

UNITED STATES OF AMERICA  
U.S. NUCLEAR REGULATORY COMMISSION

BRIEFING ON THE JAPAN NEAR TERM TASK FORCE  
REPORT  
PRIORITIZATION OF RECOMMENDATIONS

OCTOBER 11, 2011

9:00 A.M. AND 1:00 P.M.

TRANSCRIPT OF PROCEEDINGS

Public Meeting

Before the U.S. Nuclear Regulatory Commission:

Gregory B. Jaczko, Chairman

Kristine L. Svinicki, Commissioner

George Apostolakis, Commissioner

William D. Magwood, IV, Commissioner

William C. Ostendorff, Commissioner

## APPEARANCES

External Panel 1

Christopher Paine  
Natural Resources Defense Council

Charles Pardee  
Chairman, Industry Fukushima Response Steering  
Committee and Chief Operating Officer, Exelon Generation

Ed Lyman  
Senior Staff Scientist, Union of Concerned Scientists

Neil Wilmshurst  
Vice President and Chief Nuclear Officer,  
Electric Power Research Institute

External Panel 2

Sue Perkins-Grew  
EP Director,  
Nuclear Energy Institute

Patrick Mulligan  
State of New Jersey and the Conference of Radiation  
Control Program Directors

Timothy Greten  
FEMA, Deputy Director,  
Technological Hazards Division

Phillip Musegaas  
Hudson River Program Director,  
Riverkeeper

## APPEARANCES

## Afternoon Session

NRC Staff Panel

Bill Borchardt  
Executive Director for Operations

Eric Leeds  
Director, Office of Nuclear Reactor Regulation

Jim Wiggins  
Director,  
Office of Nuclear Security and Incident Response

## 1 PROCEEDINGS

2 CHAIRMAN JACZKO: Good morning everyone. The Commission  
3 meets today to discuss the staff's 45 day review of the 90 Day Task Force  
4 Recommendations. The Steering Committee which we established to conduct  
5 this review has confirmed that the task force did a very good job. And the  
6 Steering Committee has endorsed moving forward with virtually all of the task  
7 force's recommendations. In addition, they've recommended several new  
8 measures beyond the steps outlined by the task force which touch an important  
9 issue such as spent fuel storage and emergency planning.

10 I want to thank the Steering Committee for their excellent work as  
11 well as all of the NRC staff that assisted their efforts. I also want to acknowledge  
12 the broad range of stakeholders who participated in this process. The Steering  
13 Committee benefited from the diverse perspectives they brought to the table and  
14 the Commission will hear from many of them today. And because of the staff's  
15 hard work and tremendous participation of our stakeholders, the Commission is  
16 now in a position to provide clear and definitive guidance on the task force's  
17 recommendations. We need to move forward expeditiously because we still  
18 have a great deal of work ahead of us.

19 We not only need to implement the recommendations we choose to  
20 move forward with, but we also have to conduct the longer-term review, including  
21 some of these additional items that are mentioned in the 45 Day Paper, which  
22 could lead to additional recommendations based on new information and  
23 insights.

1           During today's meeting we'll hear from the staff and a broad cross  
2 section of stakeholders including other Federal agencies, state representatives,  
3 industry leaders and public interest groups committed to nuclear safety and  
4 environmental protection.

5           Our first panel will consist of stakeholders who will share their  
6 perspectives on the recommendations related to preventing and mitigating an  
7 accident. The second panel will also consist of stakeholders who will address  
8 the recommendations related to emergency planning.

9           And the third and final panel, the staff will provide an overview of  
10 the additional information that the Commission requested concerning the  
11 recommendations. Before we begin, would any of my colleagues like to make  
12 any remarks? Okay, if not, we'll start, I guess, with Chris. Christopher Paine,  
13 who is with the National Resource Defense Council.

14           CHRISTOPHER PAINE: It's on? Okay. Thanks for having us here  
15 today. My name is Christopher Paine, I direct the Nuclear Program for the  
16 Natural Resources Defense Council. Regarding the staff's recommendations on  
17 Task Force Recommendations 2.1 and 2.3, the seismic and flooding issues, I  
18 don't think the most recent staff paper resolves the timeline of GI-199, in terms of  
19 providing a timely resolution and forming near term action, it's not clear how the  
20 GI-199 process is going to mesh with the process called for by the task force.  
21 Does the NRC intend to use GI-199 as the vehicle for establishing criteria and  
22 methods to assess seismic safety deficiencies at specific licensing sites? We  
23 urge the NRC not to wait years for inspection and criteria, when it has already  
24 established methods and regulations for dealing with this exact issue in the  
25 context of early site permits and combined license reviews for new reactors.

1                   And it's interesting that the staff recommendation in the latest  
2   SECY describes the preferred process of applying present day regulatory  
3   guidance and methodologies to the reevaluation of flooding hazards at operating  
4   reactors, but did not go far enough in extending this common sense conclusion to  
5   seismic hazards. And I have more, much more detailed extended comments I'll  
6   give the Commission on each of these issues because we only have five  
7   minutes.

8                   On Recommendation 3, preventing or mitigating seismically  
9   induced fires and floods. This important issue unfortunately was relegated to  
10  Tier 3 status with no proposed schedule for consideration. That's a mistake.  
11  NRC sees no valid reason for excluding seismically induced fires and floods from  
12  the risk assessments and plant walk-downs that are contemplated under  
13  Recommendation 2. In 2007, the quake at Kashiwazaki-Kariwa nuclear power  
14  plant, the world's largest demonstrated serious knock-on fire and flood effects.

15                  Recommendation 4, on station blackout coping. Overall we agree  
16  with the development of appropriate coping times to a tiered approach, but we  
17  think that the four and quarter year time table for issuance of a final rule is far too  
18  leisurely. The only proposed interim action for SBO mitigation -- better protection  
19  of existing EMD EDMG equipment -- would still be based on current insufficient  
20  design basis criteria. The Commission should require meaningful, near-term  
21  actions to mitigate SBOs. Significantly longer on-site SBO coping capabilities for  
22  critical and emergency core cooling functions is commercially available now.  
23  Why wait? Consider ordering near-term acquisition of extended coping via larger  
24  capacity, DC battery back-up, self-powering alternatives using residual heat-  
25  removal steam, and robust portable power units. Why should Americans have to

1 wait four plus years for eight hours of SBO coping capability, when French citizen  
2 already enjoy 20 hours of extending coping at their PWR units. Numerous  
3 opportunities in BWRs are for AC self-powering, using RCIC, HPSI and LPSI  
4 turbines.

5           On Recommendation 5, the hardened vents. We agree with  
6 addressing the need for reliable hardened vents in both BWR Mark I and II  
7 reactors, but moreover, vent technology has progressed. Serious consideration  
8 should be given to requiring that these be hardened filtered vents, like those that  
9 IMI Nuclear has installed at Benzau, and Liebstadt in Switzerland. You note both  
10 PWR and BWR types of reactors now have filtered vents. Some 90 reactors in  
11 Europe have some required form of filtered vent technology installed, why has  
12 the NRC allowed the U.S. to fall behind in this important area of accident  
13 mitigation?

14           I think that the comments of Dana Powers of the ACRS are relevant  
15 here. How much information do I need to know about specifically Fukushima?  
16 We did it for Mark III's, why can't we do the same thing for I's and II's. It's  
17 obvious that inerting is just not enough. The level of study and precaution taken  
18 in the U.S. is dramatically less than that taken in other countries and leaves us  
19 vulnerable to the kind of cliff-edge effects for flooding that seem equally  
20 applicable to hydrogen control.

21           CHAIRMAN JACZKO: Here's what I'm going to do. We were  
22 supposed to have on other person here, so everybody take another two minutes.  
23 Everybody will have seven minutes.

24           CHARLES PARDEE: Oh great. Oh man.

25           CHAIRMAN JACZKO: Well, that'll cost you a minute.

1 [laughter]

2 CHRISTOPHER PAINE: So, Recommendation 7 for spent fuel  
3 safety. We agree that providing spent fuel pool instrumentation in accordance  
4 with 7.1 is a decent start, but SECY-11-0137 has muffled the task force clear call  
5 that this equipment be classified and regulated as safety related. The staff  
6 memo now only calls for reliable spent fuel instrumentation that is potentially  
7 safety related. And staff massaging of the 7.2-7.4 Recommendations demote  
8 them to a Tier 2 priority for eventual rulemaking, rather than as a candidate for  
9 near term Commission Orders. This would kick out resolution and implementing  
10 action for at least four years, which we do not view as a positive development.

11 However, both the original Near-Term Task Force  
12 Recommendation and subsequent staff analysis ignore the safety advantages of  
13 off-loading densely packed spent fuel from vulnerable pools into better protected  
14 dry casks. I don't believe the Commission's current official position on this issue  
15 is documented, substantiated or defensible.

16 The Near-Term Task Force and staff framing of this issue  
17 artificially constrains the problem to one of insuring spent fuel cooling of spent  
18 fuel make-up only. And we agree with the concerns of our colleagues at UCS in  
19 their comments on recommendation 7.2-7.5 which they will go into in greater  
20 detail.

21 On Recommendation 8, emergency response we agree with the  
22 Near-Term Task Force recommended Orders, but we think that they're too  
23 oriented towards rationalizing paperwork and guidance. We would prefer to see  
24 a more hands-on role by the NRC in establishing hard and fast performance  
25 criteria for emergency response, and realistic methods for verifying them on a



1 recurring basis.

2           The SAMG voluntary initiative began some of the necessary work,  
3 but ended in notable deficiencies to which the industry has responded “guidance  
4 is being developed.” The issuance of an Order, in our view, is clearly preferable  
5 and should not be a big hill to climb, at least since some of the best practices  
6 have already been gleaned from this initial attempt.

7           The rest of our recommendations concern emergency response.  
8 We have a lot of concerns and I would like to move to my last point, that there  
9 are other key emergency planning issues that haven't even been raised by the  
10 task force, or by the subsequent staff reviews. In our paper, we show what a  
11 major accident -- our latest H-PAK runs of a major accident at Indian Point what  
12 that would be. And it raises fundamental questions about emergency planning  
13 and preparedness, and we have included some of those in our statement. Thank  
14 you.

15           CHAIRMAN JACZKO: Thank you. Next we will hear from Mr.  
16 Charles Pardee.

17           CHARLES PARDEE: Okay, good morning, Mr. Chairman. Again, I  
18 appreciate the opportunity. I'm Charles Pardee, and I'm here representing the  
19 industry as the chairman of the Fukushima Response Steering Committee. I'm  
20 not going to elaborate at all on the organization or the governance that we've  
21 established for the Steering Committee, we did that last meeting, so I won't. I  
22 would say though that Mr. Wilmshurst, who's here representing EPRI is also a  
23 principle member of that Steering Committee, and we will be speaking to  
24 somewhat different roles. I, as representing the industry, and Neil as  
25 representing EPRI, and that is not an inclusive representation, they also have

1 other activities that they're involved with. So while I think in those areas of  
2 overlap you will find a great deal of alignments, Neil may have other elaborations  
3 to provide for you. So just a minor point of clarification there.

4 Likewise, the industry submitted both a letter by way of comments on the  
5 45 Day SECY and we submitted slides for this morning, but I'm not going to use  
6 them, just in the interest of time management I thought I'd just speak at a high  
7 level to some of our conclusions as a result of our review of the 45 Day SECY.

8 And last comment before I get into the contextual material, the  
9 engagement with the staff has remained very, very good. These are some of the  
10 most substantive discussions that we've had with staff in years. It's always been  
11 good, but clearly we share a common focus on trying to do the right things as  
12 quickly as we can. That doesn't mean that we have universal agreements on  
13 details and such, but the dialogue is excellent, the engagement is excellent, we  
14 certainly feel like our positions are being carefully considered as we work our  
15 way through this process.

16 I'll shift gears to the specifics of the 45 Day SECY. First, I will  
17 restate that we largely agree with the scope and the timing that's contemplated  
18 for the Tier 1 activities. So most of the dialogue is around what we need by way  
19 of specificity to make sure that we implement correctly the first time, as opposed  
20 to taking an iterative process because insufficient guidance has been provided.  
21 For example, and we have talked about this before, there are references to  
22 things like reliable hardened vents, and really the attention paid to what the  
23 definition of reliable is, how many cycles, what kind of conditions that those vents  
24 are expected to be able to be functional in. Things like that will define how  
25 quickly we can move through the process so while I do not mean to minimize the

1 challenge of the timing of the proposed actions, paying attention early on to what  
2 exactly the specific implementation details are will serve us well as we work our  
3 way through this process, because it will prevent us from having to circle back  
4 and repeat our analysis, or redefine what the requirements are.

5           You pointed out in your opening comments, Mr. Chairman, that  
6 there are still some things that we have not yet discovered based on our reviews  
7 at Fukushima. One of those, the viability of ultimate heat sinks was pointed out  
8 in the letters and we fully recognize that we may learn things later on that would  
9 cause us to have to move more quickly through some of those actions based on  
10 continued Lessons Learned.

11           But, I think that the picture of what happened at Fukushima and  
12 how that applies to us here in the United States is filling in on that timeline that  
13 we discussed the last time we were together.

14           In events such as this, beyond design bases a highly station-  
15 specific and complex low probability sequence of events, we think we are best  
16 served rather than trying to address the specific learnings from Fukushima -- that  
17 sequence of events with a seismic event followed by the tsunami -- we're much  
18 better off stepping back and looking at hazards more generically. And we think in  
19 order to do that and protect against those extremely low probability high  
20 consequence events, we need to maintain that focus on redundancy and  
21 diversity and flexibility versus a highly prescriptive solution to one of many, many  
22 accident sequences. So, I think one of the principle points that the industry  
23 would like to make is that focus on diversity of either mode of force or water  
24 sources or electrical supply redundancy, so that we do have reliability. And  
25 likewise, flexibility so that we can accommodate the unanticipated would serve

1 us best in these kinds of accident sequences.

2           We have spent a considerable amount of time with the staff going  
3 through the approaches regarding adequate protection and enhancements to  
4 safety. I won't belabor that here, but I will say that we are doing that not in an  
5 attempt to be obstructionist but rather we have, you know, well-established rules  
6 that have served us well through the years, and we see nothing coming from  
7 Fukushima that would cause us to need to abandon those or somehow redefine,  
8 for example, adequate protection by a series of singularly small decisions. So,  
9 not a point of argument, but one of great interest to us as we work our way  
10 through the tools that are being used to implement these actions.

11           And, again, I'll say I think we are agreeing on the end-state, it's how  
12 we get there in a fashion that will be repeatable in the future, consistently and  
13 predictably for us.

14           We agree with the concerns over prioritization. There is a lot  
15 proposed here. We already had a lot that we were, had taken aboard as far as  
16 improvement initiatives. The SECY document clearly points out the need to be  
17 careful with resources and prioritization. We agree with those comments, and we  
18 think we can responsibly move through this. But, it will require a great deal of  
19 dialogue to make sure we get this as close to right as we possibly can.

20           Lastly, I'll close with a comment that I have made before. We spent  
21 a lot of time. One of the principle themes at the last Regulatory Information  
22 Conference was the importance of focusing on plant operations. That's our first  
23 strategic goal in our governance. That is to make sure that with all of this activity,  
24 we don't take our eye off the ball with how we operate the current 104 power  
25 reactors that we have in this country. And we continue to use that as our

1 touchstone as we work our way through resource allocation and prioritization.  
2 We think that we can accomplish what is being proposed in responsible  
3 timelines, but we'll have to keep that balance at the forefront of our minds as we  
4 work our way through it. And that is the end of my comments, Mr. Chairman.

5 CHAIRMAN JACZKO: Thank you. I will now turn to Ed Lyman,  
6 who is a senior staff scientist at the Union of Concerned Scientists.

7 ED LYMAN: Thank you. Good morning. And, again, on behalf of  
8 Union of Concerned Scientists, we appreciate the opportunity to comment on the  
9 current status of the prioritization recommendations. I think we do largely agree  
10 with the latest 45 Day Paper. Our main concerns have to do with the timelines  
11 associated with the proposed rulemakings, and how you are going to address  
12 what we see as urgent issues that really should be addressed in a more rapid  
13 timeframe in the interim. So, like NRDC, we -- that's a general concern.

14 I'll talk about some of our specific concerns with the  
15 recommendations. We also think that the protection of concurrent events related  
16 to seismic initiators shouldn't be deferred as a Tier 3 issue. And then if you're  
17 going to do a good seismic PRA you're going to need to understand the full  
18 implications of those concurrent events to be able to reduce the uncertainties  
19 associated with them. So, we see that as something that is integral to the effort  
20 to try to better understand the overall impact of seismic events.

21 On Recommendation 4, we note again the timeline for the  
22 rulemaking is long, and, in the interim, the proposal to rely on strength in  
23 50.54(hh)(2) measures will have to, we think, involve significant enhancement to  
24 those measures, so that they'll be more effective in the interim. And in the staff  
25 papers, for instance, they've said numerous times that the current guidance for

1 50.54(hh) is silent on the issue of whether that equipment needs to be protected  
2 against external events like seismic events. But, I would just read from the  
3 current guidance, Phase II and III guidance document. It says that this  
4 equipment is "not to be treated as safety-related equipment, and not subject to  
5 any new special treatment requirements, e.g., QA seismic, EQ" etc." So, it  
6 seems it's not silent, but there's an explicit exemption from those safety-related  
7 requirements, and we think that needs to be re-examined.

8           Also, the scope of those measures as spelled out in the guidance is  
9 insufficient. For example, the requirements for operation of portable pumps for  
10 make up only require 12 hours of fuel and water supply, specified in the current  
11 guidance, and that clearly would have been inadequate in Fukushima.

12           Now, also, with regard to Recommendation 4, we think if  
13 Recommendation 8 leads to a long-term rulemaking for integrating SAMGs and  
14 EDMGs, you're going to need better guidance for how to implement those  
15 measures in the interim. And you do need to look at some of the implications of  
16 Fukushima. They did have accident management guidelines at Fukushima.  
17 And, I think, looking at the timelines in the more recent information, it's clear they  
18 tried to carry them out, but there were major obstacles, and those should be  
19 understood.

20           For instance, the current timelines that were revealed in the  
21 September document to the IAEA show that how the interactions between  
22 adjacent units really affected their ability to implement accident management  
23 measures. For instance, the explosion at Unit 3 both undid their attempts to  
24 prepare the hardened vent at Unit 2 for eventual use, and also interfered with  
25 their ability to establish alternate injection cooling. That led to many hours of

1 delay for both of those and might have affected the outcome of Unit 2. So, you  
2 do need to look at those interactions carefully in the 50.54(hh) guidelines as well  
3 as the impact of concurrent events such as aftershocks, the role of aftershocks,  
4 also has become more clear on their impact on implementing accident  
5 management.

6           And, again, in response to the idea of flexibility, we think that  
7 flexibility, like I said in the first meeting, is not always a good thing if what you  
8 have are plans that are too general and that they're -- I understand the point that  
9 you can't think of everything, but I do think that you need to define a well-  
10 established set of events, work through scenarios from beginning to end to make  
11 sure that you are -- that you can actually implement some of these. So, flexibility  
12 in the absence of actually trying to define some specific objectives is not going to  
13 work.

14           With regard to Recommendation 6, in the meeting last month, we  
15 thought that hydrogen mitigation for ice condensers in Mark III's enhancements  
16 there could have been implemented as a short-term issue, and we see that in the  
17 latest paper the staff has gone in the other direction, moved it to Tier 3. Now, we  
18 don't think it really meets the criteria for Tier 3 because all these licensees have  
19 already implemented voluntary measures. So, there isn't a whole lot more that  
20 would need to be done to convert those voluntary measures to regulatory  
21 requirements and ensure that the hydrogen mitigation and station blackout is  
22 more reliable for these very vulnerable containment types.

23           With regard to Recommendation 7, we agree that reliable spent fuel  
24 instrumentation should be a priority issue. And we also do agree that issues  
25 associated with enhancing makeup capability might be considered slightly less

1 priority because of the concerns of my colleague, Dave Lochbaum, about the  
2 potential safety implications of long-term spent fuel makeup, especially in boiling  
3 water reactors and the impact of the accumulation of condensed water on the  
4 safety systems. And one only need look at the management or lack of  
5 management of contaminated runoff at Fukushima to know that you need to have  
6 a much better handle on how to manage long-term makeup.

