also continue to make progress on needed  
15 rulemakings as necessary and develop and implement project plans for Tier III  
16 issues, both of which will extend out for the next four or five years. Longer-term,  
17 we'll be looking at conducting the oversight, collection of information, and  
18 inspection of licensing implementation of Tier I actions and incorporation of  
19 longer-term activities, the Tier II and Tier III activities, into our NRC programs and  
20 into our line organizations. We are also involved with the International Atomic  
21 Energy Agency and the Nuclear Energy Agency on various research activities.  
22 It's highly likely that the International Atomic Energy Agency will try to coordinate  
23 research efforts on the evaluation of pieces of the reactor cores from the  
24 Fukushima Dai-ichi plant, both samples of the reactor vessel and other activities  
25 that the NRC will want to be involved in.



1                   Now let me move to summarize. We can't predict the future, but  
2   certainly we can be prepared for it. I'd like to leave the Commission with three  
3   concluding thoughts. The first, we need to keep the technical expertise of the  
4   staff strong. Even in a time of declining budgets, we need to continue to hire the  
5   best technical talent we can. We need to continue to support our graduate  
6   fellowship programs. We need to continue to train the staff on the newest  
7   technologies.

8                   Second, we need to stay connected to the international community.  
9   We need to share with our colleagues overseas our expertise and the lessons  
10   learned that we've had here in the United States. And we need to continue to  
11   gain the operating experience from the three-quarters of the world's nuclear  
12   power plants that are outside of the United States. And we need to leverage the  
13   research findings from our counterparts overseas.

14                  And finally, we need continued leadership from you, the  
15   Commission. We need your collective wisdom to help us with the policy issues  
16   we'll face going forward. And with that, that concludes my part of this  
17   presentation.

18                  BILL BORCHARDT: Thank you, Eric. Chairman and Commission,  
19   this concludes the staff's presentation. Eric and the rest of the team and I are  
20   available for questions. In the room today are representatives of each of the  
21   offices that play an important role in this program. Thank you.

22                  CHAIRMAN MACFARLANE: Great. Thank you. Thank you very  
23   much for a thorough presentation. We'll start our questions this morning with  
24   Commissioner Magwood.

25                  COMMISSIONER MAGWOOD: Thank you, Chairman. And thank

1 all of you for Eric's excellent presentation.

2 [laughter]

3 It wasn't that funny.

4 Eric actually began and ended his presentation with commentary  
5 about staff expertise, and one of the things that -- one of the things I think the  
6 agency does very well is preparing staff to deal with the highly complex technical  
7 matters before the agency. And we've had, you know, back-and-forth discussion  
8 over the years about the role of the agency and the education area. We have the  
9 university grants program, which sometimes is very popular, sometimes isn't,  
10 kind of depends on the circumstances.

11 Just wanted to, Bill, sort of focus on you for second, and we have --  
12 we do probably have a good opportunity, as we go into our next budget cycle, to  
13 focus the university grants program in a way that we could disperse more  
14 development of PRA expertise in the United States, not just for our benefit, really  
15 for the national benefit. Have you given any thought to this? I think this is  
16 something we've talked about very briefly in the past, but we really haven't done  
17 anything with it. I don't know -- don't want to talk about next year's budget. But is  
18 this something the staff has given any thought to? Is there a way we can  
19 approach this and try to become a little bit more of, I guess, a catalyst to get  
20 more PRA expertise in the U.S.?

21 BILL BORCHARDT: Yeah, we're looking at our contribution to the  
22 grants program, because DOE has a role; there's other government agencies  
23 that also play a role. And part of it has to do with faculty development, other  
24 parts, there's course development, and then, of course, the activities for the  
25 students. I think the area, PRA, digital I&C, are two areas that we've agreed that

1 we would like to focus our attention on and try to spur development of those  
2 activities. Whether the graduates from these institutions come to NRC or not, it  
3 would contribute to nuclear safety, and in the grand scheme of things, that's  
4 really what we're most interested in. So there are a subset of topics that we  
5 would like to focus on.

6 COMMISSIONER MAGWOOD: Excellent. Glad to hear that. You  
7 know, I think that's -- you know, we do, I think all government agencies have a  
8 role in education, one way or another, and one of the things I'm very pleased  
9 about in this agency is how much people participate in education activities, either  
10 formally through their work -- SBCR does educational work. OCHCO does  
11 educational work. But I think others and the agency do a lot, both formally and  
12 voluntarily. And, for example, I'm meeting this afternoon with a group of high  
13 school students who are here learning about PRA, which is interesting. I don't  
14 think we had that in my curriculum when I was in high school. And I'm looking  
15 forward to talk with them and seeing what their experience has been like. So,  
16 you know, I just encourage us to continue focusing on that aspect of our work.

17 Another question for you, Bill. When I hear Eric going through  
18 these many areas of work, one of the things that occurs to me is that we have not  
19 just a diversity of technical work, but we also have a diversity of people working  
20 on technical work. And what's your thought now about our consistency when it  
21 comes to applying the various lessons learned and applying regulatory tools  
22 across the agency, across the regions? How do you -- how do you feel we're  
23 doing right now? Because I do hear anecdotal stories of inconsistency, and I just  
24 wonder if -- I'm sure you hear the same things, and I'd like to hear how you --  
25 where you think we are today and how we should respond to that sort of thing.

1 BILL BORCHARDT: It's always -- it's always been an issue and a  
2 concern and something we're on the lookout for. I think one of the important  
3 things is, just like we talked about, the idea of infrastructure when we talk about  
4 IT systems, you know, within the building, or you talk about the infrastructure in  
5 the industry. We have our own infrastructure and that is the directions, the  
6 management directives that govern how the NRC goes about its work. The  
7 Standard Review Plan for the guidance on what is looked at during the review of  
8 a license renewal or any other licensing action.