7           So, we think prevention with regard to spent fuel is a better  
8 strategy. And so we do support the staff's recommendation that examining  
9 whether, again, moving spent fuel out of the pools sooner to reduce the density  
10 and close packing of spent fuel to increase downcomer space to enhance natural  
11 convection cooling to avoid rack feed and the other measures that have been  
12 discussed for mitigating spent fuel accidents. That would reduce the demands  
13 for makeup water in the event of an accident. We think that that focus is  
14 appropriate.

15           Finally, just on Recommendation 9, we know that it's a subject of  
16 the next panel, but I'd like to say that we do support strongly the staff's  
17 suggestion that the sacrosanct 10 mile zone be reevaluated, both with regard to  
18 evacuation planning and with regard to potassium iodide. And I'd just like to note  
19 in the remaining time that as a result of the Freedom of Information Act requests,  
20 we've learned that the so-called SORCA study actually assumed that there would  
21 be an ad-hoc evacuation of the 10 to 20 mile zone, and that the -- some of the  
22 consequences that have already been publicly reported from the SORCA  
23 program actually depend on the fact that that zone will be evacuated. And, so  
24 the implication that simply having planning within a 10 mile zone being able to  
25 expand that as needed needs to be re-examined to the extent that you rely



1 actually on evacuation of that 10 to 20 mile zone for the -- some of the protective  
2 action benefits that are seen in that study. And I'll stop there. Thank you.

3 CHAIRMAN JACZKO: Thank you. I'll next turn to Neil Wilmshurst,  
4 who is vice president and chief nuclear officer at Electric Power Research  
5 Institute.

6 NEIL WILMSHURST: Good morning. Thank you very much for the  
7 opportunity to speak to you this morning. EPRI as a 501(c)(3) corporation, can't  
8 suggest any priorities on the NRC recommendations. However, what we can do  
9 is offer comment on the technical complexity issues, the current and the future  
10 possible state of knowledge in the key areas and help inform you on the efforts  
11 that are underway and foreseen in the future.

12 You may be aware EPRI has decades of experience in this field. In  
13 particular, we played a key role post TMI 2 understanding what happened and  
14 helping develop the technically correct responses. Since that time, our global  
15 membership's grown. We now have members from 80 percent of the nuclear  
16 power reactors around the world. So, we are bringing the global membership  
17 into this equation as well.

18 We've been involved in the Fukushima response since the day of  
19 the event. We've been working with TEPCO, working with NRC, Research,  
20 DOE, and other industry groups. And, as Mr. Pardee mentioned, closely  
21 involved in the Way Forward Initiative, informing the discussion on the response  
22 strategies, and helping develop those R&D responses required.

23 As I mentioned, we've got a very strong relationship with TEPCO,  
24 developed over the past decade or so, and that's bringing lots of information to  
25 the table, helping us understand what happened, why things happened, and

1 enable some of those discussions around what is the correct technical response.

2 Other non-US entities are reaching out to us to help coordinate  
3 R&D, entities like CRIEPI in Japan and EDF Research, other global entities. So,  
4 there's a big global effort around Fukushima, which we bring to the table.

5 And I think one of the key issues which we all need to be aware of,  
6 that this is a global issue, and there are finite global technical capabilities in some  
7 of these areas. And one of the things I'm conscious of is the need to leverage  
8 those results for the benefit of the entire industry and make sure we drive to the  
9 right technical solutions in the right timeframe. And, reflecting on one of Mr.  
10 Pardee's comments, we've got to balance what the right thing for those  
11 resources to be working on. Is it the research portfolio which existed across the  
12 world before Fukushima, or is it the research portfolio coming out of Fukushima?  
13 There's a balance making sure the right work's being worked on.

14 So, moving on to the work we have in progress. We are working on  
15 SAMG technical bases. EPRI developed the technical basis for the current  
16 SAMGs. We're reflecting on the Lessons Learned from Fukushima, building in  
17 additional scope into those SAMGs, which will then be subsequently handed off  
18 to the relevant owners groups and bodies to actually work on the procedures.

19 Prior to Fukushima, we were working on external hazards. That  
20 work is clearly taken on a stronger impetus, and a stronger focus on seismic and  
21 external flooding events. But, that was something we worked on before  
22 Fukushima.

23 You'll be aware we've been working with USGS and NRC Research  
24 and others on seismic hazards. That work continues. We're working very hard  
25 to bring that to conclusion in order to inform the necessary debate on seismic

1 hazards and what that means. And, something working on specifically coming  
2 out of the Fukushima Steering Committee is the seismic and flooding walk-down  
3 criteria.

4           Seismic is an area of particular concern for me around resource  
5 constraints when we get in the space of the seismic hazard to particular sites,  
6 understanding how that can be done, maximize the use of the technical  
7 resources available.

8           Other areas we're working on, spent fuel pool phenomena had  
9 significant debate during the days of Fukushima, including the potential for the  
10 zirconium fire. We're developing inspection techniques for spent fuel pool liners,  
11 and we're also working with a broad number of stakeholders to understand the  
12 spent fuel disposition. What is the potential for increasing -- for improving safety  
13 by a different means of spent fuel disposition?

14           Other things we're working on, we're compiling the radiological data  
15 from Fukushima to support an understanding of the mechanisms and the  
16 pathways with the ultimate aim of understanding the microclimate issues and just  
17 what happened, both on the land and within the ocean, the transport of the  
18 radiological issues there.

19           I mentioned we're supporting TEPCO very closely in a number of  
20 areas, most notably the water cleanup. We've been involved with TEPCO,  
21 helping with water cleanup. And that relationship is particularly key to I think all  
22 of us understanding what went on. And TEPCO are committed to working with  
23 EPRI to develop a technical understanding, beyond the basic timeline, the  
24 technical understanding of why things happened, and what the physical  
25 phenomena were, which I'm sure that work will inform debate of things like

1 hardened vents and hydrogen control, what the significance of those issues are.  
2 And, as I mentioned, that work is ongoing at the moment.

3           So, my conclusions really are that the Near-Term Task Force  
4 Recommendations in Tier 1 appear to be consistent with what's being discussed  
5 within the way forward environment, as Mr. Pardee mentioned. In some areas  
6 the cause of what happened is yet to be fully understood. More analysis may be  
7 beneficial, and I can tell you that we are certainly driving very hard to get that  
8 analysis done. And, just to reiterate, my main observation is that the global R&D  
9 community is going to see some resource constraints in some distinct technical  
10 areas, which may drive the timeline beyond what some may feel is optimal.  
11 Thank you for the opportunity to comment.

12           CHAIRMAN JACZKO: Thank you. Commissioner Ostendorff?

13           COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman.  
14 Thank you all for your participation today. I'd like to start my first question, Neil,  
15 with where you left off. And I'll ask you a question. I want to ask Chip one as  
16 well on this area. And it deals with you mentioning things that still are not  
17 understood about Fukushima. And I was wondering if you could maybe bore  
18 down a little bit more specifically and highlight those areas from Fukushima, with  
19 respect to our Task Force Recommendations, that you think we may not have  
20 sufficient understanding on.

21           NEIL WILMSHURST: I think the main issue is exactly what  
22 happened with hydrogen evolution. Where did the hydrogen leak from? What  
23 were the thermal hydraulic phenomena within the core? And understanding  
24 those thermal hydraulic effects? And then, matching that with the timeline of  
25 when the utility vented, and what happened. I don't believe it's fully understood

1 exactly the physical phenomena that related to the hydrogen venting and the  
2 hydrogen explosion.

3 COMMISSIONER OSTENDORFF: Chip, do you have anything you  
4 want to add to that?

5 CHARLES PARDEE: Yeah. I would agree with Neil that I think  
6 containment response is some area where we have a broad understanding of the  
7 sequence of events and consequences, but we still have more to learn.  
8 Likewise, as I mentioned, whether or not the viability of the ultimate heat sinks  
9 which turned out to not be a substantive issue at Fukushima simply because they  
10 were overcome by other events, but in the spirit of making sure that we're  
11 stepping back at a systemic basis with careful examination of viability of the  
12 ultimate heat sinks, especially as a consequence of the seismic activity there on  
13 the site is important, and we're striving to learn that.

14 There are also some softer issues that are not driven necessarily  
15 by technology that we continue to examine such as the command and control  
16 structure between the control room staff and the station staff, and other  
17 authorities who were making the decisions. What were the timelines associated  
18 with those decisions and whether or not they served to provide for the proper  
19 accident mitigation activities and such. And likewise, the decision-making  
20 authority goes directly hand in hand with command and control so I would say  
21 that those are the general categories of items that we're still carefully examining.

22 That said, I think we know enough that we're able to step back and  
23 take at least a first pass here with our programs, our systems, our training, our  
24 decision-making authority here in the United States, and look for areas of  
25 weakness, and we are out doing that now.

1           COMMISSIONER OSTENDORFF: Chris, do you or Ed want to  
2 provide any comments? Ed?

3           ED LYMAN: I'll just throw this out there, but we still don't  
4 understand, or I haven't seen any convincing explanation of how the RCIC  
5 continued to work at the Unit 2 as long as it did, and NRC's own assessment of  
6 this type of event indicated that after the batteries are exhausted, that the RCIC  
7 will not function for much longer than that. So I think understanding of how the  
8 battery capacity was somehow maintained beyond its lifetime, could shed some  
9 light on the safety margins still available. And maybe someone has an answer to  
10 that, but I haven't seen it in print yet. Thank you.

11           COMMISSIONER OSTENDORFF: Let me go on to a comment  
12 Chris, I think both you and Ed made and it deals with the time period, timelines  
13 for completing action. What I was hearing, you know, not necessarily across the  
14 board, but some general agreement with a lot of the recommendations but  
15 perhaps more strongly disagreeing with how long it would take to get there. Is  
16 that fair?

17           CHRISTOPHER PAINE: Right.

18           COMMISSIONER OSTENDORFF: And I was curious, let's just  
19 take the station blackout rule, where the SECY paper talks about a timeline, I  
20 think of four and a quarter years to get to rulemaking, and there's always a  
21 tension between how much stakeholder engagement is there or not. I know that  
22 Ed, we've had previous discussions about some downsides of orders, as it does  
23 not allowed for proper engagement or wholesome engagement of stakeholders.  
24 I'm just curious, I'll ask Chris and Ed this, what do you see as a reasonable time  
25 period, reasonable but maybe aggressive time period, to get to rulemaking on the

1 station blackout coping strategy?

2 CHRISTOPHER PAINE: You know, I really don't have a direct  
3 answer for your question, but it needs to be less than four and a quarter years  
4 just to get to the starting line. I think that's ridiculous, frankly, and untenable.  
5 Given the extended coping that's already prevalent in Europe, for example, 20  
6 hours at French units. So you've got commercially available, reliable mill spec  
7 power supplies on the market, you've got lots of recent advances in battery bank  
8 technology, you've got new self powering options for RCIC and HPSI and LPSI  
9 turbines, and for the auxiliary feed water turbines, in PWRs.

10 I mean, you know, it shouldn't take four and a quarter years just to  
11 get to the starting line for installing those items. So I just throw that problem in  
12 your lap, the Commission really has got to figure a way to accelerate this.

13 COMMISSIONER OSTENDORFF: Ed, do you want to comment  
14 on that?

15 ED LYMAN: Yeah, I would agree that I think we understand that to  
16 do rulemaking properly takes time. So the question is what do you need to fill in  
17 that gap? And so we don't necessarily think that the timeline for a final rule that  
18 comes to the best answer necessarily should be expanded, but we think there  
19 needs to be interim measures to address the issue on a more urgent basis. And,  
20 you know, to the extent this means you may have to set the safety bar a little  
21 higher than you may come out in the end, that's not necessarily a bad thing. If all  
22 the analysis you need to do is really into reducing conservatives, maybe you  
23 need a more deterministic approach to begin with, and then reduce conservatism  
24 later.

25 COMMISSIONER OSTENDORFF: Chip, do you have any

1 response to that?

2 CHARLES PARDEE: No, my concern lies not with the absolute  
3 timelines, it's making sure we stay very carefully focused on unintended  
4 consequence. There's no doubt in my mind we could move faster. But it would  
5 raise the issue of what did we go upset that we didn't realize? Attaching power  
6 supplies to turbines and such is a lovely idea but there are consequences to  
7 those things that we just have to be very careful of. So, it's hard to argue that  
8 faster is better, and I'm not going to try to, but right is best. And we will move as  
9 fast as we can and yet do it correctly.

10 COMMISSIONER OSTENDORFF: Okay. Chip, let me just stay  
11 you for a very quick question. You had talked about your primary focus in the  
12 industry being continued plant operations for our existing 104 reactors, but are  
13 there particular concerns you have about implementing any or any particular  
14 recommendation or group of recommendations or all recommendations as they  
15 might apply or impact plant operations for existing reactors?

16 CHARLES PARDEE: I think the challenge that most clearly  
17 illustrates those concerns, and I think it's particularly poignant, when reflected  
18 upon what we did post-9/11 which did not involve operations, individuals to a  
19 large extent, nor did it involve the station engineering staff, those people  
20 principally focused on continued safe operations. Some of the recommendations  
21 that are being proposed that we agree with, such as rationalizing the beyond  
22 design bases emergency response in the context of severe accident  
23 management, or equipment damage mitigation timelines and such, is important  
24 to us, but that falls squarely in the laps of the senior licensed reactors operators  
25 and our licensed reactor operators, for which there is simply a finite number.



1 There's a lot of them, but there's a finite number of them, especially the proficient  
2 ones. And that would be an example that best illustrates how we have to be  
3 careful about competition with other priorities and resources to make sure we  
4 execute it correctly.

5 Neil pointed out that there are simply a limited number of experts in  
6 seismic response and hydrology associated with flooding phenomenon and such,  
7 and I am quite confident that we are engaging those that exist here in the country  
8 and elsewhere, but this is not something that we can create in our academic  
9 programs in a year or two. There are just simply limited numbers, and we need  
10 to make sure that we deploy them correctly.

11 COMMISSIONER OSTENDORFF: Let me ask one last question of  
12 Chris, and Ed, this is just spent fuel instrumentation, safety related versus  
13 reliable. I know there's a lot of discussion in this area. Let's just suppose  
14 hypothetically that a licensee determines that they think a way of providing  
15 independent instrumentation for the pool level might be just something as simple  
16 as just inserting or installing a remote camera with a screen. Your thoughts on  
17 whether that should be safety, or quote, is reliable good enough? Ed, you want  
18 to start out?

19 ED LYMAN: I think we agree with, you know, that maybe labels  
20 aren't necessarily the best way to approach this, but you do need – if the staff  
21 recommends safety related then we're not going to quibble with that, so we would  
22 support that. But again, we do understand the concept of reliable, and again, if  
23 you're going to have flexibility, you need to be still thinking about what  
24 circumstances you want that camera to be functional. And so, you know, if  
25 you're not going to have strict safety related criteria, you better have a pretty

1 broad scope of events that you can show that you're going to still be able to  
2 maintain that capability, otherwise, you know, you're not going to have a  
3 reliability. So, you know, with a sufficiently broad scope I think, you know,  
4 reliable will be adequate. But again, we're not going to dispute the staff's  
5 recommendation of safety related.

6 CHRISTOPHER PAINE: I just think the key point is that safety  
7 related, if it is so designated, brings it within the scope of NRC's recurring  
8 inspection activities, and you know, we would like to see the spent fuel  
9 improvements subjected to regular NRC inspection.

10 COMMISSIONER OSTENDORFF: Thank you. Thank you, Mr.  
11 Chairman.

12 CHAIRMAN JACZKO: Commissioner Svinicki.

13 COMMISSIONER SVINICKI: I want to join in thanking you all for  
14 your presentations and also for the input from your organizations and your  
15 participation in the public meetings that the NRC has conducted that the NRC  
16 staff has led. I know that's there's been lots of healthy exchange, so I appreciate  
17 your input into that process.

18 I think I might start with Mr. Wilmshurst about EPRI activities. You  
19 mentioned that EPRI is not appropriate for you to propose a prioritization of  
20 activities, but could I ask you how do the activities that EPRI has planned or  
21 underway correspond in terms of the prioritization of issues laid out in the staff's  
22 paper, I think put that way it's legitimate for you to kind of indicate how EPRI is  
23 looking at the sequencing of activities.

24 NEIL WILMSHURST: Yes, certainly. The activities we have  
25 underway correspond very well with the Tier 1 activities, so we're pretty much in

1 alignment with the activities in Tier 1.

2 COMMISSIONER SVINICKI: I don't want to put you in the unfair  
3 position of representing other organizations, but you did mention that you have  
4 some vantage point that allows you to understand, perhaps, TEPCO activities,  
5 maybe things occurring in Japan by government officials. The U.S. Department  
6 of Energy is, I think, looking at undertaking some evaluation or perhaps research.  
7 And I know that in terms of research agendas, we're probably at a very early  
8 stage of planning and moving towards implementation of a long-term program.  
9 But could you describe, generally, what you see as between those different  
10 organizations the longer-term, multi-year investigation and research. I assume at  
11 least the planning for that is underway?

12 NEIL WILMSHURST: Yeah, long-term, obviously one item I did  
13 bring up was the spent fuel pool phenomena, an issue which I know the NRC  
14 Research had been working on with DOE on the zirconium fire potential, that's  
15 one thing that's out there. We'll continue to run obviously a lot of work on seismic  
16 PRA, and PRA in general, understanding the hazards, the approaches, the  
17 methods in PRA space. And I see a large effort out in the future on the  
18 radiological consequences from Fukushima and leveraging results from other  
19 forums as well.

20 COMMISSIONER SVINICKI: I was going to ask you, specifically,  
21 about radiological and health effects issues. Does EPRI have a role, or are you  
22 speaking more generally about other government and private institutions?

23 NEIL WILMSHURST: We have a team who work collaboratively  
24 with other organizations. We do have a role that has some expertise in that field.  
25 I wouldn't claim to be the only expertise but we do have a number of experts in

1 that field.

2 COMMISSIONER SVINICKI: Are you monitoring efforts? My  
3 understanding is the government of Japan has monitored over 300,000  
4 individuals at this point. Is that, would you be comfortable describing your  
5 understanding of kind of the health effects that's going on on the ground right  
6 now?

7 NEIL WILMSHURST: I'm afraid that is beyond my -- that's  
8 something I can't comment on today.

9 COMMISSIONER SVINICKI: Okay, thank you. And then when I  
10 said longer-term research, I was really thinking even in the 5, to 10, to 15 years  
11 in terms of what exactly happened in the core. And I think of that as, maybe I  
12 should call that very long-term research, is there planning for a research program  
13 to better understand and then perhaps inform our severe accident models? Is  
14 that planning underway?

15 NEIL WILMSHURST: Absolutely. That is a project which we're in  
16 the early stages of -- to do just that, informing the severe accidents codes,  
17 validating the codes against the physical location of the core when we get that far  
18 in the investigation. To update the understanding for use in future, future  
19 decades going forward.

20 COMMISSIONER SVINICKI: If you had to put a timeframe on  
21 research such as that, or getting to some results, I used 5, 10, 15 years, what  
22 timeframe would you put to it?

23 NEIL WILMSHURST: I would say initial results, five years.  
24 Substantive results, 10. In kind of a ballpark timeframe.

25 COMMISSIONER SVINICKI: How does that compare to Three

1 Mile Island and our understanding of what happened in the core there? Did that  
2 take longer, or shorter period of time?

3 NEIL WILMSHURST: It's comparable, but I think you need to  
4 remember after TMI, the level of fundamental knowledge of the in-core effects  
5 was somewhat, well substantially less than it is now. Everything we're seeing to  
6 date indicates that the codes we have aren't substantially away from what  
7 happened, whereas TMI, it was very much a new issue.

8 COMMISSIONER SVINICKI: And when you make that statement  
9 that in looking at the events of Fukushima, our modeling and computational tools  
10 are somewhat in alignment, or I think you said, not too far away from what we  
11 think happened, what do you base that on at this point in time?

12 NEIL WILMSHURST: Looking at runs of computer codes against  
13 what the physical observed effects are.

14 COMMISSIONER SVINICKI: Okay, thank you. And again from  
15 your broader vantage point of looking not just at EPRI's activities, but those with  
16 whom you're coordinating, do you represent that there are any gap areas that no  
17 organization is addressing at this time?

18 NEIL WILMSHURST: There's nothing that comes to mind, but you  
19 can be sure that that's something that always in the back of our minds, looking  
20 for those areas.

21 COMMISSIONER SVINICKI: Okay, thank you. And Mr. Pardee, in  
22 the last Commission meeting that you participated in, I had asked you about the  
23 development I believe led by INPO, but with a heavy involvement of TEPCO and  
24 others too, people use different terminology, I'll call it a timeline or a chronology, I  
25 think you had responded in the Q & A session that a notional timeframe was

1 November. Since it's now mid-October, can you update me on the timeframe for  
2 producing that document, and since we're closer in time, could you describe  
3 more thoroughly what it is that will be produced in November?