9 And I think it's never been more important as we have the  
10 departure of people with 35, 40 years of technical experience leaving the NRC  
11 and we have, you know, highly talented motivated people coming in, but to have  
12 that written infrastructure in place so that it is a useful source material for the staff  
13 to use as it goes about the technical review. It has never been more important  
14 than it is today. I think we're focusing on that, we have better tools, IT tools now  
15 to put those in place and keep them up to date. The industry does a very good  
16 job of pointing out to us when we have an inconsistency.

17 But I would also say that recently there have been a couple cases  
18 where we have found that, perhaps, 15, 20 years ago we made an incorrect  
19 conclusion and we have taken regulatory positions today which are inconsistent  
20 with what was decided in the past, but after very close scrutiny and an extensive  
21 review on our part, we've concluded that, in fact, this is a compliance backfit  
22 issue for the licensee. So we are continuously probing to make sure we're doing  
23 the right thing and not just worrying about being consistent.

24 COMMISSIONER MAGWOOD: Fair enough, appreciate that. I  
25 think this might be for you Brian, I was looking at some background material and

1 I noticed that there was some information regarding a spent fuel criticality  
2 analysis re indicate that certain neutron absorbers employed in spent fuel pools  
3 are degrading and causing an erosion in the margins in spent fuel nuclear  
4 criticality safety. Can you give us an idea of what the magnitude of this problem  
5 is and what steps are being taken?

6 BRIAN SHERON: Oh, it is on. Right now we're doing -- we have  
7 some research going on, I believe looking at Boraflex degradation that they use  
8 in spent fuel pools. I think this was in response, Eric help me, I think it's  
9 response to a user need letter from NRR in this. I don't -- I really can't comment  
10 on the magnitude of it, I mean I don't think it's anything that's an immediate issue.  
11 But again, you know, like I said we are doing work on this to help NRR better  
12 understand the problem.

13 ERIC LEEDS: Okay, Brian, if you don't mind, NRR will help out.  
14 Pat?

15 PATRICK HILAND: Yeah, Pat Hiland, I'm a director of the Division  
16 of Engineering in NRR. Mr. Sheron's absolutely correct; we had a user need that  
17 one out several years ago. Research -- they have some draft NUREGs that are  
18 ready for publication; we've reviewed those and we have received approval from  
19 the NRR leadership team to write a generic communication asking for more  
20 details from licensees regarding the status of their boron, or their neutron  
21 absorbers and their spent pools. That's very close to completion now; I would  
22 expect it to come out before the end of the summer. So that's the status of  
23 where we're at.

24 COMMISSIONER MAGWOOD: All right, so at this point we really  
25 don't have a good picture of how widespread the problem is.

1                   PATRICK HILAND: We don't have a new picture, the picture we  
2 have is incomplete right now, so that's the purpose of the generic communication  
3 is to fill in the blanks, to make sure we understand what the status is. We're  
4 comfortable that the Defense-in-Depth is there, that the margin may be eroded  
5 but it is still sufficient from all the indications that we have.

6                   COMMISSIONER MAGWOOD: Thank you very much. Eric, let me  
7 conclude and give you one of my easy questions, okay. You might, I can't  
8 remember, I think you were here for the AARM, I'm sure you were here for the  
9 AARM as a matter of fact. And I, one of the licensees that participate, or the  
10 licensee to participate in that particular meeting was going over the list of the  
11 many regulatory actions that they are dealing with. And it's a pretty lengthy list.  
12 And I asked a question, when you look at those long lists of regulatory actions  
13 how do you prioritize your work. And their response, I think they were telling me  
14 what I wanted to hear, their response was, "Well, all regulatory actions are  
15 equally high priority." And my thought was, I didn't say it at the time, but my  
16 thought was, well "if everything's a priority, nothing's a priority." And I just  
17 wondered what's your thought about that and how does, how do you look at that  
18 from where you sit today?

19                   ERIC LEEDS: The way we go about those, and we work hand in  
20 glove with the regions. So it's both the Regional Administrator as well as my  
21 organization that get together, we take a look at all of those actions that the  
22 licensee has to do, we expect those to be prioritized based on safety  
23 significance, and what items can get done.

24                   Now some things when they're upgrading plant equipment, there's  
25 procurement, there's lead time, so you expect them to be scheduled. And,

1 certainly, one of the first items we require all licensees to go after is the safety  
2 culture at their plants. But when a licensee is in a position that they're talking to  
3 the Commission during an agency action review meeting, they have a lot of  
4 actions on their plate, we expect them to prioritize those actions, we expect them  
5 to be focused on safety culture, and it's a joint meeting between the regions and  
6 NRR to decide, you know, what criteria we're using and what priority we expect  
7 from the licensees. I hope that addresses your question.

8 COMMISSIONER MAGWOOD: I appreciate that. I probably would  
9 like to sit down with you and talk about that a little bit more and get a little bit  
10 more detail about how that actually works in practice, because it does sound a  
11 little bit -- one of the things we strive to do is obviously is to have a very objective  
12 transparent process and the way you describe it, it doesn't sound as objective  
13 and transparent as I'd like to think we are, so I'd like to talk with you a little bit  
14 more about how it actually works.

15 ERIC LEEDS: Certainly, certainly, Commissioner, and if I gave that  
16 impression, that's unfortunate. We have these meetings with the licensees in  
17 public meetings to discuss what they think are priorities and then we discuss  
18 what we think the priorities are; so we do those in a public form, but we'd be  
19 happy to --

20 COMMISSIONER MAGWOOD: I'd like to do that. Chairman,  
21 appreciate it, and again welcome. I have this sort of the habit of bringing up the  
22 historical facts, and so let July 10th be known not just for the first day of the  
23 Scopes trial, or the launch of Telstar-1, but also for the first Commission meeting  
24 by Allison Macfarlane. Thank you very much.

25 [laughter]

1 CHAIRMAN MACFARLANE: I'm sure it will really go down in  
2 history.

3 [laughter]

4 CHAIRMAN MACFARLANE: Okay, I'll turn it to Commissioner  
5 Ostendorff now.

6 COMMISSIONER OSTENDORFF: Thank you Chairman  
7 Macfarlane. Bill, I want to applaud you and your team for this briefing and in  
8 taking a fresh look at this business line approach to briefing the Commission, I  
9 found it very, very valuable and I want to thank all of your team that made this  
10 possible. Eric, that was one of the best briefings I have ever received as a  
11 Commissioner. I just want to tell you that.

12 ERIC LEEDS: Thank you, sir.

13 COMMISSIONER OSTENDORFF: I know a lot of people  
14 contribute to it. I want to start out with a question that -- this is -- pay attention  
15 please.

16 [laughter]

17 ERIC LEEDS: I'm blaming the EDO; he distracted me.

18 COMMISSIONER OSTENDORFF: I'll start with a question, Eric,  
19 for you and, you know, you acknowledged the 74 FTE work on Fukushima. And  
20 just kind of use it as a place marker for where I'm going with this question, you  
21 know, and Chairman Macfarlane will see this very soon, it's paperwork that starts  
22 to come across your desk, you know, and that sends up papers to us all the time  
23 that has -- as required by SECY 2005 or SECY 2007, things that are predated for  
24 the five Commissioners, or actually for all five of the Commissioners here on this  
25 side of the table, things that go way back. And certainly over the years, things



1 change. There's Fukushima kind of events, there's other issues that come up  
2 with digital I&C, cyber security, et cetera. So your plate is constantly being  
3 added to by the Commission and by events. Very seldom are there things being  
4 taken off your plate. So as a head of NRR, and I would ask you this question,  
5 two-part question: One is there lower-priority work that you need the  
6 Commission to tell you to not do because it is lower priority, and/or do you feel  
7 like the existing processes internal to the NRC are sufficient to allow you to bring  
8 forward to the Commission opportunities to maybe do things smarter by shedding  
9 some of this work.

10 ERIC LEEDS: Thank you for the question, Commissioner. This is -  
11 - you know I'm thinking this has been a struggle for the agency as long as I've  
12 been with the agency and I've been here since 1984. So, 28 years. We have a  
13 culture, we don't like to shed anything. We thing everything's important and it's a  
14 very can-do attitude that the staff has. We want to get our work done. It's  
15 important to us.

16 I'll address -- you asked two questions, and I'll try to address it in a  
17 couple of different ways. For lower priority work, you know, certainly, I don't want  
18 to get too much into the budget process, but we do identify the lower priority work  
19 that we would call scenario A, or B, or however we do it for whichever year, and  
20 although it's lower priority, we don't shed it. It just becomes lower priority. It may  
21 get delayed. It may get deferred. So, the idea that we can come to the  
22 Commission and ask to just shed that work, and can specifically identify it, that's  
23 certainly something that we need to consider.

24 The second question you asked, existing processes, are the  
25 sufficient for us to shed work? I think going forward, now, in light of the current

1 budget issues that we have in this country, in light of the Fukushima work, in light  
2 of all the challenges that we have going forward, and I mentioned resources a  
3 number of times during this presentation, I think we're going to have to start  
4 making a lot harder decisions than we've made in the past. I think we're going to  
5 need to start shedding work or finding ways to close issues that have been  
6 opened for a long time that we've, perhaps, resisted in the past, because we like  
7 to analyze things until we get to 100 percent, and we just can't afford to do that,  
8 and I'll give you a specific example, and I'll be a little controversial,  
9 Commissioner. GSI- 191, containment sumps, you know, we've been working on  
10 that issue for a long time. We've learned an awful lot. We've made an awful lot  
11 of modifications at these plants that make them safer than when we began that  
12 work, but the work continues.

13           Knowing what we know now, if we knew that 10 years ago, I would  
14 go back to the industry and tell every pressurized water reactor with high fiber  
15 insulation at their plant, to remove it. Just order them to remove it, and then be  
16 done with it and close the issue. How much more safety benefit are we going to  
17 get out of working that issue? But to throw that out at you, sir.

18           COMMISSIONER OSTENDORFF: That's very helpful and I  
19 appreciate the context of a particular example, and I understand the budget  
20 process is one vehicle. It may not be a sufficient vehicle. So, I'd just suggest  
21 that, Bill, to you and your role as EDO, and if you have any comments, please  
22 provide them, but I think this is something that we have to recognize reality of  
23 and perhaps you may need some help from the Commission.

24           BILL BORCHARDT: Yeah, and I think over time, we have, on  
25 occasion, identified in Commission papers that go up, recommendation or an

1 option to discontinue certain activities. We have recently, within the last week or  
2 two, discontinued two reports that didn't have as much benefit as the resources  
3 they cost. So we occasionally take advantage of the opportunity. I think it's our  
4 burden to -- when we bump up against those things, to identify them and at least  
5 ask the questions. So, we'll put a renewed interest in that activity.

6 COMMISSIONER OSTENDORFF: Good.

7 MICHAEL WEBER: Commissioner, if I could add one more thing,  
8 Mike Weber, deputy EDO. Last fall at our staff senior leadership meeting, this is  
9 one of the topics we discussed. We recognized as an agency, we needed to  
10 have a process that would help guide those kind of decisions. Not that the staff  
11 would wait, but that the staff would identify the work to be shed, and then  
12 communicate that to the Commission, if it was a matter that the Commission  
13 needed to act upon. So we actually have a business process improvement  
14 working group underway right now to identify, develop that agency-wide shed  
15 process. So, you'll be hearing more about that in the future.

16 COMMISSIONER OSTENDORFF: Well, I'm glad to hear that.  
17 Thank you, Mike. Eric, there are two things I meant to say before I got into my  
18 questions. I wanted to react to your Slide 7, two pieces that I thought were  
19 important. One of them, Commissioner Magwood has appropriately highlighted,  
20 but I wanted to echo his comments on the importance of hiring the technical  
21 expertise and having an ongoing hiring process. I know that Miriam has talked to  
22 Bill about that, and other senior leaders, and I just wanted to echo my support for  
23 continuing to bring in fresh talent.