4 CHARLES PARDEE: Yeah, first of all, the timelines that we  
5 commented upon in our last Commission briefing remain largely intact. We're  
6 still looking at November to have at least the first pass through the timelines.  
7 And as we reflected previously, I think that this will be an iterative process that  
8 we continue to refine as we learn more, but you know we are in the review stage  
9 now with the timelines.

10 To your second question, there are no new revelations coming out  
11 of the timeline reviews and such. There is a considerable amount of factual, I'll  
12 say, correction or amplification that's being provided, but I think the general  
13 sequence as we understood it, two, three, four months ago has remained  
14 accurate. And we are now in the process of filling in details, the unit's specific  
15 differences and response, some of the challenges associated with multi-unit  
16 responses, as you well know, there were six units there that we affected, four  
17 significantly. So we are learning more about the specific operator actions and  
18 the emergency response activities and such, but directionally we haven't made  
19 any significant changes in our understanding of the accident sequences, and  
20 we're continuing to fill in gaps.

21 COMMISSIONER SVINICKI: In terms of understanding the  
22 accident sequences, I had heard an observation that after I thought about it, it  
23 made a lot of sense to me. It indicated not as you begin to construct a timeline,  
24 as you go further out in time, the uncertainties that are inherent in our current  
25 state of knowledge have a bit of a compounding effect, and that as you go further

1 out there becomes greater and greater uncertainty in producing a timeline. Is that  
2 something that you've heard, or would that make sense to you?

3 CHARLES PARDEE: Well, obviously recollection is best when  
4 produced quickly, and I think as time goes along, you know, and human nature is  
5 such that as we internally reconsider facts and information, we internally make  
6 adjustments, so part of this is additional recollection and such.

7 I think it's important, however, to reflect upon our approach, and  
8 that is it is important for us to have as complete an understanding as we had to  
9 the sequences and such there at Fukushima. However, our goal is to try to  
10 extrapolate that out to any number of different sequences of events that could  
11 occur, be they induced by flooding, by tornadic activity, by seismic activity, and  
12 how that would manifest itself at each of our stations. So while it is important for  
13 us to do the best we can with the timelines, when we draw upon that information  
14 and then try to reflect upon it in a symptomatic fashion, so that we think that we  
15 can improve or enhance our safety posture, our stations here in the United  
16 States, the specifics become somewhat less important.

17 COMMISSIONER SVINICKI: Can you just then -- I think that might  
18 relate to a comment that industry had filed. I've not seen the industry's  
19 comments on what we call the 45 Day Paper, but I did see what was filed on  
20 what we call the 21 Day Paper and there was a call for an approach akin to what  
21 was done with the loss of large area approach which was more of a  
22 performance-based approach. Could you talk about why industry has a  
23 preference for that approach when it comes to these severe natural events?

24 CHARLES PARDEE: There's been a lot of discussion about trying  
25 to find those cliff-edge effects, you know where there are dramatic consequences

1 for relatively minor additional progressions, be it flood level or the degree to  
2 which energy is deposited during seismic events and the reason why we think we  
3 have to take this approach is because the stations themselves are considerably  
4 different. If we had a fleet of power plants here in the United States that were  
5 uniform in their design and construction and sited in a uniform fashion and such I  
6 think a more generic approach would service, or I should say a more  
7 standardized approach would service but there are so many different variations  
8 to not only what present state is regarding design bases and consequences  
9 beyond design bases events as well as what the actual external hazards are that  
10 we think this approach serves us correctly or would serve us correctly.

11 COMMISSIONER SVINICKI: Okay, thank you very much.

12 CHAIRMAN JACZKO: Commissioner Apostolakis.

13 COMMISSIONER APOSTOLAKIS: Thank you Mr. Chairman, thank  
14 you for your presentations. I like the idea that Mr. Pardee expressed that we  
15 should keep this at a high level. So I'll make comments at a high level. My first  
16 comment, really, is not a question, but you are welcome to comment. You  
17 mentioned Mr. Pardee that we should do something or we should be aware of  
18 low probability events and so on, and if you implied that the Fukushima event  
19 was a low probability I disagree. There are a lot of people who think it was not --  
20 well, a low probability in the context of nuclear safety, yes it was low probability. I  
21 have seen various estimates, one in a 1,000 years, or one in 300 years. Two  
22 days ago I heard one in 70 years. These are not low numbers as far as nuclear  
23 safety is concerned and there are reasons for it, I mean the tsunami threat was  
24 underestimated, the database was not complete and so on. There was no  
25 flooding, internal flooding, risk assessments of the equipment were not in right



1 places and so on.

2                   So on that is my comment. Does anyone have a comment, on  
3 this? Good. Now if I look back at incidents that have created problems for us, I  
4 would say, at a high level, again that they were due to the incompleteness of our  
5 analysis. If we have thought about something, usually we manage it very well,  
6 there are all sorts of studies and reviews and so on. One of the lessons from  
7 Fukushima which I think we have not studied very well is the occurrence of an  
8 earthquake plus something else, a tsunami in that case, maybe you flood  
9 somewhere else and so on, which is Recommendation 3 of the task force. And  
10 another thing was the management of a major accident the state of the civil  
11 infrastructure is very important and again I'm not sure we have taken that into  
12 account, which is related to Recommendation 11 As far as I can tell, neither one  
13 of those is in Tier 1. Now I know that Mr. Paine and Mr. Lyman want the, what  
14 you call concurrent events, to be in Tier 1 but I'm wondering why they are not? I  
15 mean, don't you think we should start immediately thinking about secondary  
16 events following a major earthquake and so on? It's going to take a while for us,  
17 as a community, to develop a methodology so I don't see why we can't start  
18 immediately. Any objections to that? Instead of Tier 3 move them up to Tier 1.  
19 So your silence is agreement?

20                   [laughter]

21                   CHARLES PAINE: That's our recommendation.

22                   COMMISSIONER APOSTOLAKIS: I know. I said Mr. Paine and  
23 Mr. Lyman. There are only two left.

24                   [laughter]

25                   CHARLES PARDEE: The industry's approach, and this starts way

1 back to when the industry first developed emergency operating procedures we've  
2 been focused on symptom based versus event based procedures. So we don't  
3 start with an earthquake happened. We start with safety systems have been  
4 disabled for some reason and obviously we don't discount the cause because  
5 ultimately that's how we can either correct or mitigate some of the negative  
6 consequences. The fact that our procedures are written and the Way Forward  
7 Document contemplates continuing symptom based response that is inclusive of  
8 various sequences that you're describing. Not to say that I think it's 100 percent  
9 covered, we're looking carefully, as Mr. Wilmshurst said, to look for sequences  
10 that perhaps we don't have as robust a mitigation methodology or equipment  
11 base in order to respond to.

12 But the general notion that the operators, or the design response of  
13 our events are not precipitated by complete understanding of a particular event or  
14 a series of events, it's the consequences and that is very similar to, for example,  
15 the medical field where a patient coming in to the emergency room isn't  
16 completely diagnosed, he or she is stabilized and it's the same general approach  
17 there.

18 To your second point about whether or not infrastructure  
19 impediments would be a problem we are addressing that with the industry, we  
20 talked, I believe, at a previous Commission briefing about regionalized  
21 emergency response centers where we have hardware and communications  
22 equipment and the like that we can deploy rapidly to our stations, including  
23 absent roads and such, we're contemplating having to use helicopters or such for  
24 air transport so we do think that would be an improvement to our response  
25 posture and we're pursuing it.

1                   COMMISSIONER APOSTOLAKIS: I do appreciate the value of  
2 symptom based procedures, but as you said these are not 100 percent answered  
3 so I guess, the question is what is what is the percentage, how much do they  
4 answer? I think by doing the studies, maybe doing PRAs, irrelevant in this case,  
5 they will provide very valuable insights without taking away from these  
6 procedures.

7                   CHARLES PARDEE: And we agree with that Mr. Commissioner  
8 and we think that's a valuable cut set to look at IT from a symptom based and  
9 then go back and look at event based because there are additional learnings.

10                  COMMISSIONER APOSTOLAKIS: The question is really whether  
11 it should be Tier 3. Eventually, it will be done and it's already mentioned in the  
12 IPEEEs but it's really a short paragraph that some licensees did it and they didn't  
13 find anything in it; that's not very unlikely.

14                  CHARLES PARDEE: My opinion is that the enhancements as well  
15 as the competition for resources properly designated it as Tier 3, I think that was  
16 the right place to land it for those reasons, undoubtedly as we go forward and  
17 learn more, you know we'll adjust.

18                  COMMISSIONER APOSTOLAKIS: Well, I'm not sure I agree with  
19 that. Now you keep coming back to a theme that whenever we considered doing  
20 something we have to think about its possible adverse consequences. How do  
21 you propose to do that? I mean, we will have to do a study for each thing, how it  
22 would affect normal operations and who would do that? Are you're expecting our  
23 staff to do it?

24                  CHARLES PARDEE: No, that is something I would clearly expect  
25 NRC staff to be keenly aware of, and do their own evaluations but anytime we go

1 implement any kind of a change, be it changes to our operating procedures, be it  
2 physical plant modifications, I mean that's a very expensive part of our review  
3 and there's a regulatory framework behind it.

4 COMMISSIONER APOSTOLAKIS: So that would be part of the  
5 interaction with stakeholders and all that so the staff would be fully aware of your  
6 views on these issues.

7 CHARLES PARDEE: Yeah, I don't want to speak for the staff but I  
8 believe they would be fully aware and I'm sure they will be pleased to speak to it.

9 COMMISSIONER APOSTOLAKIS: I -- one last question for you. I  
10 have read, maybe, I don't know how many documents, from the industry or NEI,  
11 commenting on recommendations and one theme that is there and I don't see it  
12 in our Task Force Recommendations is that a lot of these things are by -- the  
13 proposals -- are by their nature site specific, that you can't have a generic thing,  
14 everybody do this and I don't know why our staff did not put those words in their  
15 recommendations. Do you have anything to add to this or do you agree that a lot  
16 of these things are really site specific?

17 CHARLES PARDEE: I think the hazards and the consequences of  
18 these externally driven events are site specific.

19 COMMISSIONER APOSTOLAKIS: And speaking of site specific,  
20 Mr. Lyman, you said that you would like to see a reevaluation of the EPZ and  
21 then you strongly implied you want to see it expanded. May you didn't, but that's  
22 the impression I got. Isn't that a site specific issue? I mean should there be  
23 some sites where it should be shrunk?

24 ED LYMAN: I don't know about shrunk, but it's definitely a site  
25 specific issue and if you look we issued recommendations, quite some time ago,

1 we reiterated this summer, that because it is a site specific issue that having a  
2 generic 10 mile emergency planning zone around reactors is on its face, not as  
3 technically sound as it could be. We did recommend that the site specific  
4 information be brought to bear to identify all the populations that could be at risk,  
5 for instance of exceeding EPA protective action guide recommendations for a  
6 spectrum of severe accidents and the fact, we assume now in Fukushima, it's  
7 been validated, that EPA protective action guide recommendations were  
8 exceeded 30 or 40 miles away from the site, so we think that that illustrates the  
9 point. It's clearly a site specific issue and you need to understand the  
10 meteorology and the population densities and other site specific features to come  
11 up with a science based approach to emergency planning. But we really do need  
12 to have clear criteria, protect the public, use the best modeling, and other tools  
13 available to identify the populations at risk and design accordingly.

14 Now that said, because you can't anticipate every potential  
15 contingency, you don't want to be too limiting so you do need to leave some  
16 margin but definitely I think that there are site specific issues that can be brought  
17 to bear.

18 COMMISSIONER APOSTOLAKIS: Do you have any idea how that  
19 would be done, bringing everything together.

20 CHAIRMAN JACZKO: There's a right answer to this question.

21 [laughter]

22 COMMISSIONER APOSTOLAKIS: Thank you Mr. Chairman.

23 MR. LYMAN: Through a Level 3 PRA?

24 [laughter]

25 CHAIRMAN JACZKO: That was the right answer.

1 COMMISSIONER APOSTOLAKIS: It's interesting through. What if  
2 there is a site where there are really no people nearby? Would you say – well if  
3 they come up and say “Well, it's only two miles.” Would that offend you?

4 ED LYMAN: No I think that if we call for a-- it depends on the  
5 criteria you establish and you should apply uniform criteria.

6 COMMISSIONER APOSTOLAKIS: Then it would be okay?

7 ED LYMAN: If that's what the analysis shows given a sufficient  
8 margin of uncertainty, you know we would concede that.

9 CHARLES PARDEE: I was just going to say, I think there will be  
10 representatives on the second panel that will probably be able to speak in more  
11 detail than I can. From our perspective the initial evacuation from what we can  
12 see appears to have been successful despite the fact that they had a very  
13 significant release there and you can argue wind direction and timing and things  
14 like that but there isn't anything that we've seen that says current practice didn't  
15 suit. There are a lot of questions around protection of ingestion pathways and  
16 things like that, subsequent to the releases. I think we will have the opportunity  
17 to learn form and improve upon, but not in the initial evacuations, at least not  
18 from the information I'm aware of.

19 COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman.

20 CHAIRMAN JACZKO: Commissioner Magwood.

21 COMMISSIONER MAGWOOD: Good morning and let me add my  
22 thanks for your remarks today. Everything I've heard at the table today, I think,  
23 has been very instructive, very interesting. It's also been particularly interesting  
24 to see how much agreement there is at the table, which is somewhat disturbing  
25 so let me try to break that up.

1 [laughter]

2 One area where, and Commissioner Apostolakis is moving in this  
3 path a bit, but one area that does seem to be some area for further conversation  
4 is, and I think, Ed in your remarks you make reference to this with regard to  
5 Recommendation 4, in effect you can go too far with flexibility in some of these  
6 areas that there needs to be some kind of very clear, common approach to  
7 dealing with station blackout and things of that nature. I think that Chip made a  
8 very good observation that it's not only that the sites are different but the plants  
9 are different, the plants are very different. I consider them very different children  
10 as we look at them and you should treat them as different children and not try to  
11 do a one size fits all. In that respect, when you think about some of these issues,  
12 do you see that there might be some value in exploring -- let me add this sort of  
13 challenge to what you said. If you look at this from a performance basis and  
14 what is necessary for public protection, is it, in your view, not worth looking at it  
15 on a plant by plant basis to see if the response at a particular plant is, you know, I  
16 don't know about naming plants, Plant A because it's located say, in a desert, is  
17 different from the kind of reaction you might do for Plant B which is on a lake or  
18 Plant C which is on an ocean front. I mean, how should we look at this if it's a  
19 plant by plant issue? Is there, in your view, -- is there a value in going down that  
20 path as opposed to a much higher level generic approach?

21 ED LYMAN: Yes, absolutely and I think you'd be remiss if you didn't  
22 consider those plant site specific features. The kind of thing I had in mind, think  
23 of the way security is done. So you have target sets for each plant that are  
24 designed specific, site specific. You define a number of scenarios that challenge  
25 those and you play them out. I'm not suggesting, you know, full scale exercises

1 but at least tabletops to establish exactly -- to follow through on these scenarios  
2 and that's certainly something that would vary from plant to plant there would be  
3 common features, so you could define again the top level criteria but the  
4 implementation would be site specific.

5 COMMISSIONER MAGWOOD: That makes a lot of sense to me  
6 and so if you look -- I think security is a good analogy because with security, you  
7 know, you set a design basis threat and you go from there and the plant has a  
8 response to that. Do you think that's the general approach that one could take to  
9 a lot of these issues?

10 ED LYMAN: I think generally, yes, but again the devil being in the  
11 details and it will depend on how extensive that set of scenarios is. Just to  
12 illustrate the point, if you look at the B.5.b guidance, which I keep going back to,  
13 let me just read one of the top level guidance assumptions -- "Implementation of  
14 the strategy is not expected to require extraordinary or heroic actions. In an  
15 event, the utility emergency response organization will decide on the potential  
16 benefit and feasibility of the strategy in light of plant conditions, for example, it is  
17 expected that dose rates and other accessibility considerations will be addressed  
18 at the time of the event in light of the actual plant conditions and this input will be  
19 considered by the ERO in directing response actions." Now, obviously if you're  
20 defining your measures with that concept in mind you can run into serious  
21 problems and so we would say that you need to at least consider a set of  
22 scenarios and actually evaluate potential dose rates and see if some of the  
23 measures that you have in your toolkit couldn't be used under any  
24 circumstances.

25 COMMISSIONER MAGWOOD: Mr. Pardee do you have a



1 comment about that?

2 CHARLES PARDEE: No, I don't think any substantive elaboration.  
3 It is, I guess the one qualifier I would make is I understand where you're going  
4 with the analog of security response but given the extraordinary numbers of  
5 combinations of events and such, this will be a complex task. I think a good  
6 analogy but I think that the security response is relatively simple in comparison  
7 and I would just like to make that point.

8 COMMISSIONER MAGWOOD: Let me just stay with you for a  
9 moment. This is sort of along the same lines, in the letter that the industry sent to  
10 the agency some time ago outlining your thoughts about the path forward on  
11 some of these issues, the industry highlighted this regionalized approach to  
12 protecting or dealing with the issue of protection of 50.54(hh) equipment. And  
13 the industry's approach is this regionalized approach where you would have  
14 distributed equipment, accessible to different plants and the industry made an  
15 announcement some months ago that there's an anticipated large investment the  
16 industry plans to make in this direction.

17 I'd like to sort of have you compare and contrast why that approach  
18 is the path the industry has selected as opposed to, what's really more  
19 anticipated in the original task force recommendation, which was simply to  
20 protect the equipment – pour some concrete -- protect the equipment as it exists  
21 on the site. Can you give us a little more of a --

22 CHARLES PARDEE: Yeah, I mean, really there's three different  
23 dynamics that we look at as we seek opportunities to improve. There is prevent,  
24 keep it from happening in the first place, there is protect, assume that whatever  
25 the natural event occurs, for example, prevent would be higher flood walls, at

1 least in the context of Fukushima, just more physical protection from the surge.  
2 Protect would be additional barriers around vital equipment and then mitigate,  
3 just presume that the worst happened, what would you do to go prevent? And  
4 we're trying to work all three ends of that equation and clearly there's a cost  
5 benefit that steers you to one direction or the other. In some cases it appears  
6 that prevent would be the superior option, in others protect and yet others, due to  
7 either the sequence of events or the consequences we think we're going to be  
8 into mitigation to protect the vital functions like core cooling and containment  
9 integrity.

10 We approached -- to your question, we approached this from a  
11 couple different directions. One, is our goals clearly contemplate multiple units at  
12 one site, which was not inclusive with as we call the B.5.b approach, we  
13 considered one, not multiple.

14 So, step one was to look at what kind of provisions we needed to  
15 have on site in order to have contemplate multiple units being involved and that's  
16 going to require us to go procure additional equipment there on site, so we can  
17 mitigate consequences to multiple units. It also appears, and it is clear from  
18 Fukushima that the station staff exhausted their capability to mitigate and they  
19 did have reliance on off-site resources, and we think in order to enhance  
20 defense-in-depth we also need to have the ability to bring hardware and other  
21 equipment in, on site, in a short period of time in order to augment the  
22 emergency response functions, so that's the other end of the equation. Not  
23 prevent, not protect, but the emergency response phase. We think that there are  
24 reasonable things that we can do with sufficient adaptability on a site specific  
25 basis to truly enhance safety, like additional direct current power supplies,

1 additional motive devices for moving water about and communications  
2 equipment, things like this and we're better off deploying that from a regional  
3 center, one because it's physically removed from the site and one has to assume  
4 that an event that impacted multiple units on a site could very well have impacted  
5 the local infrastructure as you described, and two we think that the ability to  
6 share this equipment will mean we will have more robust response for any  
7 particular site that was impacted. Really the challenge to this is going to be  
8 moving it, as we described earlier on and that's where I think we'll end up  
9 requiring some help from other state and federal officials or things like National  
10 Guard Air Transport capability and things like that.

11 COMMISSIONER MAGWOOD: As we go down the path of looking  
12 at implementing measures like this at each plant site, is it possible in your mind  
13 that we may find that the original task force recommendation of protecting the  
14 equipment in place may actually be preferable in some cases as opposed to a  
15 regional approach? Because of the configuration of the sites or the location of  
16 sites or --

17 CHARLES PARDEE: We may, and my guess is that we may find  
18 some specifics where we find it's easier to protect or beneficial to protect in  
19 place, rather than bring it in outside to stick with your original question. We may,  
20 and if that's the case I fully expect that's the direction that we'll take.