24 The second piece is just more to messaging. Your comment about  
25 the nuclear power plants that were built in the '60s, '70s, and '80s are not the

1 same plants operating today. I don't know that we as an agency, this is my  
2 personal observation, really articulate that very much to the American public, and  
3 I think it's an important piece to acknowledge the improvements made, whether it  
4 be digital feedwater control systems in control rooms in the digital I&C arena, or  
5 the NFPA-805, or fill in the blank, a lot of improvements that have been made as  
6 part of the EPU process. So, I encourage you to, as part of the education role  
7 within the agency, to provide that message to the American public.

8 Eric, on your Slide 16, you talked about the risk-informed regulatory  
9 framework and Commissioner Apostolakis' very capable leadership of this risk  
10 management task force report, I know you're wrestling with that, and also within  
11 the Near Term Task Force Recommendation 1, and I know that trying to  
12 integrate and coordinate these activities is not an easy challenge. I guess my  
13 question for, Eric, for you and for Bill, is at this point in time, recognize that you're  
14 working on both those efforts, and other PRA kind of efforts, does the staff need  
15 any additional direction from the Commission now, in order to move forward  
16 smartly, to be able to deliver this paper on Recommendation 1, I guess,  
17 February, March of next year, or any other time horizons, do you need any  
18 additional direction?

19 BILL BORCHARDT: I think the most valuable step right now is  
20 getting stakeholder input. I mean this has the potential to have more impact a  
21 generation from now than anything else we're doing as part of Fukushima follow-  
22 up. I mean this could be a lead to a fundamentally different approach to  
23 regulation, to operation, and so getting the full range of stakeholder input, which  
24 is just beginning. I mean in all honesty, my view is that the industry has been  
25 very focused on the Tier I activities. They haven't really stepped back and

1 looked at this bigger issue. They're beginning to do that now. We need the very  
2 thoughtful input from the industry and all the other stakeholders as well, and I  
3 think once we have a sense of that, I think then we may be coming back to the  
4 Commission, and asking for some decisions, or additional guidance.

5 COMMISSIONER OSTENDORFF: Okay. Time for one last  
6 question. Jim, we talk often about cyber security and your staff has provided  
7 some very effective and helpful briefings to my office on this topic, and I know  
8 that you have your roadmap plan going forward for implementation by the end of  
9 this calendar year. What's the biggest thing, if anything, that worries you about  
10 the ability of the NRC to fulfill its responsibilities there?

11 JIM WIGGINS: Truthfully, staying ahead of where the rest of the  
12 country is on cyber. There are a number of initiatives. As Eric said in his lead-in,  
13 it's a high interest item in the infrastructure here, both in the executive branch  
14 and in Congress. There is a tendency in those branches that they act on  
15 interests, and there is a concern that we can stay out ahead of where they're  
16 going, so that we are setting the rules for the things that we license. We're in the  
17 best position, I believe, to make those decisions about what should be required  
18 at these facilities. Nuclear plants are complicated operations, as you know. For  
19 that matter, even non-power reactors, research and test reactors are not simple.

20 The kind of high level solution that you would get from a legislative fix is  
21 probably not going to fit. Right now, as Eric said, we're ahead on operating  
22 reactors. I think we have a good story to tell, and the roadmaps intent, now, this  
23 roadmap is saying what we're going to do in cyber, beyond operating reactors. It  
24 lays out the rest of the things we license, in a logical, risk-oriented framework.  
25 We look at fuel facilities and we're going to look at research and test reactors.

1 Then, we're going to look at stand alone dry cast storage facilities, and then  
2 we're going to get into this broader materials license ranks look at their -- and it's  
3 a question that we're going to ask ourselves and answer, is what, if any cyber  
4 requirements need to be put in place, and for those entities.

5 I think frankly, it's a race that we get something in place before we  
6 have a solution that appears to be dictated to us, though we have to now try to  
7 get right sized, and there's elements of that at play right now. That actually is  
8 what bothers me.

9 Secondly, it's how much the people out there really understand  
10 what the nature of the threat is in cyber. Now, I think what happens in cyber  
11 security, you have a group of people that's getting larger every day, to have a  
12 good handle on what the problem is, and how the problem can manifest itself, but  
13 people who routinely are involved in operations, whether it's operating on the  
14 company side, or whether it's on our side, the sensitivity isn't exactly where it  
15 needs to be. So, things happen that, when a cyber person looks at it, there's a  
16 question of, you did what? Why did you do that? Have you considered this, and  
17 it's a different way of thinking that hasn't really gotten inculcated on both sides,  
18 yet. So, that's the second thing that bothers me.

19 COMMISSIONER OSTENDORFF: Thank you, gentlemen, that's  
20 very helpful. Thank you, Chairman.

21 CHAIRMAN MACFARLANE: Thank you very much.  
22 Commissioner Svinicki.

23 COMMISSIONER SVINICKI: I think the Commission procedure  
24 would actually have you recognized next for questions. Do you want to -- I'll go.  
25 Okay. We're deviating from that, okay. Let's see, here. I might start with Mr.

1 Borchardt. I think that certainly in some of my votes on Fukushima related  
2 activities, and I think at least one other member of the Commission, there's been  
3 discussion about looking forward to when the Fukushima directorate and those  
4 activities could be reintegrated with our overall nuclear safety program. Again, I  
5 think, at least my thought on that was nuclear safety that arises out of looking at  
6 Fukushima is not really different than nuclear safety that we do generally here.  
7 What is the status of the staff's planning for, you know, looking forward to when  
8 we could reintegrate both at organization and those activities back into the  
9 programmatic line?

10 BILL BORCHARDT: Even though we still have Japan's lesson  
11 learned project directorate, I think as a practical matter, it is fully integrated. I  
12 think you see the involvement of many NRR staff, as you get down into specific  
13 technical issues. They're not in the project directorate. They're not dedicated to  
14 Fukushima lessons learned. They're doing operating reactive work. Same thing  
15 in new reactors. There's a lot of NRO staff that are involved in these activities,  
16 as well as Research and NSIR.

17 So, I think as a practical matter, there are no barriers to the full  
18 understanding of the issues and the approach being taken to make sure that we  
19 are consistent amongst all the various offices. So, when we will completely do  
20 away with the project directorate, I don't think we've really discussed that to a  
21 point where I could give you a date specifically.

22 COMMISSIONER SVINICKI: Could I -- Mike, did you have  
23 something to add to that?

24 MICHAEL JOHNSON: Yes, thank you, Commissioner. I do want  
25 to add that we have -- I do think it is the right question to ask. We've been

1 thinking about it, talking about it a little bit. I think there is currently a role for the  
2 steering committee and that role will continue for some time in the foreseeable  
3 future. We've talked about with the JLD for example, how they -- how we see  
4 them phasing out. I should point out that currently, we are anticipating looking  
5 forward to the JLD being -- serving in some capacity up to 2014, but beyond that,  
6 I think it is the right question to ask, and we need to make sure that we do, in  
7 fact, have these issues continue to be folded into the line, so the line continues  
8 to, as Bill indicated, is happening, implement -- have responsibility for  
9 implementing the lessons learned, as we move forward.

10 COMMISSIONER SVINICKI: Okay, I appreciate that, and again,  
11 I'm not rendering any kind of judgment on whether the steering committee and  
12 the directorate is appropriate now, but any change like this, it requires, I think, a  
13 substantial amount of planning. So, I'm just suggesting, and it sounded like from  
14 Mike Johnson's response, that there is at least thought to at some point moving  
15 in that direction. So again, I'm advocating for the planning for it, not necessarily  
16 the truncation of those activities right now.

17 I'll direct this next question to Jim Wiggins and I don't know, Eric,  
18 some of this might be for you as well, but when the staff proposed reintegrating  
19 security into the ROP, we had some SRM direction in approving that, the  
20 Commission did, that we directed the staff to closely monitor the reintegration, to  
21 ensure reliable regulatory response outcomes occur from inspection findings,  
22 and PIs, in the safety and security areas. Jim, could you tell me how you think  
23 that's going?

24 JIM WIGGINS: I think it's going well. First, just as you know,  
25 before we reintegrated it, they were -- so they must be separate, they were



1 together once, and then 9/11 came, and then we split them. The activities of the  
2 ROP were occurring separately in the two, in the safety and security. So, from a  
3 licensee end, as they look at it, they don't see any difference. If they were a  
4 column two plant because they had a white finding in security, they were going to  
5 get additional inspection, and that continues to be today. In fact, all the plants  
6 that are in there, and those plants that were in column two in security, that  
7 weren't in column one in safety, they're not getting anything different in terms of  
8 NRC interaction. The only difference is the public now knows that they are not  
9 operating at the level that they thought they were, completely.

10           The other part is there's not -- we haven't really had a -- I'm being a  
11 little bit dense here, but talk about it, the biggest problem we had that drove  
12 toward the decision to reintegrate, and this problem almost happened, but hasn't  
13 happened, and that is with the two programs separate, you can have a plant that,  
14 from a safety perspective, is in column three, and from a security inspection  
15 perspective, where it's in column three also, if you integrate them, they end up in  
16 column four. That's a plant that has significant issues. When they were  
17 separate, they essentially would get treated as column three times two, and  
18 that's a misapplication of our resources, and miscalls the actual performance  
19 level on the facility. We haven't had one of those. That is the biggest challenge,  
20 or would have been the biggest challenge in a reintegration, is to explain now  
21 why the plant all of a sudden changed columns for real in how we treated it. I  
22 think it's going well, because really, the biggest challenging activity actually didn't  
23 play out, and it almost came. We almost saw it happen, but it didn't.

24           COMMISSIONER SVINICKI: Well I think that example you're  
25 using, albeit, you know, conceptual at this moment, is, I think was the motivator

1 behind the Commission direction of looking at it for those types of circumstances,  
2 and I think it bears watching, moving forward. So, I appreciate your assessment  
3 of how you think it's going at this point.

4 The other topic I wanted to talk about was the power uprates, Eric.  
5 So, this is in your area, and there was an Information Paper, I think in early June,  
6 regarding the power uprate status and process. In that paper, the staff indicated  
7 that they want to take the metrics for how long it takes to review the different  
8 levels of power uprates, and extend those outwardly. You also indicated in your  
9 presentation though, that we will have a number that will be coming in. I think it's  
10 in 13, but then it drops off. So, I guess my first question would be are the metrics  
11 for the timeliness of the reviews something that the staff can unilaterally reset? I  
12 just sincerely don't know how the current metrics -- were those Commission  
13 directed or were they the staff's at the current timeframes for the reviews?

14 ERIC LEEDS: That's an interesting question, Commissioner. I'm  
15 trying to think. I actually don't know whether we set them. I would assume that  
16 the staff set them, if one of the staff members knows. I know that we always try  
17 to just stay open with the Commission, and we need to stay open with our  
18 stakeholders. So, that's why we're going to, you know, pronounce, you know, a  
19 change in the metrics, but I don't know that we set them or not. Michelle.

20 MICHELLE EVANS: Yes, I'm Michelle Evans, the Director of  
21 Division of Operating Reactor Licensing. Hello. Yes, they were set by the staff.  
22 Before we sent that paper up, we did verify that. We had the option to adjust  
23 them to what is really occurring, and we provided it for information, in case there  
24 was a desire to stop us from doing that.

25 COMMISSIONER SVINICKI: Okay, and then it just, I guess a

1 question that arose in my mind, in reading that Information Paper though, it  
2 seems like you weren't necessarily going to apply the new timeframes to the bulk  
3 of what you have or are getting. I understand that you don't want to change the  
4 schedules based on things that are already in-house, but it looked like you were  
5 going to extend the timeframes, starting effective at a time at which you weren't  
6 really going to get that many power uprate applications. So, it just seemed that if  
7 this is relief that you need right now, it seems that you weren't going to apply the  
8 new timeframes to some that you'll be getting in the very near future. Does that  
9 make sense?