21 COMMISSIONER MAGWOOD: Let me just very quickly end with --  
22 just going back to Ed for a second. Ed, does that make sense to you, I mean  
23 there could be sort of a combination at different sites you might have different  
24 strategies that might come out of this to protect the plant.

25 ED LYMAN: Yes, with the caveat that again you run the same

1 series of tests against whatever you have proposed to make sure that you can  
2 carry them through. So you can have flexibility and diversity, you just have to  
3 make sure that there's one credible path to success for the range of events that  
4 you consider. And then the challenge is going to be, of course, how do you limit  
5 the range of events you consider.

6 CHARLES PARDEE: We all agree with that by the way. Flexibility  
7 doesn't mean random.

8 COMMISSIONER MAGWOOD: I failed to find violent  
9 disagreement, so I'll move on. Thank you.

10 CHAIRMAN JACZKO: Just a comment to and I'm not sure and  
11 perhaps this is a misunderstanding I have but we have -- the B.5.b or 50.54(hh)  
12 or whatever it is, the regional equipment you're proposing is not a replacement  
13 for the B.5.b equipment, it is a supplement to. So you would still have at the site,  
14 you would still have the B.5.b equipment which may have different requirements,  
15 so it's an augmentation to that not a supplementation.

16 The biggest challenge I think we have going forward and I think, as  
17 you look at these 12 recommendations, where we are today I don't think-- these  
18 are kind of obvious things. We saw what happened at Fukushima, we need to  
19 address those issues. The challenge is going to be in the constraints and that's  
20 where we have problems. Those constraints are going to be resource  
21 constraints. They are going to be people, they are going to be money and what  
22 I'd say information. Depending on how we look at it, you know, maybe one or  
23 two others.

24 Now if these things are adequate protection from our perspective  
25 money is not a constraint, in terms of imposition of requirements, it's a practical

1 reality, but from our perspective then and not a restraint. That brings us back to  
2 people and kind of information, so the knowledge. Many of these things and I  
3 know many people have commented on it and looked at it in the past, I mean  
4 hardened vents hydrogen control is not a new issue. It's been around for a long  
5 time. So that would lend me to believe that the information constraints there are  
6 not as big perhaps, as they would appear. There's people resources which  
7 means if you're going to design a new vent you have to figure out -- if you're  
8 going to install a vent you're going to have to figure out who's going to design it,  
9 you're going to have to figure out where to install it, you're going to have to do all  
10 of the analysis, get that submitted and would presumably impact safety related  
11 systems. That has to get analyzed, we have to approve probably a license  
12 amendment, response to an order, or however we did it. But probably it would  
13 come in with the license amendment. I don't know -- or not. So that's kind of a  
14 people constraint. Of those things, what do you think are the biggest hurdles for  
15 each of these issues or just in general? Is it the people, is it the knowledge?  
16 Just interested in your thoughts, probably Chip if you want to start and others.

17 CHARLES PARDEE: Well I don't know that there is a simple  
18 question but I think the prioritization of the people, the human talent, is probably  
19 the most constraining. I think as we examine each of the proposals we'll be able  
20 to put that into sharper context, to your question, so I don't mean to pan --

21 CHAIRMAN JACZKO: No, I know it's not an easy question.

22 CHARLES PARDEE: You know, interestingly, I think hardened  
23 vents on Mark II containments can serve as a very instructive one to go evaluate.  
24 Not so much Mark I's because the industry is generally already there and we'll  
25 have to, again, define what reliable is, but we installed hardened vents, we did

1 improve them with the capability to operate without normally sea power sources  
2 as a consequence of the B.5.b activities and such.

3           Mark IIs we looked at carefully years ago and said there are  
4 sufficient differences in the margins associated with containment that the benefits  
5 wouldn't exist, wouldn't justify and I think that's a good example if we want to go  
6 run a test case. Look at Mark II hardened vents and how we work our way  
7 through the benefits versus the cost either in disrupted prioritization or diversion  
8 of talent or money. That's a non trivial modification, you're introducing new  
9 exhaust paths from primary containment and that's the intent, but my goodness  
10 that's fraught with opportunity to do it incorrectly and introduce another problem,  
11 so that to me is a good example of what illustrates, you know, where the tension  
12 is going to come from as we try to decide what's right.

13           CHAIRMAN JACZKO: I appreciate that and I think the challenge  
14 for us here, in many ways, as I said, I think by and large this is a good set of  
15 recommendations, there's disagreements around the edges but it seems to me  
16 the biggest issue is just really when are we going to be able to get this done. I  
17 would say and this is – and I think everyone is complicit in this, and by everyone I  
18 mean the regulator, I mean public interest groups, I mean the industry, we do  
19 things very slowly around here. We don't move quickly, sometimes for good  
20 reason but I'm not sure that that's always for good reason. I'll give you all a  
21 chance to respond in a moment.

22           I have two issues that drive me nuts and they're going to continue  
23 to drive me nuts until I'm no longer in this job. One of them is GSI-191 which is  
24 PWR sump issues related to the ability, essentially, of our recirculation system to  
25 work in the event of a loss coolant accident. The other is fire protection. If those

1 service models are how we're going to do this, we're going to be working on this  
2 for the next 15 to 20 years. And that may seem reasonable, okay, we always  
3 want to make improvements, but if we look at the fleet 15 to 20 years from now  
4 most plants are near the end of their -- or many plants are near the end of their --  
5 or in the middle of their license extension period. Maybe 5-10 years in Oyster  
6 Creek is shut down. Other plants may decide to shut down, so our horizon for  
7 action is near term.

8           It really is not long term and I think we have to look at this in a  
9 different way because our experience will tell us that we're not going to be  
10 successful, you know we talked about zirconium fire and that should be an issue  
11 we should have a handle on today, there really is no excuse for that. This came  
12 up in 9/11, we've done experiments so, I think if we do this the way we've always  
13 done things we will not get these things done in a reasonable period of time and  
14 you will continue to be churning on your plants and talk about distractions and  
15 things that don't have a solid impact for safety. Operators need, they need to  
16 know the procedures, they need to be able to train on them, they need to be able  
17 to use them, and they cannot constantly be in a state of flux.

18           I think as we look at this, I think we have to think differently we have  
19 to approach these things differently and we have to set ourselves near term  
20 timelines and I think the issues with the station blackout, I think Chris your  
21 comments are right on. We're talking about four and a half years for developing a  
22 rule on station blackout, and again let's be realistic. This isn't rocket science.  
23 We're talking about some way, either to extend battery time or to cope. These are  
24 not hard things to do. I would say the technical challenge for the station blackout  
25 is coming out with the basis for how long. That's very, very complicated if we

1 want it to be. I can't tell you what the analysis is, I can't tell you what the accident  
2 is, I can't tell you what metrics we'll use, is it a risk metric, do we use a CDF  
3 reduction, but then we're really talking here about very low likelihood events  
4 anyway. Station blackout is always going to be a very low likelihood event  
5 because you have to have diesel failures which have very high reliability rates,  
6 although they do fail. And you got to have some initiating off site event that's  
7 going to cause a loss of all site power that can't be restored for an extended  
8 period of time. All very low likelihood, so if we use a risk metric, we may not even  
9 get to something more than four to eight hours, so we have to pick a number, we  
10 have to figure it out, but when we get a number, figuring out how to cope for eight  
11 hours or 20 hours or 26 or 72 doesn't seem to be all that complicated, maybe it  
12 is. But it doesn't seem to be something beyond the realm of the engineering  
13 talent we have in this country. So that's one that I don't see should take four and  
14 a half years. I think that's something that we put people in a room for a week,  
15 should be able to come up with a reasonable assessment of what time is  
16 reasonable, go out, put a rule in place and start implementing it. So it's not really  
17 a question in here, I think, but I'm sure you're all itching to say something so  
18 Chris start and then.

19 CHRISTOPHER PAINE: I think that's exactly right. In terms of you  
20 started by saying how do we intelligently use resources and experience,  
21 technical experience? One way, for example, on the vents is to pay attention to  
22 what the Europeans have done for the last 20 years. Sometimes I think the NRC  
23 sort of exists in a vacuum and doesn't care that there are these other nuclear  
24 countries that have done a lot and have a lot of experience and have regulated  
25 heavily in this area and they have the technology. And they've deployed it;



1 they've deployed modern, highly effective chemical vents at their plants. It's  
2 recent technology, it's developed in the last couple of years. Go take a look at  
3 that and see what they've done and see if that could be adapted so you don't  
4 spend four and a half years getting to a regulatory basis for vents, but you adopt  
5 what they have done.

6 CHAIRMAN JACZKO: Chip, any comments?

7 CHARLES PARDEE: Well, I think it's purely a function of how we  
8 define success. So if success is extending the capability of our DC systems  
9 because we know they are kind of defense of last resort and maintaining battery  
10 life control over our steam driven pumps and such. If an acceptable solution path  
11 would be the capability of quickly recharging our batteries using DC -- several DC  
12 chargers driven by diesel engines that are located onsite with cables and such  
13 that are pre-staged and trained upon, I see no reason why we can't get there in  
14 reasonable timeframes, within five years.

15 If we start down the pathway of safety related additions to DC  
16 batteries that we already have on site where we know we have to expand the  
17 size of our battery wells and battery ventilation systems and any time you try to  
18 do structural changes inside these very hardened plant sites that becomes very  
19 complicated. So to me the answer to your question lies in what is the acceptable  
20 end result. And if we define that right up front, that using robust but not  
21 necessarily seismically qualified safety related equipment that we can  
22 demonstrate that we have confidence in our ability to deploy it and sufficient  
23 redundancy and flexibility such that if one temporary diesel driven DC generator  
24 was taken out we know where the second one is that is on higher ground or in a  
25 different building or something like that; there is a success path. It just depends

1 on the mechanism we use to get there.

2                   CHAIRMAN JACZKO: Well, I think that's very helpful and I  
3 appreciate that and we went through something like this when we did the aircraft  
4 impact rule and you know there was a lot of discussion and I think somebody told  
5 me, and I don't know if this is true or not, but I think Steve told me this -- I'm  
6 going to blame him if it's wrong -- or maybe it wasn't Steve. The only place where  
7 the words design basis appear in our regulations is in the aircraft impact rule,  
8 which is a fascinating tidbit of information because we talk all about design basis  
9 and I don't even think we know what it means. It means different things to  
10 different people, we talk about beyond design basis and -- but I don't think we  
11 really know -- I'm well over my time so I'll stop here. But the point was with the  
12 aircraft rule, we sat down and said what do we want to accomplish? We want to  
13 make sure that the plants are robust and have some kind of set of acceptance  
14 criteria that demonstrates their ability to deal with this phenomenon, and with  
15 some type of analysis and some type of methodology to review. And I think that  
16 gets more to your point, let's just say what we want to do and do it. I think we can  
17 then perhaps get there and I think that's in everybody's best interest is to get this  
18 done and I don't want to say in a rushed way but in a reasonable way, because  
19 15 years from now if we're still dealing with post Fukushima events, I mean that's  
20 just not where anybody needs to be. With that -- any other questions or  
21 comments from my colleagues? Well thank you, we'll take a quick break and then  
22 come back.

23                   [break]

24                   CHAIRMAN JACZKO: Our second panel. We'll start with Sue  
25 Perkins-Grew who's the director of emergency preparedness at the Nuclear

1 Energy Institute.

2           SUE PERKINS-GREW: Thank you, Mr. Chairman and good  
3 morning Commissioners. I appreciate this opportunity to provide the industry's  
4 perspective on the prioritization of the recommended enhancements to  
5 emergency preparedness. To do this I will suggest that there are three priorities  
6 that should be observed when discussing pending or proposed changes to  
7 emergency preparedness regulations. I'll present those priorities in a moment.  
8 As you're aware, licensees are dealing with many required changes affecting the  
9 emergency preparedness programs, and will continue to do so over the next  
10 several years. The key drivers of these changes, of course, are the recently  
11 approved new EP rule and the associated guidance, supplement 3 to NUREG-  
12 0654 and the cyber security rule.

13           In addition, licensees and their off-site response organization  
14 partners who will also be implementing the recently revised FEMA-REP Program  
15 Manual. As I stated before, and I'd like to stress again, that these regulatory  
16 changes will have a significant cumulative impact on licensees and off-site  
17 response organization resources. Compounding this issue for industry and the  
18 staff, many of these resources needed for change implementation are also the  
19 same resources that must also maintain existing EP programs and regulatory  
20 activities. We therefore believe that informed change evaluation and  
21 prioritization is essential for successful integration of the recommended  
22 enhancements to our emergency preparedness programs. It is essential  
23 because it is possible to overwhelm the organizations responsible for  
24 implementation and cause them to be unsuccessful. Prioritization is also  
25 appropriate, given that we are talking about enhancements to existing

1 emergency preparedness regulations and programs.

2           With this backdrop we recommend that the first change priority  
3 should be implementation of new rule, EP rule requirements. These new  
4 requirements have undergone a rigorous multi-year technical review and are  
5 supported by stakeholder informed implementation guidance and schedules.  
6 There's no need to delay these changes.

7           The second priority should be moving forward with the development  
8 of guidance in two areas, emergency response organization staffing analysis,  
9 and enhancements to back-up power sources for communications equipment.  
10 The recent SECY refers to these as the Tier 1 recommendations.

11           As I mentioned in the Commission briefing on September 14, a  
12 staffing analysis for an event affecting multiple units, will require the creation of  
13 new criteria and instructions. These must be informed by changes being  
14 contemplated in other areas such as the integration of the emergency operation  
15 procedures and severe accident management guidelines.

16           Addressing the remaining EP related recommendations collectively  
17 referred to as Tier 2, should be the third and final priority. The advancement of  
18 potential changes in this category must be informed by the evolving  
19 understanding of the events and issues at Fukushima.

20           With respect to this third category, it's important to remember that  
21 the recommendations in the near-term task force report are largely insights  
22 based on initial review without the benefit of verified event analysis and technical  
23 bases. The evolution of insights into purposeful rulemaking is a complex process  
24 that requires careful analysis to ensure problem statements are well defined, and  
25 that proposed solutions are clear, or yield clear and tangible benefits. I would

1 note, too, that in the recent SRM affirming the final EP rule package, the  
2 Commission stated that future EP rulemaking should include stronger technical  
3 basis for certain areas.

4 We will address the -- industry is prepared to address the Tier 3  
5 recommendations at a future date when the staff is prepared to move forward on  
6 those changes.

7 Mr. Chairman, as you pointed out in your vote sheet on the EP rule,  
8 emergency preparedness is a shared responsibility. There are numerous  
9 stakeholders from the private sector and government agencies at the local, state,  
10 and federal level. This means that changes to emergency preparedness  
11 requirements necessarily entail an expanded level of stakeholder engagement.  
12 Such engagement adds to the time and complexity of developing new  
13 requirements, but is ultimately needed if these requirements are to add value to  
14 existing programs, and number two, to be appropriately aligned with the national  
15 preparedness objectives, and the national response framework.

16 In summary, the industry recommends that the priorities outlined  
17 above be used to manage the pending and proposed changes to emergency  
18 preparedness regulations. Doing so will result in enhancements to emergency  
19 preparedness programs and response capabilities, and reduce the commutative  
20 impact of changes on licensees and our off-site response organization partners.  
21 Again, thank you for this opportunity to share our views, and this concludes my  
22 prepared remarks.

23 CHAIRMAN JACZKO: Thank you. I'll next turn to Patrick Mulligan  
24 who is the frequent visitor here at the Commission, Mr. Mulligan.

25 PATRICK MULLIGAN: Thank you, Mr. Chairman. Good morning,

1 Commissioners. I wanted to thank, again, thank you for the opportunity to  
2 participate in this panel. It's an excellent opportunity to be able to come here and  
3 share the state perspective, which you asked me to do today. In that capacity,  
4 I'm going to try to focus my comments on what you asked me to do with  
5 Recommendations 9, 10 and 11. But I think, again, I'm going to take a larger  
6 view of things and just give you a state perspective on, and Sue hit on it a little  
7 out a little bit, the cumulative impacts on all the rulemaking guidance that's going  
8 to be coming out very near, and what that'll do on the impact of the states.

9           After carefully reviewing the SECY that came out just last week,  
10 regarding the staff's proposed prioritization of the near-term task force  
11 recommendations, there are several important points I'm going to make.

12           Perhaps the most important point I do want to make regarding  
13 those recommendations are the cumulative impacts of all the other guidance  
14 documents that will be coming out in the near-term. NRC rulemaking and FEMA-  
15 REP Program Manual changes will be coming out in the near-term. They'll have  
16 significant impact on state and local resources. For probably the next 18 to 24  
17 months, as we go through that process and in the implementation. And as you  
18 know, these are all cumulative changes that are a result of the impact of  
19 September 11 events and post Hurricane Katrina studies that have been done.  
20 It's very important for us to implement these as a priority at this time, so that we  
21 could at least catch up with those lessons learned from those events.

22           And as NFC's staff has made clear in their recommendations,  
23 significant time and resources will be required to implement all those changes  
24 that we're looking at from those two guidance changes. Particularly true the  
25 FEMA-REP Program Manual, which includes some significant changes in the

1 final version. And it will be particularly true of the version that we've recently  
2 seen, because it adds some additional requirements that we did not see in the  
3 2009 draft that was released. Further, what that does is that it, you know, the  
4 guidance requirements that that REP Program Manual put on us, actually goes  
5 beyond the planning basis that we currently have in place, which is NUREG  
6 0654. And looking down the road, it's going to require a significant overhaul to  
7 that planning basis document, now that we have changes in other REP guidance,  
8 and rulemaking that's out there that goes beyond that, we need to go back and  
9 change the planning basis for that, too. So there's another significant effort  
10 coming right on the horizon to make the changes for that, and that is a document  
11 that we think is a priority that needs to be updated and completed quickly. And  
12 some of the lessons that come out Fukushima can be incorporated into that as  
13 well, as far as, you know, when we take a look at 0654 as a planning basis, we  
14 can use the lessons from Fukushima to update and inform that document as well.

15           Beyond the impact rulemaking, we've got the changes to  
16 Supplement 3, which is obviously going to change the way we do our protective  
17 action decision-making another important change that will be coming out in the  
18 relative near-term that'll require additional state resources to implement.

19           And I'd like to take this opportunity, too, and I will take exception -- I  
20 think I heard it in the first panel, none of the findings that I've seen so far from the  
21 Fukushima event indicate that a change is necessary in the 10 mile or 50 mile  
22 planning basis at this point. Nothing I've seen changes that planning basis. And  
23 the plans and procedures that states and locals have in place provide flexibility to  
24 expand as necessary to protect the public. And as we move forward in the  
25 process and gain additional insights, if we want -- I'm not saying that we should

1 not go back and take a look at that planning basis, but I think we need to  
2 carefully measure actually what the findings are and what the findings prove,  
3 when we go back and take a look at the planning basis. I'd like to remind you  
4 that the planning basis for the 10 mile EPZ is not the EPA PACs; it is NUREG  
5 0396. And that we need to really carefully look at what we are doing with that  
6 planning zone because we just arbitrarily go and expand it beyond 10 miles,  
7 because that is a significant cost, and significant resources are required to do  
8 that at this point. So we need to carefully look at that.

9           And with regard to the priorities discussed in the SECY, I believe  
10 that the NRC has made some very prudent proposals with respect to emergency  
11 preparedness. The tiered approach provides a framework that includes the  
12 assessment of available resources and skill sets to accomplish the critical  
13 objectives for the recommendations. And moving forward, I think the NRC  
14 should remain cognizant of the impact on resources. And staff, not just at the  
15 NRC, but at the local, state and local levels, and what impacts that will have on  
16 our state resources, the technical experts that are required to perform those  
17 analyses, and in that process, better evaluate technical aspects of the  
18 recommendations to efficiently and effective use -- to efficiently and effectively  
19 use the limited resources that we have to make real enhancements to  
20 emergency preparedness, and not just prioritize those with a near-term task  
21 force, but also prioritize them within the larger picture: What are the things we  
22 need to accomplish in the near-term? Thank you, I'd be happy to answer any  
23 questions when we're done.

24           CHAIRMAN JACZKO: Okay, thank you. I'll turn to Timothy Greten,  
25 who is the deputy director of Technological Hazards Division at FEMA.