10 ERIC LEEDS: Yes it does, but it also reflects some of the reality.  
11 We haven't been getting most of the done in 12 months. Some of them we get  
12 done in 12 months, but we haven't been meeting our metrics. These are very  
13 complicated reviews. We're finding that licensees are bundling other submittals  
14 in with the extended power uprate, which makes it even more challenging, such  
15 as using alternate source term, or for the one plant, one of the plants that  
16 improved their feedwater system, their auxiliary feedwater system, which was a  
17 risk enhancement for that plant, a safety improvement for that plant. They  
18 bundled it all together and these amendments end up becoming very, very  
19 complicated, and take an awful lot of resources. So, we weren't meeting our  
20 metrics.

21 So by going forward, we want to put the industry on notice. You  
22 can't expect 12 months. It's going to take longer, and in my conversations with  
23 the NSIAC, with the industry leaders, I've told them, "You've got to expect things  
24 to take longer. You need to give us more time." Especially with an extended  
25 power uprate, they're investing hundreds of millions of dollars in upgrading their

1 facilities. The procurement and all that, they know it's coming. They can give us  
2 more time --

3 COMMISSIONER SVINICKI: Well, but I guess coming at the  
4 question from the other direction though, is that they do a lot of advance planning  
5 for any kind of power uprate. So, do you feel that they have reasonable amount  
6 of notice of these timeframes, given that they're power planning can go out a  
7 decade? So, it sounds like you had some communications with them, but in  
8 terms of setting these longer timeframes, do you think that's going to fit within  
9 their, you know, regional and local power planning processes?

10 ERIC LEEDS: I certainly hope so, Commissioner. I know that I've  
11 been very vocal with them, with the industry, telling them it's taking us longer,  
12 that they need to plan for it. I asked them to keep us off their critical path. You  
13 know, we don't want to become an impediment. Certainly, they plan these things  
14 for three or four years, or for even longer. So, if they know it's coming, they  
15 should be able to get us an application in plenty of time for us to do a thorough  
16 review, to make sure that they can implement these.

17 COMMISSIONER SVINICKI: Michelle, did you want to --

18 MICHELLE EVANS: Yeah, yes. Yeah, the industry clearly was --  
19 they allot about two years for the approval. They've been taking about 18  
20 months or so. So, all we've done is face reality and put in place measures that  
21 we're able to meet. The other issue going on right now is the work with  
22 Fukushima, the skill set, conflicts that occurred between the two, and it helps us  
23 to prioritize the workload over that 18 month period. So, you know, basically  
24 when we don't meet the 12 month, we have to go to a process to document that,  
25 you know, put out the word, you know, through a process. We have that. We're

1 not making the 12 months. It's taking 18 months and the industry was aware that  
2 that was what it was taking. So, all we've done is put reality in place, I guess, as  
3 far as the measures.

4 COMMISSIONER SVINICKI: Okay, thank you. Thank you and the  
5 only point I'll make on bundling, Eric, is that, you know, right now, we're critical of  
6 bundling, if they don't bundle them, we'll probably be critical of segmentation of  
7 various approvals in front of us. So, a balance needs to be struck there. Thank  
8 you.

9 CHAIRMAN MACFARLANE: Thank you, on to Commissioner  
10 Apostolakis.

11 COMMISSIONER APOSTOLAKIS: Thank you, Madam Chairman.  
12 Eric, you said that some stakeholders believe that risk assessment is too  
13 inaccessible for the general public's understanding, and should not be used.  
14 Now, I'm going to surprise you and say that I agree. For a long time, I believed  
15 that PRA can never reach the accessibility and clarity of thermal hydraulic  
16 analysis.

17 [laughter]

18 The metrics -- I'll come back to the metrics issue that Commissioner  
19 Svinicki had raised. In your documents here, you say that in the first quarter, you  
20 are in the red because you had 137 licensing actions, and you had to have more  
21 than 165. The question was raised where do these numbers come from. That  
22 was my question too. But the second part is why don't you use percentages, the  
23 percent of requested actions that were actually completed, because if you have  
24 an absolute number, that assumes that you have a constant number of  
25 applications, right, of requests? And that doesn't make sense to me. So in

1 percentages, it seems to me it would make more sense. That's just a comment,  
2 unless you object.

3 BILL BORCHARDT: Well I think that the practical matter is that if  
4 we budget for a certain amount of work, and that translates to man hours. So,  
5 and we're not -- we don't try to be that reactive to the number of incoming.

6 COMMISSIONER APOSTOLAKIS: Yeah, but to get the red and  
7 then have to explain in a footnote, no stop in inventory of licensing actions in over  
8 five years, it took me a while to understand this. I think it could be easier.

9 BILL BORCHARDT: I think what we are trying to mature as an  
10 organization, is to not overreact or inappropriately react, when we have a red  
11 metric. All that tells us is that that's something that we need to understand. If it's  
12 red and we need to adjust resources, then we need to take resources from  
13 somewhere else, and make sure that we do that intelligently. It's not that we go  
14 to some emergency condition, just because we have a red metric. It just merely  
15 draws the management team's attention to the issue, make sure we make a  
16 conscience decision on how to address it.

17 COMMISSIONER APOSTOLAKIS: No, I agree with that, but all I'm  
18 just saying is that maybe a percentage would be an easier way to deal with it,  
19 that's all.

20 ERIC LEEDS: We certainly can take a look at that, Commissioner.

21 COMMISSIONER APOSTOLAKIS: Thank you. You also said,  
22 Eric, that within the next four years, we anticipate that most licensees will have  
23 fire PRAs, not only because of NFPA-805, but because of fleet-wide decisions for  
24 non-NFPA-805 applicants. That's a mystery to me. What do you mean by that?

25 ERIC LEEDS: You've got a large utility. You've got Duke. You've

1 got Entergy. You've got Exelon.