1           TIMOTHY GRETEN: Thank you, and good morning. Sue and Pat  
2 covered a lot of what was of interest of FEMA, so I'll be very brief. FEMA  
3 supports the recommended tiered approach for implementing the near-term task  
4 force recommendations, and we're ready to help the NRC out any way we can,  
5 whether it's, you know, carrying out additional joint policy development,  
6 especially for recommendations 9.1 through 9.3, public meetings, plant updates,  
7 exercise updates, and the like.

8           FEMA also appreciates the commitment we received from NRC to  
9 continue the joint rule out of NUREG 0654 sub three, sub four, the Rep Program  
10 Manual, NRC's updated rules over the course of this fall and this winter.

11           Looking forward, we also look forward to working jointly with NRC  
12 and with all of our stakeholders on updating the base NUREG 0654 document to  
13 include lessons learned from Fukushima, PPD-8, and other things we've learned  
14 over the last five, 10, 15 years. A lot of those changes were identified with the  
15 REP Program Manual, sub three, sub four updates, but the proper place to make  
16 those updates was really in that source guidance document, or even in some of  
17 the underlying regulations. And this is something that the FEMA staff and the  
18 NRC staff with input from all of our stakeholders, are really looking into digging  
19 into after we've gotten the current rule out finished up. That's really a next  
20 spring-summer timeline issue, but that is going to be very dependent on the other  
21 work load that the NRC has on its plate, based on how long it takes to implement  
22 some of the near-term task force recommendations, and some of the other items  
23 that the NRC is looking into.

24           And along those lines, we're also ready to support any way we can  
25 some of the other topics that were identified in the papers for this meeting as

1 potentially needing to be looked at. Potassium Iodide policy and distribution, or if  
2 the NRC decides to examine the different components of the EPZ makeup -- I  
3 support what Pat said, or FEMA supports what Pat said, that this is something  
4 we really want you to think out very carefully, and there is flexibility built into the  
5 current 10 and 50 mile standards. We also know that with a small module  
6 reactors that are being contemplated, the EPZ topic was something that's been  
7 actually thought of, in any case, for what could be done for that style of reactor  
8 and different kinds of reactors that are out. And the Federal Radiological  
9 Preparedness Coordinating Committee, which FEMA shares with the NRC is  
10 obviously a key member of -- could be a very useful group to help work through  
11 some of these policy considerations, especially with the region of other federal  
12 agencies. That concludes my remarks, thanks for your time this morning.

13                   CHAIRMAN JACZKO: Thank you, we'll now turn to Phillip  
14 Musegaas, who is the Hudson River program director, Riverkeeper.

15                   PHILLIP MUSEGAAS: Thank you, Chairman. I just have a brief  
16 statement. I want to thank the Commission for inviting Riverkeeper to give our  
17 perspective today on emergency planning and on the NRC staff's  
18 recommendations for prioritizing the task force's recommendations, it's lots of  
19 recommendations.

20                   As a preliminary matter, Riverkeeper disagrees with the staff's  
21 conclusions as to whether the task forces' findings, quote "identified an eminent  
22 hazards to public health and safety," end quote. We support the actions of  
23 NRDC, and other citizens' groups that require the NRC to begin implementing the  
24 task forces' recommendations immediately, in order to address urgent safety and  
25 preparedness concerns at operating nuclear plants.

1 Riverkeeper has also filed a legal challenge in the Indian Point  
2 relicensing proceeding to suspend the re-licensing proceeding pending the  
3 implementation of these recommendations, and to require full assessment of the  
4 risks and impacts of Indian Point's operation in the relicensing review. And my  
5 comments are sometimes focused on Indian Point and sometimes generals, just  
6 for your information.

7 For today's meeting, however, my comments are focused on the  
8 staff's specific recommendations in SECY 11-0137. Riverkeeper fully supports  
9 NRDC's earlier comments regarding Recommendations 2 through 8. We also  
10 support the staff's recommendations to address Recommendation 9.3 as a Tier 1  
11 issue, but we disagree with its recommendations regarding the remainder of  
12 Recommendations 9 and Recommendations 10 and 11. In particular,  
13 emergency planning enhancements to address station blackout and multiunit  
14 events should be implemented immediately.

15 More importantly, the Commission should also approve the staff's  
16 additional recommendations regarding further review, two issues that were  
17 mentioned in the SECY: transfer of spent fuel from spent fuel pool wet storage to  
18 dry cask storage and the need to reevaluate the basis for the 10-mile emergency  
19 planning zone.

20 Riverkeeper strongly urges the Commission to immediately address  
21 the issue of spent fuel storage. The risks of high-density storage in aging pools  
22 is well-documented and was further highlighted in the events surrounding  
23 Fukushima Daiichi. I realize that the review of those events is ongoing, but, at  
24 this stage, we believe it's still an open issue that needs to be re-examined.

25 Transferring spent fuel from overfilled pools to hardened dry cask

1 storage would lower this risk significantly if not entirely, yet the Commission has  
2 thus far refused to consider it. Why? The Commission has not provided an  
3 adequate answer in Riverkeeper's view, and in its absence the public can only  
4 assume that the nuclear industry has complained of the economic costs of  
5 transferring fuel, and the NRC has capitulated to these complaints.

6           The need to reexamine the basis for the 10-mile emergency  
7 planning zone is at least as critical an issue as nuclear waste storage and  
8 requires the same expedited response from the Commission. Riverkeeper's  
9 position on the feasibility of a 10-mile EPZ for Indian Point is clear, and, I think, is  
10 well-known to the Commission. We believe it will not protect the public living  
11 near Indian Point from exposure to radiation in the event of a radiological  
12 release, whether from accident or sabotage, because it will be impossible to  
13 evacuate people working and living in the area in time to prevent exposure.

14           Twenty million people live and work within 50 miles of Indian Point,  
15 and the prevailing winds in the Hudson Valley throughout the year tend to blow  
16 from the north towards Manhattan and the densely populated metropolitan area.  
17 The mounting evidence of widespread contamination from the Fukushima Daiichi  
18 meltdowns in Japan should be a wakeup call to the Commission to address this  
19 issue as soon as possible.

20           And, I just want to make a note on a comment regarding what  
21 Patrick Mulligan said. In terms of Indian Point and the local off-site emergency  
22 response planning that goes on, I can tell you that, in terms of the amount of  
23 flexibility given to expand the 10-mile zone in the event of an emergency, I've  
24 been in hearings with Westchester County emergency officials, where they  
25 specifically state that they only plan a drill and do exercises with the NRC, with

1 Entergy, and with other counties in the area, to drill for the 10-mile evacuation  
2 zone. They do not drill for expanded evacuation zones or emergency planning  
3 zones. And, again, this is Indian Point I'm speaking of, perhaps not in other  
4 areas, but for Indian Point's example, that is not the case.

5 In conclusion, Riverkeeper will continue to press for resolution of  
6 these issues with the Commission, with our federal and state elected officials,  
7 and in federal court, if necessary, until they are resolved, and the public regains  
8 its confidence in the NRC to put public health and safety first. Thank you.

9 CHAIRMAN JACZKO: Thank you. I'll now turn to Commissioner  
10 Ostendorff for questions.

11 COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman.  
12 Thank you all for being here today. I'm going to start out with a question for  
13 everybody that's based on, Sue, your slide that talked about changes, your  
14 summary slide, changes require extensive shareholder engagement, and in this  
15 question will -- everybody will get a chance to respond. But, if you look at the --  
16 in the previous panel we had a lot of discussions about how long does it take to  
17 get things done, and how long does rulemaking take, et cetera, et cetera, and,  
18 certainly, stakeholder engagement is a very important part of that process to  
19 ensure that all views are heard. If we can use as a baseline, perhaps, the EP  
20 rule the Commission's approved order this year, and look at the stakeholder  
21 engagement that was conducted as part of that rulemaking -- are there any  
22 fundamental differences as to how the NRC should approach stakeholder  
23 engagement for the recommendations from the near-term task force?

24 SUE PERKINS-GREW: Well, I'll take the first shot at the answer to  
25 that, Commissioner. I think one of the things that we learned that went really

1 well, by stakeholder engagement, whether it be industry or the off-site partners  
2 that we have, getting the end-user involved in the solutions is very important.  
3 And, I think as we approach the recommendations in the near-term task force,  
4 our end-users are largely the off-site response organizations. So, I think there's  
5 also other opportunities out there to leverage public and private stakeholder  
6 capabilities that are out there. I just attended the National Emergency  
7 Management Association Leadership Conference, and we tried to solve a lot of  
8 these issues, whether they be prolonged station blackout multiunit events, these  
9 cascading events that impact our nuclear power plants. There's a lot of  
10 partnering that's going on beyond the nuclear industry or planning for the nuclear  
11 industry that are part of the more national effort. And I think there's a lot of  
12 opportunity there.

13           You know, we talked about the industry response plan,  
14 regionalizing storage of critical equipment for prolonged station blackout. There's  
15 a lot of good work being done by public and private engagement that I think we  
16 should leverage. So, I think that's very important to get all of those partners  
17 involved to make sure that whatever solutions we come up with are in the best  
18 interests of our industry and the public safety.

19           COMMISSIONER OSTENDORFF: Okay. All right. Patrick?

20           PATRICK MULLIGAN: And I agree with what Sue's providing. You  
21 know, the tack we took with the EP rulemaking and the stakeholder involvement,  
22 and, particularly, and more important, I think, was even better for supplement  
23 three in gaining insights into that process, because the reach out to the  
24 stakeholders at the regional level was tremendous during that effort, and what it  
25 did is it gave us the opportunity to have some input into the process prior to

1 seeing or getting a final rule. Very often, you know, once we're asked to  
2 comment on what's final or what comes out in a draft, it's very difficult to change,  
3 theoretically, what's going on in the basis for that document. And, in the process  
4 that we use for the EP rule, and, particularly, for supplement three, it'd be having  
5 us engaged very early in that process helped us to not only shape those  
6 documents a little bit better but also bring us to an understanding of what was  
7 going to be expected of us at the end, so that we have a lot better knowledge of  
8 how we're going to go about implementing it, knowing a lot more about it up front.

9           So, my recommendation was that, you know, that, the process you  
10 use for stakeholder involvement and outreach for those two efforts, I think, would  
11 be very useful in moving forward and would even assist in, you know, hastening  
12 the process and moving towards implementation more quickly the more people  
13 you can get involved to have input.

14           COMMISSIONER OSTENDORFF: Thank you. Tim?

15           TIMOTHY GRETEN: The process for the EP rule went well. The  
16 process for documents after that, sub three, which started after that, was even  
17 better. Between the NRC, FEMA, our stakeholders, everybody involved, we've  
18 gotten savvier with getting inputs sooner in the process rather than there's a  
19 problem, we write the document, send it out for comment, and that's when  
20 stakeholders get involved.

21           I think as we move in to 0654 in the confines of FACA and whatnot,  
22 we want to make sure that we get stakeholders, all of them, involved as soon as  
23 possible before we even start putting pen to paper. The sooner they're involved  
24 with developing it, the better the process is going to go. And, certainly, the more  
25 on spot, more on target it's going to be once it goes out for comment, and,

1 certainly, when it's implemented.

2 COMMISSIONER OSTENDORFF: Thank you. Phillip?

3 PHILLIP MUSEGASS : Sure. Thank you, Commissioner. I think  
4 the process went very well from our perspective, from an NGO's perspective.  
5 We participated throughout the process on the EP rule. I think we disagreed with  
6 the final rule, but that's different than the process. We appreciated the amount of  
7 involvement that we were given and other stakeholders were given. So, I think,  
8 to the extent, once the Commission determines which issues that we're looking at  
9 today go through the longer-term rulemaking process and which issues are dealt  
10 with interim measures or both. Then, you know, we're absolutely willing to  
11 participate in the processes as best we can.

12 COMMISSIONER OSTENDORFF: Thank you. Patrick, let me turn  
13 back to the comment you made concerning the -- I think you used the phrase  
14 accumulative impacts looking at the NRC EP rulemaking we've already done, the  
15 FEMA rep, et cetera? I know that you're certainly speaking from your capacity,  
16 the State of New Jersey and CRCPD. Do you have any gut feel for how your  
17 colleagues in other states feel about the same issues, as far as resource  
18 constraints?

19 PATRICK MULLIGAN: Yeah. As a matter of fact, I, you know,  
20 before I come to these meetings, I engage --

21 COMMISSIONER OSTENDORFF: Tell us about that.

22 PATRICK MULLIGAN: -- well, with all those folks that are part of  
23 my committee, which, if you look at the committee, the advisers, and the  
24 membership of my committee, I can reach out to about 22 states before I get  
25 here. And nobody's in disagreement. You know, I don't believe that any state or



1 local government has been spared from, you know, the impacts of the, you know,  
2 the poor economy over the last few years, and everybody's resources have  
3 dwindled. I know for many states, you know, they're saying it's not a question of,  
4 you know, doing more with less, it's doing less with less. And we're actually  
5 looking at things that we can take off the plate that we don't -- we can't -- we just  
6 can't do anymore with the resources we have.

7           So, yes. No. It's not just New Jersey. This is a national type issue  
8 that we're looking at dwindling resources all over, and every state faces those  
9 same issues, and the implementation and taking on and prioritizing network.

10           COMMISSIONER OSTENDORFF: Okay. Thank you. Tim, I'm  
11 going to ask you from FEMA where you said not just the nuclear piece we're  
12 talking about today, but, also, more broadly, since FEMA deals with a whole host  
13 of issues nationally, do you have any comments on the resource issues faced by  
14 state or local authorities?

15           TIMOTHY GRETEN: It's always a concern. The -- probably the  
16 biggest thing FEMA has faced or America has faced is just that the sheer number  
17 of people, that is the variable cost, who are affected by any disaster. There's a  
18 lot more people living in Florida or New Orleans or whatnot. And, certainly, you  
19 know, there's more people living near nuclear power plants than there were  
20 before, too. So I know that's certainly been impacted as states have gone  
21 through and adjusted their plans as time has passed. But, you know, it's --  
22 there's a demand to do, to just keep doing more and more. And, there's, of  
23 course, always that resource restraint. I mean, I think you saw the -- even the  
24 stories in the papers before the end of the fiscal year how, you know, the disaster  
25 relief fund was tapped out. There's just a lot of help that's needed out there.

1           COMMISSIONER OSTENDORFF: Okay. Tim, let me stay with  
2 you just for a question. In the previous panel, there was discussion by industry  
3 about centralizing certain emergency equipment that could be deployed across  
4 the country, whether it would be portable diesel generators, emergency battery  
5 charging equipment, et cetera, et cetera. From where FEMA sits, do you have  
6 any comments or reaction to that approach? Any things that you've seen that  
7 work well or things that we should be cautious about in looking at centralized  
8 equipment repositories?

9           TIMOTHY GRETEN: FEMA does have centralized supply  
10 repositories for all sorts of different things. Giving an answer, a full answer to this  
11 would really involve sitting down with the different stakeholders involved in  
12 figuring out what exactly we would need to be pre-positioned, what would be the  
13 optimal way to do it, and that doesn't mean studying it forever. It's, "Hey, this is a  
14 plan that makes sense." You can work it out in a half-hour. You know, if it may  
15 pass the lab test. And, you know, also figuring out the other stakeholders who  
16 need to be involved to move that stuff in the event of a much larger catastrophe,  
17 you know, a New Madrid earthquake kind of scenario. And this would actually be  
18 something where we would be very much reliant on Pat and his colleagues, say,  
19 in New Jersey, and ask them, "Hey, what makes sense in New Jersey for this  
20 kind of challenge?" Because this would have to be a very locally tailored  
21 solution. You know, what makes sense here might not make sense out in  
22 Washington State.

23           COMMISSIONER OSTENDORFF: Well, I appreciate it. And I'll  
24 comment that assuming FEMA has a wide range of experiences, a lot of different  
25 disasters nationwide, and, to the extent that FEMA has lessons learned in this

1 particular concept as to how to, you know, deploy equipment in emergencies,  
2 they might have applicability for nuclear industry or for the NRC staff. I know  
3 that, if you haven't already shared that -- and you may have -- but, if you have  
4 not, I'd encourage you to do so.

5 TIMOTHY GRETEN: That is in our short-term plans to do so, sit  
6 down with the NRC, and FEMA Logistics and begin fleshing out how that might  
7 happen

8 SUE PERKINS-GREW: Actually, if I could add, Commissioner, we  
9 have started that dialogue. We have meetings set up with the NRC and FEMA  
10 Logistics coming up in, I think, next week. So, again, it's starting to expand our  
11 horizon from the industry, so, what Chip Pardee had already talked about, the  
12 industry response plan, taking that list of equipment, and starting to  
13 conceptualize how that would work, leveraging not only federal resources, but, of  
14 course, our state partners, because it does start locally. So, we're, again,  
15 working on those public and private partnerships.

16 TIMOTHY GRETEN: Like Sue said, we're meeting next week.

17 COMMISSIONER OSTENDORFF: Good. I'm very pleased to hear  
18 that.

19 [laughter]

20 Thank you. Thank you, Mr. Chairman.

21 CHAIRMAN JACZKO: Commissioner Svinicki.

22 COMMISSIONER SVINICKI: Ms. Perkins-Grew, I may start with a  
23 question for you. When we think about Japan as a society, we think of them as  
24 generally having a very high level of preparedness for various events. I think it's  
25 something that, you know, maybe it's a stereotype or it's folklore, but I think that

1 they do a lot of civilian drills and try to be prepared for various events. But, in  
2 terms of the overall government or regulatory structure for emergency  
3 preparedness, is it your sense that it's somewhat analogous, I mean, from what I  
4 read, they have, you know, an evacuation zone, and there was capability to have  
5 that be enlarged if it needed to. And I do hear things about it, as the event  
6 unfolded, that make me think that there is a lot of parallelism. But, as a  
7 professional in this community of practice, do you have a sense of how  
8 analogous the approach to EP regulation is in Japan?

9           SUE PERKINS-GREW: Only from the sense, Commissioner, that  
10 we have engaged in dialogue with members of Chubu Electric after the event  
11 occurred. They came to NEI to exchange ideas. And it's clear from that dialogue  
12 that we had with Chubu Electric representatives, when we went through the 16  
13 planning standards that we have here in this country, NUREG 0654 being the  
14 basis, that from our dialogue at that point, it was clear that they -- their planning  
15 standards are not as extensive as we have here in this country. That's what I got  
16 from our dialogue. I'm also anticipating, I think, that the NRC staff under Patricia  
17 Milligan is hoping to perform a study to look at the EP perspective from, you  
18 know, comparing the planning standards and the actual response from the  
19 Japanese events. So, I'm hopeful that that study does come to fruition, because  
20 that would be very helpful. Because, right now, we have their documents, but it's  
21 really hard with the translation and, you know, knowing what we know here, and  
22 I'm very reluctant to make any sort of comparison without some fully engaged  
23 analysis that would take a look at those events.

24           COMMISSIONER SVINICKI: Are you aware if the IAEA or any  
25 other international organization is undertaking a study like that?

1           SUE PERKINS-GREW: Specifically, no, I'm not aware of it,  
2 Commissioner.

3           COMMISSIONER SVINICKI: Okay. Neither am I. Mr. Mulligan, I  
4 might ask you, I think both from your perspective of your responsibilities in New  
5 Jersey but also the CRCPD, aside from any comparisons or analysis that the  
6 NRC might do, again, you're part of that community of practice of emergency  
7 preparedness, what activities are you undertaking, either at the state level, or as  
8 professional associations to evaluate the implications of the Fukushima events  
9 on state and local emergency preparedness capabilities? Are you undertaking  
10 any of your own evaluation and lessons learned?

11           PATRICK MULLIGAN: Yeah. Actually, we, in addition to this  
12 process, meeting with the licensed operators within our state to see if there are  
13 things that we can put in place that we can do better. Particularly, I think that  
14 what we're trying to nail down into initially is communications and assuring that  
15 there are backup communications and redundant systems so that there can be  
16 communication from a site to our state operations center, where we can do that.  
17 And, helping our communications to get us assessment data, plant status, you  
18 know, SPDS and things like that, beyond, you know, what we have in place  
19 already to be able to get some redundant systems in there. So, we're working  
20 with the utilities to do that.

21           Now, from an off-site perspective, we are, we're taking a look at all  
22 our plans. We do that annually, but, in light of it, we're taking a look at it as, you  
23 know, its applicability, you know, for road impediments. You know, what are we  
24 going to do? And trying to go down those roads to see whether or not we have  
25 sufficient resources in place and dedicated to the program and to be able to

1 handle those kind of situations.