2 COMMISSIONER APOSTOLAKIS: Yeah.

3 ERIC LEEDS: They may not have all their plants transitioned to  
4 NFPA-805. Perhaps only their older plants would transition. Maybe their newer  
5 plants have the separation necessary, you know, or designed with the  
6 separation. So, they feel they don't need to go to NFPA-805, but a lot of the  
7 plants, I've heard anecdotally from the utility execs, is that they're finding benefits  
8 from doing, from performing fire probabilistic risk assessments that help the  
9 safety of their plant, and provide them more flexibility. So, after they complete  
10 looking at -- you've got a fleet like Exelon, after they complete looking at their  
11 older plants and do fire PRAs there, they'll take that expertise, and then apply it  
12 to their newer plants to see what the risks are at their newer plants. So, we  
13 expect more than just the plants that actually transition to NFPA-805, to actually  
14 perform fire PRAs. We expect more licensees to do that.

15 COMMISSIONER APOSTOLAKIS: Well, I agree with that. What  
16 threw me, I guess, was because of fleet-wide decisions.

17 ERIC LEEDS: Fleet-wide decisions.

18 COMMISSIONER APOSTOLAKIS: I thought you guys would learn  
19 tricky to force them to go to NFPA-805. That's not what you meant, okay. In  
20 your memo to Mr. Virgilio, dated February, you talked several times about the  
21 new vision for more integrated performance management, and Commissioner  
22 Magwood also raised the issue of prioritization of actions, and the issue of  
23 consistency, and then I think in your response, you mention that we prioritize in  
24 terms of safety significance, or that is a point of the major inputs, anyways.

25 Well, what comes to mind is what we do, as an agency, when there

1 is an external factor. You call them environmental factors, I mean, yeah, in case,  
2 of course, of a major accident, TMI, Fukushima. So, let's take Fukushima. The  
3 staff prioritized the recommendations from the Near Term Task Force, Tier I, II,  
4 and III, without putting them in the broader context of what the agency is doing  
5 already. So, I'm wondering whether this partial prioritization of a subset of  
6 actions is as meaningful as we would like it to be. In other words, you know, you  
7 could look at the various recommendations. In fact, to put them in terms of  
8 safety, or risk, or cost, or whatever, in the broader context of NFPA-805, or for  
9 GSI 191, and so because I think you mentioned several times that resources are  
10 not plentiful. So, would it make more sense to do that? Now, forget about it, I'm  
11 not saying we should do that to Fukushima. We've done it already, but in the  
12 future. If there is some other incident someplace, or for whatever reason we  
13 have a set of possible actions, I'm not sure that the rational thing to do is to  
14 prioritize them as a subset of the broader actions that the agency is supposed to  
15 be doing. Is that something you guys have thought about it, or is that a crazy  
16 idea, or...

17 BILL BORCHARDT: In my view, it's not crazy. It's maybe  
18 impractical. There's a -- after Fukushima, there was a political urgency to take  
19 action, to do something, to have taken the time to develop the recommendations,  
20 do a risk analysis, or do whatever analysis we want to do to prioritize them, I  
21 think would not have been the right thing from on a number of perspectives.

22 COMMISSIONER APOSTOLAKIS: I agree that there is a problem  
23 with the political pressures. On the other hand, it wouldn't hurt to try to do it and,  
24 because I mean after all, there was political pressure to do everything in five  
25 years, and the agency resisted and said, "Tier I, Tier II, Tier III." So, we win a



1 few battles.

2 BILL BORCHARDT: And I think the things we've chosen to do as  
3 Tier I, the immediate items, there are a number that have, would clearly have  
4 made any analysis as being important to do without delay, and those --

5 COMMISSIONER APOSTOLAKIS: I'm not criticizing about that.

6 BILL BORCHARDT: No, I --

7 COMMISSIONER APOSTOLAKIS: I'm just saying that, you know,  
8 there is political pressure and political pressure, right? I mean, remember, do  
9 everything that the Near Term Task Force said, and do it by December 31st of  
10 2016, or '15. It seems to me that it would be helpful to try to do that, but I fully  
11 acknowledge the other inputs.

12 MICHAEL JOHNSON: Commissioner Apostolakis, I just wanted to  
13 add to the comments already made. I actually see Fukushima as a success for  
14 what you're suggesting that we do, and again, it wasn't done in a quantitative  
15 way, but what we did with respect to Fukushima was we looked where we  
16 needed to come back, and then figure out how we were going to afford  
17 Fukushima, for example, and then also afford to do all the other high priority work  
18 that we did, we needed to do. We, first of all, looked at that other high priority  
19 work to figure out what it was, and then we looked across business lines,  
20 including the new reactor business line, and other business lines, to make sure  
21 that we could fund the highest priority work, and then if you will, delay or defer  
22 some of the lower priority work. So, that's an example where we did, in fact, do  
23 what you're suggesting that we do. Again, there was a qualitative way to do it. It  
24 wasn't quantitative, but we do, in fact, I think, try to do that with -- we did that with  
25 Fukushima, with great success, I actually think.

1 COMMISSIONER APOSTOLAKIS: But you said you decided to  
2 defer low priority work outside of Fukushima. You never dared say that this  
3 recommendation from that group is of low priority and we don't need to do it.

4 MICHAEL JOHNSON: We're going to tell you about that in August.  
5 [laughter]

6 COMMISSIONER APOSTOLAKIS: Anyway, that's an idea. I'm not  
7 saying go out and do it, but I think in the interest of consistency and that could be  
8 one input, by the way. It doesn't have to be the input on it. Thank you, Madam  
9 Chairman.

10 CHAIRMAN MACFARLANE: Thank you very much. Okay, now  
11 me. I don't have too many questions for you. This is all drinking from the fire  
12 hose kind of situation, but and so first, I'll start off with my 30- or 40,000 foot  
13 question. It strikes me in looking at your list of environmental drivers, that you  
14 don't actually have any real environmental drivers, and I wondered why, and  
15 maybe you're accounting for them elsewhere. But so you don't really seem to be  
16 accounting for whether anomalies, which we seem to be experiencing more and  
17 more lately, earthquakes, which we have experienced recently, or other factors  
18 that aren't really environmental, but, you know, national, international events like  
19 terrorism. How does that fall into your planning?

20 BILL BORCHARDT: Well part of what I think I hear you addressing  
21 have to do with operational experience with the North Anna earthquake, or what  
22 we call the North Anna earthquake. That's an example of an operational event  
23 that we take on board, evaluate the existing regulations to see if we need the  
24 modify them, what other regulatory guidance. So, those things are addressed as  
25 they present themselves. Many of the others like the issues of global warming, I

1 think we probably could have listed that. We alluded to it in a different way, using  
2 a different descriptor. You know, we talked about carbon tax. I think we got  
3 ourselves thinking more about the --

4 CHAIRMAN MACFARLANE: Policy end.

5 BILL BORCHARDT: -- government policy issues that are driven  
6 and influenced by the issue of global warming. So, all of those things that we  
7 mentioned were a way of providing some examples of issues that influence what  
8 is the incoming work, and as a way of predicting five years from now what will we  
9 be working on.

10 JIM WIGGINS: I might try a little spin on that. When Eric says that  
11 we've historically reacted to events, he's exactly right. These things that you  
12 mentioned, they present themselves as operational events, whether it's an  
13 earthquake, or tornado, or flood. They present themselves as events. This  
14 agency has always reacted to events.

15 Now, over the long term, there used to be much more internally  
16 driven plant events than you see today. Today, the events tend to be -- the  
17 plants are much more reliable. The events tend to be more routine, less  
18 dramatic. You go back in history you'll see some real interesting events that we  
19 have to occupy our time. So, what's driving it has changed, but from our end, we  
20 look at how it presents itself. It presents itself to the plant as a particular  
21 challenge, we react to the challenge.

22 When you think about well, could some of these environmental  
23 things cause an increase in problems. Could there be more heat spells? We've  
24 been dealing with hot summers for 15 years. Plants end up with high heat sink  
25 temperatures, things like that. It's almost like it's a routine thing in NRR, that

1 they'll ask, and the regions will ask themselves as they approach the summer,  
2 "How are things? Are we ready to handle the high heat issues, the hot heat sink  
3 problems, or high temperatures in containment," things like that. That's how it  
4 presents itself.

5               So, I would offer that what's happening is the content of the events  
6 have changed from these kind of internal performance related driven things that  
7 a particular licensee, particular plant failed to take care of the safety injection  
8 pump, or correctly. So, when some of that came up that it needed to run, it failed  
9 to run, or something like that. That's not what you're seeing. You're seeing a  
10 different flavor of event initiators, but we still react to them the same, probably  
11 spending nearly the same amount of time and effort on them. It's just what's  
12 driving them is different.

13               CHAIRMAN MACFARLANE: Okay.

14               JENNIFER UHLE: Hi, I'm Jennifer Uhle. I'm the Deputy Director of  
15 Research, and I wanted to highlight that a major conclusion from our state of the  
16 art reactor consequence analysis program was that the risk to the plants, looking  
17 at the best analysis approach, not being conservative, or non conservative, really  
18 shows that external events drive the risk. From that, of course, when we think of  
19 the Level 3 PRA, I know Commissioner Apostolakis loves it, because it's a Level  
20 3, and we're going to go to the consequences, to the populations, but what I think  
21 is more exciting about it is that it's going to be a full scope PRA, which is going to  
22 include external events, and so this is really the first time the agency will do a  
23 PRA, a full PRA, not just a consequence study, but looking at the external  
24 events, and I think we're going to find that we're going to learn quite a bit from  
25 that. So, although it may have not have been highlighted to that level of detail,

1 Eric did point out that the Level 3 PRA is going to be done, and I think that it does  
2 show that the agency is very focused on external risks.

3 CHAIRMAN MACFARLANE: Okay, great. All right, second  
4 question, it seems to me, and, you know, I'm new to all of this, in the last couple  
5 of years, there's been an uptick in both long and short term significant events at  
6 operating reactors, and so I'm trying to understand how you are able to plan for  
7 resources, for the reactor oversight program, in light of that.

8 ERIC LEEDS: Certainly, I can take that. Your comment about  
9 there seems to be an uptick on, how would you say it, more significant events at  
10 the plants? Our reactor oversight program, we perform a yearly review of all the  
11 events, of everything that's -- it's a current review. We do it constantly, but we  
12 provide the Commission with a paper that's publically available, where we take a  
13 look and we trend all the events, all the performance indicators, our inspection  
14 findings, and we take a close look at how things are trending, and we watch  
15 these events.

16 A couple of years ago, there was an actual uptick in events, and we  
17 issued Information Notices, and Bulletins, and we started looking at it. The  
18 industry started looking at it. The last couple of years, I'd say that things have  
19 been pretty steady in terms of operating events. We, as I said at the beginning,  
20 an operational event takes all of our focus. When something happens at a  
21 nuclear power plant, that becomes our primary focus, and we respond. We are  
22 budgeted for events. We're budgeted for so many special inspections,  
23 augmented team inspections. We have that budget. The regions actually will  
24 trade resources, to make sure that we have enough resources to get the job  
25 done, in case there are more events in one region than another region. So,

1 that's part of our process and we have that included. We have quite a lot of  
2 history on this, because we've been doing it for years. So, we monitor it. We  
3 report it to the Commission, and we budget for those types of events.

4 CHAIRMAN MACFARLANE: Okay, great. That's all I have for you.  
5 Let me ask my fellow Commissioners whether anybody has additional  
6 comments. No? Okay. Well, then I thank you all again very much, for your  
7 presentations, and I think this was a good opportunity to highlight the areas that  
8 the agency will be focused on regarding operating reactors over the next five  
9 years, and I say that, and we'll adjourn the meeting.

10 [whereupon, the proceedings were concluded]