2 But, it's not particular, I mean, to this situation, we do that every,  
3 you know, we do that all the time. With every situation that we see, you know,  
4 with hurricanes, we learn some things during -- in our response to Hurricane  
5 Irene in New Jersey that we need to improve not just our hurricane response  
6 plan, but our nuclear emergency response plan.

7 So, we try to take everything we learn and apply it. And I think that  
8 all the states do that, but, beyond that, I mean, keep in mind that since 9/11, the  
9 greater community, not just within the EPZ's, but all communities are starting to  
10 plan better for hazards. So, that when you talk about expanding an EPZ, we've  
11 already been doing that essentially by bringing the rest of the counties and local  
12 that have, were not in that emergency preparedness fold, in over the last 10  
13 years as we've, you know, kind of implemented the old hazards approach, and,  
14 including chemical companies and other hazards in. You know, we've got a  
15 much broader community of emergency responders that are trained beyond just  
16 the EPZ now. You know, I know that there's a, you know, everyone, county and  
17 local throughout the entire state are on board now with that process.

18 So, you know, I think that makes that's flexibility to expand or plan  
19 beyond that 10 mile is very easy, because those people are not unfamiliar with  
20 response efforts.

21 COMMISSIONER SVINICKI: Okay. That's helpful. Some of you  
22 have commented on the EP rule changes that the NRC promulgated. And, just  
23 broad brush, the NRC, at the time of the events in Fukushima, was well  
24 underway in the development of changes to our EP regulations and saw no  
25 downside to continuing to finalize and promulgate those. Some of you have

1 commented on the substantial body of work that it happens after it's off the  
2 Commission's plate in terms of putting the changes in place. They have to be  
3 implemented in the case of emergency preparedness by many, many thousands  
4 of frontline workers that they have to put these changes in place.

5           And I don't know if this question will make any sense, but along the  
6 lines of you can't make yourself unaware of something that you're aware of, the  
7 events in Fukushima have occurred, and, as you go about implementing the rule  
8 change that the Commission put in place, which was not informed, necessarily,  
9 by the events in Fukushima, you can't unlearn anything that -- or observations  
10 that you might have out of the events in Fukushima.

11           So, although we must, of course, implement the rule we put in  
12 place, and we have to stay within the confines of what we've done, it seems to  
13 me that there may be opportunities to inform the implementation of it, again, not  
14 changing the requirements that we just put in place, but we are aware now, and  
15 we have preliminary learnings out of Fukushima. Are there any examples you  
16 can think of where, as we move forward on implementing the rule that we just  
17 finalized, the EP rule changes, that we could take what we've learned out of  
18 Fukushima and inform that, while not changing the requirements, at least inform  
19 its implementation, or is that kind of something that logically, as you work day to  
20 day on it, you find that it doesn't make sense?

21           TIMOTHY GRETEN: One of the big things that we are learning  
22 lessons, like not waiting for the analysis to be done, but seeing what did we  
23 actually do from our end for Fukushima is in the communications realm. The  
24 FRPCC was charged by the National Security staff with updating the federal  
25 communications plan prescriptive messaging. NRC has been a key member of

1 that team. We've also had folks across the federal family and the state level, you  
2 know, seeing what do they need from the federal government? What are they  
3 expecting? As Pat and the CRCPD pointed out there were a number of  
4 shortcomings during Fukushima. So, that's one thing. We're certainly going to  
5 be looking to the future analysis to learn what else can be gleaned from  
6 Fukushima. But, there's already a treasure trove of information.

7 I might have been out of pocket for about three weeks, and, even  
8 during that period of time, that document has grown tremendously and is  
9 something that, if we had a situation today, would be even more useful than the  
10 information that we had say six months ago. Progress is being made.

11 COMMISSIONER SVINICKI: Okay. Thank you.

12 SUE PERKINS-GREW: Also, Commissioner, I think with some of  
13 the rule issue areas, and I just jotted down a few that come to mind, we already  
14 are going to be addressing the ERO staffing. We have the on-shift staffing  
15 analysis as part of the rule that we'll be implementing. Then we'll be working  
16 immediately as part of the Tier 1 effort to look at the broader emergency  
17 response organization that's augmented. There's an opportunity there.

18 Also, with regard to alternate facilities, that has a role to play when  
19 you think in the, you know, in the context of Fukushima type of event as well as  
20 challenging drills and exercises. Maybe taking scenarios, not necessarily in an  
21 evaluated exercise, but the smaller, you know, more routine drills that we do  
22 within that exercise period, which will be in eight years. I think there's some  
23 opportunity there to go to that level and use what we know to hone our skills.

24 COMMISSIONER SVINICKI: Okay. Thank you. And I would just  
25 ask as a final thought for any of you to respond, I know there's some difference in



1 terms of the Tiers and the prioritization, but is there anything that you or the  
2 organizations that you represent believe is entirely not even on the table in this  
3 discussion, either in EP or just generally, that you would like to see as an area of  
4 study arising out of Fukushima?

5 PATRICK MULLIGAN: I'll speak up. Yeah. I think the one thing  
6 that we've left out is taking a look internally at how we as organizations  
7 responded during that event. Granted, it was international. It was not a U.S.  
8 response, but it had very much a U.S. component to it. There were no health  
9 effects in the U.S. It was measured. From the state perspective, we needed to  
10 deal with that, and we were getting hundreds and hundreds of questions. But, it  
11 lacked, because it was an international event, it lacked the coordinated effort at  
12 the federal level from a single agency.

13 So, I think that the one component that's left out is globally from a  
14 federal/state response, taking a look inward and seeing how if we have another  
15 international event that ends up affecting the United States, how are we going to  
16 do that? And are our communications in place within our country to really get all  
17 those agencies coordinated at once?

18 And I think that we have a plan in-house to do that, and I believe  
19 that it will work. But, again, I don't believe it worked well for this international,  
20 and that's, particularly, there's a lot of nuclear power reactors right on the  
21 Canadian border. And that's a real international threat that we need to take a  
22 look at. How do we communicate internally in this country for an international  
23 event?

24 COMMISSIONER SVINICKI: Okay. thank you. Philip, did you  
25 want to say something?

1           PHILLIP MUSEGAAS: If I may briefly. This probably isn't a direct  
2 answer to your question, but I think something that could help, well, two quick  
3 things. One, I would have said, you know, reevaluating the 10-mile EPZ basis  
4 would have been a recommendation but the staff has included it in some sense,  
5 in the SECY. But, also, on a related note, I think it would help the Commission in  
6 terms of public confidence and public response, as it goes on and as you learn  
7 more about what happened in Japan and the actual, you know, with everything  
8 from EPRI to NRC's looking at the emergency planning response, you know, if  
9 you make a real effort to share that information with the public and explain how,  
10 what you're doing, and how the actions you're taking are in response to what  
11 you're learning from that -- and I say that for a couple reasons. One is that it just  
12 makes common sense. And, also, you know, that the media, as is want to do it,  
13 it's moved on. The general media has moved on to other issues. And, so, you  
14 know, there still is a lot of news about Fukushima in terms of radioactive  
15 dispersal and ingestion pathways and other things that's still continuing to come  
16 out. But that's not, you know, getting to the general public. So, I think it would  
17 help the agency. It's not, you know, it's not mandatory, obviously, for you under  
18 the Atomic Energy Act, but I think it's, it would behoove the agencies in terms of  
19 gaining public confidence to make that effort.

20           COMMISSIONER SVINICKI: I appreciate that. As just a final  
21 point. If it sounded like I kept belaboring that the EP rule we just finalized was  
22 not informed by Fukushima, it's just on the point you're mentioning, Phillip,  
23 because I think because we finalized those rule changes after Fukushima, many  
24 in the media thought that that was a response to Fukushima. So, you're correct  
25 that it's a complex topic, easily misunderstood. Thank you, Mr. Chairman.

1 CHAIRMAN JACZKO: Commissioner Apostolakis.

2 COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman. Let  
3 me pick up on this issue of public confidence. Your statements a few minutes  
4 ago, you said, you know, to enhance public confidence or something like that,  
5 but, earlier on in your closing remark, you said that if we did certain things, then  
6 we would gain again public confidence that we are dedicated to safety. And my  
7 question is, when did we lose that public confidence? Did we lose it; do you think  
8 that we have lost it? And tell me why.

9 PHILLIP MUSEGAAS: Well, to begin with, I think you have lost it in  
10 terms of, speaking about Indian Point, and that, and, my comments on public  
11 confidence are limited to what we see from our members. Riverkeeper is a  
12 membership organization. We have about, depending on how you count it, about  
13 five to ten thousand members, and then we also, because we're a public  
14 organization and we're well-known in New York, we get a lot of inquiries and  
15 comments and feedback from the general public in the Hudson Valley.

16 So, my comments are informed by both what I've learned through  
17 researching this in a non-technical way and from getting feedback from the  
18 public. I can tell you that the overwhelming majority of the feedback from the  
19 public that we get in the New York area is negative about the Nuclear Regulatory  
20 Commission. They do not believe that the Commission is doing enough to make  
21 sure that Indian Point is safe. They do not believe that the Commission's  
22 process for license renewal review is inclusive enough and broad enough. And,  
23 to certain extent, they do not believe that the Commission's response to  
24 Fukushima and what that, the implications that may have for Indian Point, in  
25 particular, because the only plant we're focused on in this area, has been

1 sufficient. And, so, that's, I can go into more details, certainly.

2           But, on issues like emergency planning and nuclear waste storage,  
3 in particular, those are issues that the public has widespread concern over, the  
4 emergency planning and the feasibility of the emergency plan for Indian Point.  
5 Even people who believe in nuclear power and think Indian Point should remain  
6 open will readily admit that if there's ever an accident there, then they don't have  
7 confidence in the ability to protect themselves and their families. And, so, and I  
8 don't say that lightly, and this is not -- I also do not say that to denigrate anything  
9 that FEMA does or anything that local responders do. But, you know, the local  
10 agencies on the ground are doing, would do everything in their power and would  
11 do everything possible, I think, to respond to an emergency. This is a question of  
12 the overarching practicability of continuing to operate Indian Point, given the  
13 population density and the location.

14           So, that's on the EP note. And the response of the NRC, with  
15 apologies, Chairman Jaczko, because I don't mean to single you out --

16           CHAIRMAN JACZKO: Is it going to be good or bad?

17           [laughter]

18           PHILLIP MUSEGAAS: I'm not sure yet. It depends. But, this  
19 whole, I think it was a mini-controversy about, you know, when recommended  
20 evacuating Americans to 50 miles away from Fukushima in Japan, and yet you  
21 did not recommend that same standard be applied here in the event of an  
22 emergency -- that resonated with the public at Indian Point again, and, I think,  
23 you know, and --

24           CHAIRMAN JACZKO: That's bad.

25           PHILLIP MUSEGAAS: I guess it's probably bad, yeah. I apologize.

1 That's why I gave the apology in the beginning. But, so, in terms of, you know,  
2 the continuing justification for, or lack of justification for the 10-mile EPZ is  
3 probably the most critical issue in terms of public confidence in the area, and,  
4 second to that is nuclear waste storage. The public has become much more  
5 aware of, I think, of, since Fukushima, because there was, you know, there was  
6 continual coverage of the spent fuel pools and what spent fuel was and how it,  
7 you know, what the risks are. So, we received numerous inquiries about, you  
8 know, how Indian Point's nuclear waste was stored. Is it inside containment? A  
9 lot of people were not aware that it was not inside containment, like Mark I  
10 reactors, although that's different, that's not analogous.

11 But, so, there's a question of, you know, if there's this mitigation  
12 measure out there of moving spent fuel from the pools to dry casks that would,  
13 you know, it's not going to solve all the problems, but that, in the public's view  
14 would address this particular risk issue of overly packed pools, of losing water,  
15 not being able to make up water on the rods, then there's a question of, well, why  
16 doesn't the NRC just do that? I don't have the answer. You guys have the  
17 answer to that. And I think the answer may be out there. On all these questions,  
18 the answer may be out there in that the knowledge base to make that answer to  
19 the public may be in the NRC. It just hasn't been given to the public. And, again,  
20 in my experience. And, so, I'll stop there.

21 COMMISSIONER APOSTOLAKIS: Mr. Pardee said earlier that  
22 evacuation worked very well in Fukushima. Do you agree with that?

23 PHILLIP MUSEGAAS: Do I agree with that? I think it's, my  
24 understanding, and I'm not an expert on the dispersal at Fukushima, but my  
25 understanding was that there was significant radiological dispersal well outside

1 the 12-mile -- I think they have a 20km zone, is that correct? So, I think that  
2 there was significant dispersal. The plume went to the northwest and deposited  
3 radiation far outside that area. How, whether that affected people outside the 12-  
4 mile zone that were not evacuated, I don't know the answer to that, but that  
5 suggests to me that the potential was there, that the evacuation did not go well.

6 I don't want to make analogies to Indian Point between Fukushima  
7 and Indian Point in terms of evacuation, because my understanding of  
8 Fukushima is it was a predominantly a rural area with a smaller cities, smaller  
9 populations, and less of a congested metropolitan area. So, I don't think there's  
10 an apt analogy there.

11 COMMISSIONER APOSTOLAKIS: Anybody else wants to  
12 comment on that? Do you agree with Mr. Pardee? Evacuation worked?

13 TIMOTHY GRETEN: From FEMA's perspective, certainly it could  
14 be argued that the evacuation is still ongoing. And just from open media reports  
15 and from, you know, from what we've heard from Japan, from our counterparts,  
16 even with the tsunami, evacuations did precede. The Japanese were able to  
17 evacuate the EPZ that they had set up around the power plant. I know that there  
18 have been other evacuations, radioactive hotspots and whatnot. But, I think that,  
19 certainly the lessons that can be learned from the evacuation there, and from  
20 FEMA's perspective, it's not just about the nuclear power plant, but it's also about  
21 the whole area that was affected by the tsunami, those lessons are ongoing.  
22 You know, evacuation isn't just a, okay, get out of the area. It's when can you  
23 come back? If you can't come back, what is the long-term solution for where  
24 you're going to live and how you're going to resume your life? And, I think a lot of  
25 that is still playing out.

1           PATRICK MULLIGAN: Yeah, and I guess it's a pet peeve of mine  
2 in clarifying when we're talking about evacuation versus relocation. And, in my  
3 mind, as a nuclear emergency responder, that's very different. Evacuation or  
4 immediate moving of population to protect them from acute health effects, that is  
5 done within the first few hours. Later on, and I think they did a good job with that,  
6 but that was not necessarily from the radiation incident that was going on. It  
7 wasn't, that wasn't in effect yet. A lot of those evacuations were just from, you  
8 know, tsunami effects. But I do think that from an emergency perspective, the  
9 evacuations, I think they did a credible job under the circumstances. Beyond  
10 that, I think what we're really talking about is relocation. I think we have a  
11 tendency to mix those terms up too much. Relocation are actions that we take to  
12 protect people from exposures over a long period of time. Therefore, we have --  
13 it's not an evacuation. It's, we have some time to evaluate those areas and to  
14 move them out.

15           So, I'd like to make that distinction between evacuations and  
16 relocations. I think they did both of them well. I think they did relocations based  
17 on science, once they started getting data in, which I think is a prudent thing to  
18 do once you start moving people out of their homes, that we just don't take knee-  
19 jerk reactions and just start, you know, arbitrarily moving people away from  
20 places they don't need to move away from.

21           So, I think it was, you know, I think they did handle well from a  
22 scientific and an emergency perspective, keeping in mind the difference between  
23 evacuation and relocation.

24           COMMISSIONER APOSTOLAKIS: Thank you.

25           SUE PERKINS-GREW: You know, I should clarify; I share the

1 same pet peeve that Patrick has. You know, when we typically generically apply  
2 the term evacuation when, you know, particularly when you talk about the  
3 emergency preparedness zones, their evacuation is very discretely meant for the  
4 people most at risk, which is closest to the source. So, therefore, in the short-  
5 term, immediate action is to evacuate. Longer term, once the information comes  
6 in, the data comes in to the decision makers, they would make additional  
7 decisions to relocate, tell people to leave the area, and also follow up with when  
8 they can return. So, you know, to us practitioners that makes a big difference.  
9 So, I'm glad you made that. Thank you, Patrick.

10 COMMISSIONER APOSTOLAKIS: Thank you. Thank you, Mr.  
11 Chairman.

12 CHAIRMAN JACZKO: Commissioner Magwood.

13 COMMISSIONER MAGWOOD: Good morning to all of you. Thank  
14 you for your comments today. Just two questions. I'm going to focus on Patrick.  
15 Welcome back, by the way.

16 PATRICK MULLIGAN: Thank you.

17 COMMISSIONER MAGWOOD: The comments you made about  
18 the resources and the state agencies being under pressure, having to give some  
19 thought to the cumulative effects of all of these regulatory actions, that's  
20 something I've heard from many states at this point. I guess they're all under a  
21 great deal of stress right now.

22 But, at the same time, it's, we had this conversation with licensees  
23 as well, that, you know, you ask me to understand that there is this pressure on  
24 resources, but, at the same time, if something is important from the safety  
25 perspective, you have to do it. We, you know, you can't, you have to prioritize.



1 And, in that context, as you talked to your colleagues in other states, where do  
2 the recommendations that came out of the task force report, like looking at  
3 multiunit events and things like that, where do they fall on the priority line in your  
4 overall perspective as a state emergency planner?

5 PATRICK MULLIGAN: There's not an easy answer to that  
6 question, and what I see is that it's going to be a mixture. There are priorities  
7 that are coming out in the new rulemaking that need to be made immediately,  
8 well, the new rules that have to be done. But, I also think that there are  
9 competing priorities that we'll see out of Fukushima that need to be worked into  
10 that schedule where if rulemaking says you need to accomplish everything under  
11 this rule within two years, if we expect that we're going to take into some of those  
12 priorities that we need to do as a result of Fukushima, then maybe we need to  
13 back off on that schedule and take care of the priorities. I'm not saying that we  
14 need to push those priorities back because we have all this to do first. What I'm  
15 saying is that it introduces a whole another set of priorities into the mix where we  
16 need to take a look at the rulemaking that's in place and reprioritize that schedule  
17 to accommodate these other things that we need to accomplish near-term, so  
18 that we may need to extend that period of implementation for rep manual.

19 COMMISSIONER MAGWOOD: So --

20 PATRICK MULLIGAN: So, I don't want to stand around counting  
21 widgets for FEMA when I need to really do something about communications for  
22 Fukushima that isn't a rule yet.

23 COMMISSIONER MAGWOOD: So, a better way to talk about this  
24 isn't so much -- in your view from the state perspective is not so much prioritizing  
25 as integration?

1 PATRICK MULLIGAN: Yes.

2 COMMISSIONER MAGWOOD: That's a better way of thinking  
3 about it?

4 PATRICK MULLIGAN: Yes. Integrating what we're going to be  
5 learning and getting from Fukushima into what we already have and then  
6 reprioritizing that entire mix into, you know, getting what is most important first.

7 COMMISSIONER MAGWOOD: Mr. Greten, do you have a view  
8 on that?

9 TIMOTHY GRETEN: We certainly don't want to have Pat counting  
10 widgets either. We think he has better things to do. One of the things we've  
11 definitely seen with the EP rule implementation is there's some non-compressible  
12 timelines for implementing changes. I would use the hostile action based  
13 planning updates and exercises as a pretty good example. Under the EP rule,  
14 exercise schedule is being expanded from a six to eight year cycle where all  
15 these different kinds of exercises need to be done. The rules and guidance are  
16 being promulgated and what needs to be in your hostile action based plan, the  
17 off-sites then need to update it, and then all 56 sites around the country need to  
18 do an exercise. In talking with all of our stakeholders, it confirmed our initial  
19 impression that we just can't have everybody at their next exercise do that hostile  
20 action based drill, you'll have a cycle of 56 of them in one year, where you can't  
21 possibly support it because there's some unique federal assets, say, that need to  
22 participate in these exercises to provide the best realism and they can't do 56 in  
23 a two year span.

24 At the same time, you also want to spread things out, so you don't  
25 have a slug of change made, and then nothing for eight years, and then you have

1 another spade of exercises. So figuring out how to sequence all of that together  
2 with all the other changes is certainly a challenge, but it's also something we're  
3 doing our best to make sure we're, you know, working at the state and local level  
4 as much as possible, to see what makes sense. And, you know, we've put  
5 together this mandate, that mandate, you need to do this, you need to do that.  
6 What does common sense dictate is the first thing we need do, let's tackle that.

7 COMMISSIONER MAGWOOD: Thank you. Anyone else have a --

8 PHILLIP MUSEGAAS: If I could make a quick comment. This may  
9 be a naive comment, and take it for what it's worth, but, I mean, we're talking a  
10 lot today about the Commission's resource constraints, and the state's and local  
11 counties' resource constraints. Has there been thought given to looking at  
12 licensees' resources and potentially licensees' fees and things like that? If these  
13 requirements are found to be needed to improve safety, can some of the  
14 economic or the resource burden be shared with the licensees?

15 COMMISSIONER MAGWOOD: Your mean with the states, is that  
16 what you're suggesting?

17 PHILLIP MUSEGAAS: I'm sorry?

18 COMMISSIONER MAGWOOD: Resources shared between  
19 licensees and the states, was that your comment?

20 PHILLIP MUSEGAAS: Yes, just that would it make sense to look at  
21 either increasing licensing fees or other, and I'm sorry, I'm not familiar with --  
22 entirely with how the system works with the NRC and licensees, but in terms of  
23 the actual financial resources, figuring out a way to have licensees contribute  
24 more, a larger share of whether it's specifically emergency planning resources. I  
25 know with the Indian Point example, the surrounding four counties are often,

1 even though on paper it looks like Indian Point supplies millions of dollars for  
2 supporting emergency planning and responses, in fact, the counties run at a  
3 deficit when it comes to emergency planning compared to other counties in the  
4 state that do not have a nuclear plant nearby. So, is that clear?

5 COMMISSIONER MAGWOOD: No, I understand, I appreciate that.  
6 I don't want to leave you out Sue, did you have a comment you wanted to make?

7 SUE PERKINS-GREW: Well, licensees have always been  
8 assessed by their states depending on what the laws are in each state for state  
9 and county support for whatever it takes to implement their emergency plans for  
10 the reactor. And I think as a discussion that Patrick and I had earlier, that, you  
11 know, sometimes when the money is paid by this -- the utility, what happens to  
12 that funding once it gets to the state, depends on the state. So Pat, maybe you  
13 could elaborate on your experience as, you know, a state emergency agency,  
14 that's it's not just a matter of money being thrown into it, it's how the money is  
15 used and directed towards the actual resources that are required.

16 PATRICK MULLIGAN: Yeah, and I think that's probably not just  
17 true for my state, for -- but for many states, just because there's more money  
18 that's being received into the funding of the state doesn't necessarily translate  
19 into additional resources for that particular program. So again, it's not, you know,  
20 licensees in my state can throw \$4 million more at me, and I still can't hire  
21 people. That's just the way that, you know, the policy is in the state. So -- and  
22 I'm not saying that for me and my program, nobody can. So, throwing money at  
23 it doesn't fix the resource problem all the time.

24 TIMOTHY GRETEN: And one other -- one other thing to consider,  
25 the emergency response community and the state and local folks, even if they

1 are paid for with, you know, state or local rep dollars, they have to respond to the  
2 actual emergency that they're facing, you know, at the time. So I suspect that  
3 large part of, for instance, the New Jersey emergency planning staff, or anybody  
4 in New Jersey associated with the emergency response was tied up for a good,  
5 you know, month, month and a half with Hurricane Irene follow-up on -- or you  
6 know, I believe it was Minnesota where there was a government shutdown, and,  
7 you know, that put a month long break in plan. So there's all these other factors  
8 too that have nothing to do with nuclear power or nuclear power plants that are  
9 also -- add to the time it takes to make change at the state and local level. That's  
10 just the way it is.

11 COMMISSIONER MAGWOOD: Patrick, another -- one other  
12 question for you. We've heard a lot about -- and the staff that included this as  
13 another consideration in their paper -- we've heard a lot about potassium iodide,  
14 and whether the program that is currently in place is sufficient to protect public  
15 safety. And of course there will be some dialogue about this -- I just wanted to  
16 get -- as you talk to other states, what's the current thinking in relation to that  
17 issue today?

18 PATRICK MULLIGAN: I think right now, and every state does it  
19 differently, and in New Jersey we have the option of pre-distributing anyone that  
20 takes it. For now -- we're going to make some changes, because I think, for now,  
21 you know, the policy that we have in place, it may have people taking KI a little  
22 too early. And we need to guard against that, because from what we've seen in  
23 Fukushima is that, you know, they probably had a few days before they needed  
24 to actually start taking that. And anything taken immediately, like we might have  
25 people do, is not prudent. So, we're going to change that.

1                   But I think if you take a look at the strategic stockpiles that are in  
2 place, they have it stockpiled, some for nuclear power plants specifically, but the  
3 strategic national stockpile that was put in place has ample doses of KI available  
4 for rapid dispersion in the event that you need to expand that distribution beyond  
5 a 10-mile area or even out to -- and then we can draw from those resources. So  
6 I think that, you know, after 9/11 what was put in place from a national strategic  
7 stockpile perspective of KI, is that there are stockpiles out there, there's a  
8 mechanism for moving that to areas that need them, and I believe we can take a  
9 look at that. But I believe that there's a mechanism in place and sufficient doses  
10 out there to move around for any type of an emergency, no matter how far you  
11 need to expand it. I just believe that it's out there.

12                   TIMOTHY GRETEN: Building on that, I know that the national  
13 security staff well before Fukushima had actually directed NRC, HHS, and other  
14 agencies to examine improving guidance for KI, especially for pediatrics. I know  
15 that the Federal Radiological Preparedness Coordinating Committee turned a  
16 paper in to the White House science and technology office, you know, outlining  
17 what the different states were doing, and also outlining that there's a -- it is a  
18 somewhat complicated issue, just because for instance, the average American  
19 through iodized salt in their diet, has a lot of iodine already, you know. Is it -- it's -  
20 - the same dosage for you and me might be different based on what we eat in  
21 our food, or our basic body chemistry. So it's a complicated issue.

22                   COMMISSIONER MAGWOOD: Sounds like you just made a  
23 promotion of using more salt in your food. I'm not going to endorse that at this  
24 time.

25                   [laughter]

1 Thank you very much.

2 CHAIRMAN JACZKO: Well, I'll just follow up on that. I'm not sure  
3 that -- I think HHS manages the national strategic stockpile and it would probably  
4 behoove us -- I don't know who -- just the best person to do it, to ask them, I'm  
5 not sure that they would agree that there's ample stockpiles to distribute well  
6 beyond a 10-mile, based on some conversations I've had with them. So that may  
7 be an interesting factual point that we just want to get clarified. Again, I don't  
8 want to speak for them, that may be what they've communicated to you. I've  
9 heard slightly different things in my conversations with them. So it's a factual  
10 point that probably would be worth us just getting resolved.

11 We've talked a little about some of the challenges with kind of  
12 changing the exercise regime, and what -- you know, and again, recognizing that  
13 there's challenges and there's resource constraints and all this, but I think what  
14 our focus needs to be on is how do we overcome those, and how do we get done  
15 what we need to get done, because I think that's really why we're here. I mean, I  
16 think none of us would be here if we thought we didn't need to do anything post-  
17 Fukushima. Clearly, I think we all recognize we need to do some things, and I  
18 don't think that there's a lot of resistance, I think, to what the task force has  
19 recommended, and then those additional items the staff has recommended. It's  
20 really just a question of I think timing, resource allocations, all those kinds of  
21 things -- prioritization and all those good things.

22 So, in that spirit, what would be the constraints, let's say, when we  
23 have a now an eight-year -- or an eight year cycle, so that's exercises every two  
24 years. We're talking about four exercises in a cycle. One of which is a hostile  
25 action drill, one of which I think is a non -- quite going to a general emergency, so

1 that leaves two exercises in the cycle, both of which I assume are the typical  
2 exercises that would involve --

3 TIMOTHY GRETEN: Release and an ingestion pathway.

4 CHAIRMAN JACZKO: Right, so release and ingestion pathway. I  
5 mean, what would prohibit us from developing guidance to on a -- maybe in that  
6 first eight-year cycle on a pilot basis incorporating in the ingestion or the release  
7 pathway, a multi-unit event. I mean, it's really more on the modeling end than it  
8 is on the exercise end. I mean, the developing an exercise that's built around  
9 that, I think would probably fall to FEMA more than anything. But I mean, you  
10 know, as a -- kind of a maybe first time around as a pilot, kind of, FEMA gives  
11 them a pass, gives you a pass on kind of the -- maybe they would grade one,  
12 somehow you could incorporate a second unit into the event as kind of a plus to  
13 your actions. What would keep us from doing that? I mean, what would be the  
14 constraints on doing that?

15 TIMOTHY GRETEN: Well, first of all, in terms of things that aren't  
16 constraints, I am aware of nothing in guidance that would prohibit that from  
17 happening. The second thing is that just as a matter of -- the whole reasonable  
18 assurance concept; those exercises are certainly key points to it. But it also --  
19 there's annual plan reviews, there's, you know, pretty much constant interaction  
20 with all the state and locals about updating plans and whatnot. It would be really  
21 a matter of figuring out what is the requirement, what is it we want to do, and  
22 figuring out how are we between us, NRC, different stakeholders, certainly the  
23 state and locals, going to prototype that and then putting metal on target and  
24 making it happen.

25 CHAIRMAN JACZKO: Well, could we pull the exercise we did? I



1 mean, we did that with the hostile action based drills. And we did pilots at our  
2 facilities -- now, we did those I think in an off year, so we actually added an  
3 exercise cycle I believe for the hostile action pilot, so, you know, again, given the  
4 resource challenges, maybe we wouldn't even add an extra cycle in. But what  
5 would prevent us in -- you know, in a year or two years from starting that, and  
6 you know.

7                   TIMOTHY GRETEN: From an exercise design standpoint, the  
8 biggest thing with multi -- it's -- most of the planning now if I'm not mistaken is  
9 based on single reactor failure -- single reactor issues. And I think to design an  
10 exercise that really got it, what would be different between a single reactor failing  
11 and a multi-reactor failing, that the whole on what would be different, like figuring  
12 out what those differences would be and how would you need to prototype an  
13 exercise based on that would be the key to making everything else happen.

14                   CHAIRMAN JACZKO: Is that more FEMA? Who does that, is that  
15 us, is that --

16                   TIMOTHY GRETEN: I think that's really based on the underlying  
17 design basis for the reactors. The --

18                   CHAIRMAN JACZKO: Would we do more of that then --

19                   TIMOTHY GRETEN: Yeah, what drove the original, you know, 10-  
20 mile EPZ, source term, et cetera. And I think it would certainly be informed by,  
21 for instance, real life experience with the multi-reactor event that was in Japan.  
22 But I think that's something where that would be NRC-led to figure that out, but  
23 there's a wide range of stakeholders out there with opinions, and who are  
24 certainly ready to help. You know, FEMA, CRCPD, the states and locals, the  
25 FRPCC. I think that would be how you go about doing it. And then in terms of --

1 once that piece has been figured out, actually prototyping the exercise out would  
2 be, you know, working with a state who was willing to help. And I know that there  
3 wouldn't be any shortage of it, and you know, then it's just the incremental  
4 resources necessary to weave that into the exercise narrative.

5 SUE PERKINS-GREW: Mr. Chairman, if I could add, I think that --  
6 two comments on this, the multi-unit scenarios. I'm not so sure those aren't  
7 being done now by the multi-unit sites like Palo Verde, and they're not  
8 necessarily an evaluated biannual exercise, but in their routine drill program.  
9 Because in addition to the evaluated exercise every two years, licensees typically  
10 have between four and six internal drills, which have some limited participation  
11 with the off-site. So I'm not so sure it's not being done now, in a limited fashion.

12 CHAIRMAN JACZKO: So in fact, I mean, essentially those  
13 scenarios may already exist?

14 SUE PERKINS-GREW: They may already exist. And then going  
15 forward to expand that into an evaluated exercise, that's really a scenario. I don't  
16 really -- I'm not sure you have to put it in a evaluated biannual exercise, it  
17 impacts the reasonable assurance determination from our off-sites. I'm not so  
18 sure it would, you know, have to be in that evaluated opportunity.

19 TIMOTHY GRETEN: Yeah, one of the other things that we've been  
20 hearing from our stakeholders, there's this natural tension when you do these  
21 exercises and certainly drills and whatnot, but the exercise most of all, that you  
22 learn the most from an exercise when you push things to failure. Like, that's how  
23 you learn. But there's definitely a reluctance sometimes to do that because it  
24 might give the wrong impression that we don't know what we're doing, and you  
25 know, we're primed for failure when that's just not the case. So, you know,

1 working with what's evaluated versus what can be done in a more learning-  
2 based, you know, non-attributable space is something that we're also looking at  
3 and talking to our stakeholders about. And there's some states now, Arizona  
4 comes to mind, where they're really at the vanguard of that, and they've figured  
5 out a way to make that work.

6 CHAIRMAN JACZKO: Well, I certainly, again, think that's, you  
7 know, a piece. I mean, EP in the end comes down really to that interface and  
8 that activity. And it's probably an area in which our regulations are less, well-  
9 defined than in other aspects, but I think the real value comes in with the  
10 exercises and doing them, so, you know, if there's a way to begin looking at  
11 these scenarios, quite frankly, I think it would probably inform the rule better than  
12 anything else than we could do, is to have a couple of states have gone through  
13 a multi-unit event. We might figure out in an exercise space and not in real life.  
14 And you know, it might actually tell us what kinds of things we really need to be  
15 looking for as we put together a rule to kind of do these things.

16 TIMOTHY GRETEN: Yeah, I mean, the other thing too, and I  
17 certainly wouldn't want to speak on behalf of your staff, but working with your  
18 staff, I think they're pretty tapped out now, the EP folks. And if this is something  
19 that's a priority, something else may have to give.

20 CHAIRMAN JACZKO: Well, we can -- that's certainly -- we'll have  
21 a chance to talk to them this afternoon, and I'm sure they'll appreciate the cover  
22 that you gave them.

23 [laughter]

24 I guess those were the main questions I had. I appreciate  
25 everybody being here and providing your insights and your thoughts on this.

1 Thank you.

2 SUE PERKINS-GREW: Thank you.

3 CHAIRMAN JACZKO: Anything else anybody had? Okay, thanks.

4 [break]

5 COMMISSIONER APOSTOLAKIS: Chairman Jaczko is busy. He  
6 asked me to chair this meeting. Bill.

7 BILL BORCHARDT: Thank you, Commissioner. Good afternoon.  
8 The staff's here today to present the results of our prioritization of the near-term  
9 task force recommendations. This is certainly not the first step, nor will it be the  
10 last in our efforts to implement improvements for U.S. nuclear power plants  
11 based upon the lessons learned from the events at Fukushima. In developing  
12 our proposed prioritization, we were principally guided by our safety mission. As  
13 such, we reviewed and prioritized the recommendations first based on the  
14 relative safety enhancements that each would provide. And then further refining  
15 our prioritization, we assessed whether sufficient resource flexibility, including the  
16 availability of critical skill sets existed.

17 The availability of those resources both from NRC, and all of our  
18 stakeholders, not only influenced our prioritization, but in many cases as well  
19 influenced how fast we can move forward. As we move forward with  
20 implementation, our safety mission must continue to be our guiding principle.  
21 And while it's important that we move forward promptly, we must also ensure that  
22 our activities are measured and prudent. It is critical that we implement the right  
23 fixes the first time, and not just quick fixes. The process of implementing these  
24 recommendations in accordance with the Commission's direction will challenge  
25 the staff to ensure that we do not displace important safety work that has a

1 greater safety benefit and is ultimately of higher priority, because it serves the  
2 purposes of ensuring continued safe operation of the currently operating  
3 reactors.

4           We must ensure that we do not distract either our focus, or the  
5 industry's, from the safety of the 104 operating reactors. The staff's paper  
6 emphasizes the importance of seeking stakeholder input as we move forward on  
7 each of the recommendations. And as we further engage our stakeholders, we  
8 expect to identify additional issues and potential lessons learned from Fukushima  
9 beyond those that were identified in the near-term task force report. Within the  
10 paper that we provided within the last week and a half, we identified six additional  
11 issues with a clear nexus to Fukushima that require further consideration and  
12 possible prioritization.

13           As other issues are raised, we will remain disciplined to make sure  
14 that the activities that fall under the purview of the Steering Committee are those  
15 that relate to Fukushima. Other safety important issues will be folded into our  
16 normal regulatory processes. We are preparing to initiate the actions proposed.  
17 And our efforts will include detailed plans and schedules for completing the work  
18 described, aligning our organizational structure as appropriate to undertake these  
19 activities in the most efficient manner possible and preparing to seek stakeholder  
20 input. Eric will be doing the staff briefing for this afternoon.

21           ERIC LEEDS: Thank you, Bill. Good afternoon, Commissioners.  
22 The task force completed its review and issued a report to the Commission on  
23 July 12. A Commission briefing was conducted on July 19 on the report. As  
24 directed by the Commission, the staff has been engaged in a detailed review of  
25 the recommendations to determine appropriate next steps. We have now

1 provided the Commission with two papers recommending a prioritization of the  
2 task force recommendations and proposed actions on those that should be  
3 undertaken without delay or that should be undertaken in the near term.

4           The purpose of this Commission meeting is to discuss the staff's  
5 proposed prioritization of the task force recommendations, including a discussion  
6 of resources as presented in our paper submitted on October 3. I will briefly  
7 touch on the staff's review of the task force recommendations and then discuss  
8 the staff's proposed prioritization of those recommendations. I will also discuss  
9 additional issues related to the Fukushima Daiichi event beyond those identified  
10 in the task force report as Bill mentioned. Finally, I will discuss our current  
11 resource estimate to undertake the recommended staff actions described in our  
12 paper and our planned next steps.

13           I want to take a minute to reemphasize the task force report  
14 conclusions. A significant conclusion was that a similar sequence of events to  
15 that experience at Fukushima Daiichi is unlikely to occur here in the U.S. The  
16 task force also concluded that there is no imminent risk from continued operation  
17 and licensing activities at U.S. plants and as we have stated previously, the staff  
18 has independently assessed the events at Fukushima Daiichi and agrees with  
19 the task force conclusions, that there is no imminent risk from continued  
20 operation and licensing activities at U.S. plants. Now the task force report also  
21 contained a systematic and methodical --

22           COMMISSIONER APOSTOLAKIS: a Greek word --

23           ERIC LEEDS: Methodical. Thank you, Commissioner.

24           [laughter]

25           A systematic review of insights from this Fukushima accident. The

1 report provided 12 overarching recommendations which are structured around  
2 the defense-in-depth principles of protection from design basis natural  
3 phenomena, mitigation of emergency situations and ensuring preparedness in  
4 case of emergencies.

5           Now, in the Staff Requirements Memorandum, the Commission  
6 directed the staff to propose a charter for the staff review of the task force report  
7 and the charter has been provided to the Commission. The Commission also  
8 requested that staff recommendations of actions to be taken without delay and  
9 the paper completing this action was submitted on September 9 -- that's what we  
10 call our 21-day paper, and we briefed you on that paper on September 14. You  
11 asked us to provide a paper prioritizing the near-term task force  
12 recommendations and to complete this item by October 3, which we did, and  
13 that's what we call a 45-day report. And that, of course, is the focus of today's  
14 meeting.

15           You also requested that we provide a separate assessment of the  
16 task force Recommendation 1 within 18 months. This assessment will propose a  
17 regulatory framework that will appropriately balance defense-in-depth and risk  
18 considerations. Now, by way of background, the staff's September 9 paper, the  
19 21-day paper identified and made recommendations regarding the task force  
20 recommendations that can, and in the staff's judgment, should be implemented in  
21 part or in whole without delay. This paper laid the groundwork for the  
22 development of our 45 Day Paper.

23           In developing the 45 Day Paper, the staff continued its review of the  
24 task force recommendations within the context of the NRC's existing regulatory  
25 framework and considered the various regulatory vehicles available to the NRC

1 to implement those recommendations. The staff initially prioritized the  
2 recommendations based on its judgment of the potential and relative safety  
3 enhancement which could be realized by each. The staff then refined its  
4 prioritization based on a consideration of additional factors such as the  
5 availability of critical skill sets, dependence on actions associated with other  
6 recommendations and the need for additional technical assessment and  
7 alignment.

8           The staff then performed an assessment of each task force  
9 recommendation to determine the required regulatory activities, an estimated  
10 schedule and associated resource impacts. An important element of this  
11 assessment was the objective of not unnecessarily diverting the NRC's or the  
12 nuclear industry's focus from other important ongoing safety significant activities  
13 in the course of addressing the task force recommendations. We believe that the  
14 staff's proposed prioritization represents a measured approach that allows the  
15 NRC to move forward on those recommendations with the greatest potential for  
16 near term safety improvements without unduly impacting existing regulatory  
17 programs and safety activities.

18           The 45 Day Paper provided three tiers of recommendations. Tier 1  
19 were those items to start without delay. Tier 2 were those to start in the near  
20 term and Tier 3 were the longer term actions. The next few slides will explain the  
21 basis for each one of these tiers and the recommendations in each.

22           The first tier consists of those task force recommendations which  
23 the staff determined should be started without unnecessary delay and for which  
24 sufficient resource flexibility, including availability of critical skill sets, currently  
25 exists. This tier includes all the actions identified in the 21-day report and two



1 additional items. This next slide goes through all of our Tier 1 recommendations  
2 on the next several slides. Seismic and flood hazard reevaluation, seismic and  
3 flood walk-downs, station blackout, 50.54(hh)(2) equipment, reliable hardened  
4 vent for Mark I and Mark II containments, spent fuel pool instrumentation,  
5 strengthening on-site emergency response capabilities, and emergency  
6 preparedness.

7           Now, after submitting the 21-day paper, the staff continued its  
8 review of containment vents and spent fuel pools. This review led the staff to  
9 conclude that resolution of the reliable hardened vent issues for Mark I and Mark  
10 II containments should be undertaken concurrently. As such, the staff has  
11 proposed to include hardened vents for Mark II containments in the order  
12 proposed for resolution of Recommendation 5.1. The staff also concluded that  
13 installation of spent fuel pool instrumentation should be initiated without delay. To  
14 that end, the staff has proposed to interact with stakeholders to inform its  
15 determination of the functional requirements necessary for this instrumentation.  
16 After receiving stakeholder input, the staff recommends that the NRC develop  
17 and issue orders to licensees requiring the installation of reliable spent fuel pool  
18 instrumentation.

19           All right, the second tier. Thank you. The second tier consists of  
20 those task force recommendations which could not be initiated without delay due  
21 to factors that include the need for further technical assessment and alignment,  
22 dependence on Tier 1 issues or availability of critical skill sets. These actions do  
23 not require long term study and can be initiated when sufficient technical  
24 information and applicable resources become available. The staff believes these  
25 recommendations will further enhance safety and attempts to initiate them as

1 soon as the necessary technical information and/or resources become available.  
2 We anticipate this to occur in the near term.

3 Tier 2 includes the task force recommendations regarding spent  
4 fuel pool makeup capability, and the remaining portions of Recommendation 9.3  
5 not addressed in Tier 1, with the exception of the recommendation regarding the  
6 implementation of the enhanced emergency response data system, or ERDS,  
7 which has prioritized into Tier 3. As a follow on activity, the completion of  
8 Recommendation 7.1, the staff concludes that the existing spent fuel pool  
9 instrumentation and makeup requirements should be enhanced through  
10 rulemaking. It would be appropriate to initiate this rulemaking after consideration  
11 of insights from Tier 1, specifically Recommendations 2.1 on seismic, 4.1 on  
12 station blackout, and 4.2 which is 50.54(hh)(2).

13 Once sufficient technical information is available, the staff  
14 recommends that the NRC engage stakeholders in support of this rulemaking  
15 activity and the staff would then propose to move forward with the development  
16 of the regulatory basis, proposed rule, and implementing guidance. The staff  
17 reviewed the planning standards in 10 CFR 50.47(b) to determine all the areas  
18 that may be impacted by multi-unit or prolonged station blackout events, and  
19 recommends upgrading the planning standards to address station blackout and  
20 multi-unit events.

21 Staff with the critical skill sets necessary for the resolution of these  
22 portions of Recommendation 9.3 are currently involved with the implementation  
23 of the recently issued emergency preparedness rule. Therefore, the resolution of  
24 this part of Recommendation 9.3 has been placed into Tier 2. These actions do  
25 not require long term study and can be initiated once sufficient resources

1 become available. In moving forward on this topic, the staff recommends that the  
2 NRC engage stakeholders to inform them on the development of acceptance  
3 criteria for the licensee examination of planning standard elements related to the  
4 recommendations and the issuance of an order to address those changes  
5 necessary in emergency plans to ensure adequate licensee response to station  
6 blackout and multi-unit events.

7           The third tier consists of those task force recommendations that  
8 require further staff study or support a regulatory action or an associated shorter  
9 term action that needs to be completed to inform the longer term action or are  
10 dependent on the availability of critical skill sets or are dependent on the  
11 resolution of the task force Recommendation 1 with regard to an extended  
12 design basis event.

13           The staff focused its initial efforts on developing the schedules,  
14 milestones and resources associated with Tier 1 and Tier 2 activities and it has  
15 not yet developed similar information for the Tier 3 recommendations. Once the  
16 staff has completed its evaluation of the resource impacts of the Tier 1 and Tier 2  
17 recommendations, we will be able to more accurately address the Tier 3  
18 recommendations.

19           The following are the list of the Tier 3 recommendations which  
20 include the 10-year confirmation of seismic and flooding hazards, seismically  
21 induced fires and floods, reliable hardened vents for other containment designs,  
22 overall hydrogen control, EP for prolonged station blackout and multi-unit events,  
23 enhanced ERDS capability and emergency preparedness-related decision  
24 making, radiation monitoring and public education. Tier 3 also includes  
25 modifications to the reactor oversight process and staff training on severe

1 accidents including the severe accident management guidelines.

2           Now, Bill also mentioned additional items. Many additional items  
3 have already been received both from our external stakeholders, including the  
4 Office of Science and Technology Policy, Congress, international counterparts,  
5 other federal and state agencies, non-governmental organizations, the public,  
6 and the nuclear industry, as well as more recommendations from the NRC staff.  
7 In the process of beginning to evaluate these additional recommendations, the  
8 staff has emphasized maintaining discipline with regard to these  
9 recommendations that are associated with the staff's efforts to implement the  
10 lessons learned from the Fukushima Daiichi event and which are more  
11 appropriately addressed through other existing NRC processes. For example, 10  
12 CFR 2.206 or 10 CFR 2.802, which is rulemaking.

13           At this time the staff has identified a number of additional issues  
14 with a clear nexus to the Fukushima Daiichi event that may warrant regulatory  
15 action but which were not included in the task force recommendations and those  
16 issues are shown on the following two slides. These additional issues include  
17 filtration of containment vents, instrumentation for seismic monitoring,  
18 reexamining the basis for the emergency planning zone size, the pre-staging of  
19 potassium iodide beyond 10 miles, transfer of spent fuel to dry cask storage, and  
20 the loss of the ultimate heat sink.

21           Although the staff's assessment of these issues is incomplete at  
22 this time, these issues presented on these slides has already been judged to  
23 warrant further consideration and potential prioritization based on relative safety  
24 significance, that nexus of the task force recommendations and other ongoing  
25 staff activities. A determination of whether any regulatory action is necessary will

1 be made after the completion of this consideration. If the consideration  
2 determines that regulatory action is required, the staff will prioritize these  
3 additional recommendations, consistent with the approach taken with the task  
4 force recommendations. In addition, the staff expects the list of potential  
5 additional recommendations to continue to increase as we receive feedback from  
6 our external stakeholders, through our interactions with the international  
7 regulatory community and through the mining of the Fukushima Daiichi event for  
8 additional lessons learned by the nuclear industry and by our staff. As additional  
9 recommendations are raised, we will evaluate them and propose action as  
10 appropriate.

11 Bill also touched on this next slide, and this is the slide that gives  
12 me the greatest concern. Before the Fukushima event on March 11, the staff of  
13 the NRC was busy every day ensuring the safety of the nuclear power plants,  
14 ensuring the safety and security of nuclear materials. Now having the  
15 Fukushima event overlaid and the resources it will take for the staff to address  
16 those issues concerns me greatly for what safety significant work will have to be  
17 delayed, deferred, or shed. That will be quite a challenge for the staff and I'm  
18 sure the Commission will be involved.

19 Going back to March 11, the agency responded promptly to the  
20 developing situation in Japan. This is included in supporting the government of  
21 Japan, advising the U.S. embassy, and monitoring the situation at Fukushima  
22 Daiichi to fulfill our mission of protecting the health and safety of U.S. citizens. To  
23 date, the agency has expended more than 32 full time equivalents, that's 32  
24 professional staff, not including management oversight and administrative  
25 support, in this effort. This necessary resource expenditure has resulted in

1 impacts to our regulatory processes, including our licensing and inspection  
2 activities.

3           The staff's October 3 paper, the 45 Day Paper, provided the  
4 Commission with the staff's resource estimates and the supporting schedules  
5 and milestones for each Tier 1 and Tier 2 recommendation. The staff's resource  
6 estimates were subdivided to show the required steps to address each  
7 recommendation. The staff's estimate to complete the Tier 1 and Tier 2 activities  
8 is 205 full time equivalents, including 30 in fiscal year 2012, our current fiscal  
9 year, and 90 in fiscal year 2013.

10           However, the resources need to complete the Tier 1 and Tier 2  
11 activities will increase if unforeseen challenges arise in the process of resolving  
12 these recommendations. If funding for the use of contractors is allocated for  
13 these activities, these FTE values may change. Completion of the Tier 1 and Tier  
14 2 recommendations will require us to reassign staff with the critical skill sets from  
15 across the agency. We anticipate that this will have a significant impact on our  
16 budgeted activities. However, the staff has identified some examples of work,  
17 including the National Fire Protection Association 805 reviews, the resolution of  
18 Generic Safety Issue 191, assessing debris accumulation in PWR sump  
19 performance, implementation of the recently updated emergency preparedness  
20 rule, for materials at fuel facilities, as well as nuclear power plants, reactor  
21 oversight program activities, and also near-term combined license reviews, which  
22 the staff does not intend to delay work on, in light of the task force  
23 recommendations.

24           As I said, the overriding challenge the staff will face when  
25 implementing these actions will be redefining agency priorities, while ensuring

1 that the process does not displace ongoing work that has greater safety benefit,  
2 work that's necessary for continued safe operation or other existing high priority  
3 work. This will be a continuous process as new operating reactor issues emerge,  
4 which because of their potential impact on safety, may take priority over action on  
5 some of these lower priority task force recommendations.

6           For my last slide I'm going to talk about the next steps, in addition  
7 to the activities I've discussed, in addition to the Tier 1 and Tier 2  
8 recommendations, the staff will provide the Commission an evaluation of the  
9 schedules and milestones, resources and critical skill sets, and implementation  
10 challenges related to assessing the Tier 3 recommendation within the next nine  
11 months. At the same time, the staff will also provide its prioritization of the  
12 additional recommendations identified in this paper, and should the staff  
13 prioritization process lead to any of the additional recommendations to be  
14 included in Tier 1, the staff will promptly inform the Commission of this  
15 determination.

16           Staff will also provide options regarding the task force  
17 Recommendation 1, addressing a logical, systematic and coherent regulatory  
18 framework for adequate protection that appropriately balances defense-in-depth  
19 and risk considerations in 18 months. The resources needed for these activities  
20 have not been estimated yet and as such were not included in the staff's October  
21 3 paper.

22           That concludes our presentation and I'll send it back to Bill.

23           BILL BORCHARDT: Thank you, Eric. Just want to emphasize a  
24 couple points that Eric mentioned and were mentioned this morning. One is that  
25 there's no doubt that the issues that the near term task force identified are very

1 important and need to addressed, but they need to be addressed in a holistic and  
2 integrated manner with all the other work, not just that the NRC has underway,  
3 but also all of our stakeholders, our federal sister agencies and departments  
4 throughout the federal government, the states, the stakeholders, the industry,  
5 they all have full plates already. I don't mean to say that the work identified in the  
6 near term task force isn't important but it ought not to automatically jump to the  
7 top of the priority list, because it may likely displace something that has a greater  
8 safety benefit. The second point I'd like to make is that if for no other reason  
9 than the six items that were mentioned in the most recent Commission paper as  
10 being additional items, to me that really demonstrated the value of having  
11 stakeholder input. We came up with those interactions with types of people that  
12 were on the panels this morning but also the international community. We did a  
13 lot of outreach since the near term task force report was issued and it's those six  
14 and many others that didn't make the cut, that were identified through that  
15 process and I would not be the least bit surprised to see additional ones added in  
16 to the process as we go down the road on these activities. My last comment is  
17 that in addition to Jim Wiggins, who's sitting at the table to answer every question  
18 that you might possibly have --

19 [laughter]

20 -- we have many members of the Steering Committee in the  
21 audience here, so I expect we may make liberal use of the podium there to  
22 answer many of your questions. Thank you.

23 COMMISSIONER APOSTOLAKIS: Thank you, gentlemen.

24 Commissioner Ostendorff.

25 COMMISSIONER OSTENDORFF: I want to thank you for your



1 presentations today and for the work you have done in this very important area.  
2 Bill, I want to comment specifically on the remark you just made a minute ago  
3 and that was to applaud you and your team, the EDO's office, the Office  
4 Directors for taking this additional look to look outside the scope of what was  
5 presented in the near term task force report, recognize the time limitations they  
6 had and to take advantage of the opportunity to really give a comprehensive  
7 holistic review of the entire landscape. I think we're all appreciative of your  
8 efforts to make that happen.

9           Bill, about not quite seven months ago when we had our initial  
10 Commission meeting in March, on Fukushima, I asked you a question and that  
11 question was in the general nature of what did this agency learn from the Three  
12 Mile Island experience about how to approach regulatory changes and reviews  
13 after a significant event? And at the time your answer was very helpful to me,  
14 you talked about the need to insure that we have an integrated prioritized  
15 approach to doing business and that while there were some significant safety  
16 enhancements done post-Three Mile Island, there were also some changes  
17 mandated that did not increase safety and that perhaps distracted the industry  
18 and the agency. I think that's a fair summary of what we talked about. So now,  
19 almost seven months later, and I am going to venture to ask you to assign a  
20 grade to how the agency is doing, in the A-F scale, how are we doing as far as  
21 doing this in a more thoughtful and methodical manner?

22           BILL BORCHARDT: I think we deserve an A and I don't hand those  
23 out very often, but we've had really active stakeholder engagement and it's clear.  
24 And at least, what I heard from this morning's discussion, that even though  
25 there's some dissatisfaction with some of the stakeholders, the pace that we're

1 implementing new requirements, they all want to be involved in the development  
2 of the requirements. And in order to do that in a meaningful way, it takes time.  
3 You can't just go off in a room, write an order and impose a requirement and then  
4 ask for input after you've already imposed the requirement. I think the approach  
5 that we're on now is very aggressive, you know, as Eric was talking about the 21  
6 Day Paper, 24 days later we have the paper that was just delivered to you. That  
7 was really working in a very expedited way. I thank the stakeholders for their  
8 participation because it took a lot of effort out of them as well.

9 I think we are awaiting Commission direction on the immediate  
10 actions and we're ready to move out on those, so I think it's certainly not a  
11 delayed response, I think it's quick, but at the appropriate level of engagement  
12 and I hope we're able to continue that general approach.

13 COMMISSIONER OSTENDORFF: Let me kind of tack on to that,  
14 and I'll ask you and Eric and Jim to respond to the following. This deals with the  
15 morning panel themes from the outside organizations dealt with timelines being  
16 slow and concern that rulemaking, for instance, I'm going to use station blackout,  
17 because Eric and I have been talking about station blackout quite a bit, and you  
18 know, the plan you have in there is about four and a quarter year approach to  
19 rulemaking and I think everybody appreciates the need to do effective,  
20 meaningful, constructive, stakeholder engagement, but there will always be a  
21 tension between that attribute and the other attribute, being, get it done as  
22 quickly as you can. I think we all want to get it done right. Do you have any  
23 comments-- Bill, I'll start with you but ask others to chime in as to how we might  
24 consider looking at rulemaking for whether it's SBO or anything else, to perhaps  
25 pursue it on a little bit more of an aggressive timeline?

1 BILL BORCHARDT: I think, as a general rule, I believe that the way  
2 the estimates were developed as a part of the 45 Day Paper was using a pretty  
3 standard template. It didn't say that this is going to be the number priority for the  
4 agency or one of the top few, and so I'm confident that there are many  
5 opportunities to improve the duration of that rulemaking process, if the  
6 Commission chose to make that a high priority. What we would then need to do  
7 is to inform the Commission, what now is going to be delayed and deferred?  
8 Everybody's at full capacity. Now if we want to accelerate that, that's okay, we  
9 can do that but that will cause some other work to be deferred, perhaps, it'll  
10 require some decisions along the way such as -- it's not unusual in the  
11 rulemaking process where you put it open for public comment and you get a  
12 request for an extension. If you want to make the most aggressive schedule  
13 you're going to have to say no. Thirty days or 45 days for public comment, that  
14 we're going to stick to that and so it requires some discipline on everybody's part,  
15 not just the staff. So there would be a lot of opportunities. I think the thing we  
16 would find valuable is Commission feedback on, okay, make station blackout the  
17 number one priority and see what's the best schedule you can come up with.  
18 We'll do that and we'll tell you what the impacts are and then you might have  
19 another decision to make based on that because you might not like part of the  
20 answer, but at least that gets us moving forward in a constructive way.

21 ERIC LEEDS: If I could just add one thing, I just want to remind --  
22 mainly for our stakeholders -- that these actions shouldn't be looked at in  
23 isolation from each other. This is defense-in-depth, so why is it okay for a  
24 rulemaking for station blackout to exceed -- to go for years? Well, we're  
25 proposing orders with regard to bring in more 50.54(hh)(2) equipment; that

1 equipment buys you more, there's more margin there. Also, the work being done  
2 with regard to seismic and flooding walk-downs. That should identify any kind of  
3 vulnerabilities, give you more margin. So you have to cascade these issues  
4 together and take them as a whole, as opposed to each individual item. Creating  
5 some sort of improvement; this is defense-in-depth.

6 COMMISSIONER OSTENDORFF: Thank you. Let me shift to  
7 some seismic questions, Eric and ask I guess we may run out of time here and  
8 I'm sure my other colleagues will also ask some on seismic because of the  
9 interests, GI-199 and the North Anna situation, but can you talk a little about how  
10 GI-199 schedule looks with respect to meeting certain milestones and how that  
11 interfaces with task force recommendations for seismic hazard evaluations and  
12 other things seismic

13 ERIC LEEDS: Yes, GI-199 it's a relationship to the seismic. And  
14 there's another place where you have two separate actions that are each going  
15 to provide some margin. The one is the plant walk-downs for seismic risk, to  
16 identify seismic risk and take actions as appropriate, and that can be done in the  
17 near term and that's something we suggested to the Commission we start right  
18 away.

19 We would also start on GI-199, having plants evaluate their sites for  
20 the information that the U.S. Geologic Survey has identified, that may make  
21 changes to a plant's abilities to resist a seismic event. We have work that's  
22 ongoing right now at NRC, as well as DOE and EPRI, working on the seismic  
23 source term, if you will, that work should be done here by the end of this calendar  
24 year, and once that work's done, we'll have the hazard source, the seismic  
25 hazard source necessary for us to promulgate a requirement. At first, we were

1 going to an issue of a generic letter, but now based on Fukushima, if the  
2 Commission agrees we will promulgate that in a stronger 50.54(f) manner to  
3 licensees, to evaluate their sites in accordance with this new information that  
4 we've received from USGS to take a look at their vulnerabilities at the sites, at  
5 each individual site for a seismic event. So that we can see what kind of actions  
6 they need to take if any to upgrade their site. Does that answer your question?

7 COMMISSIONER OSTENDORFF: It does. And let me throw in  
8 just one quick segue to that. Is there anything that's been discovered so far, in  
9 looking at the North Anna seismic event from August that would inform our  
10 thinking on how to approach the task force recommendation related to seismic?

11 ERIC LEEDS: Yes. In fact, the GI-199 effort really reconfirmed the  
12 U.S. Geological Survey data and reconfirmed what we believe we need to do, for  
13 all these sites, with regard to taking a look at the seismic risks at their sites. So  
14 there is a nexus between the two, and in fact, it gives us comfort that we're in the  
15 right place.

16 COMMISSIONER OSTENDORFF: Thank you.

17 COMMISSIONER APOSTOLAKIS: Commissioner Svinicki.

18 COMMISSIONER SVINICKI: Good afternoon, how's everyone  
19 holding up, given all the work that we're having you do? I was just sitting back  
20 here and listening to the presentation, and I also spent some thoughtful hours  
21 over the long weekend with the most recent paper, the one we refer to as the 45  
22 Day Paper. And I really sincerely have to compliment the three of you, certainly,  
23 for your leadership. Marty Virgilio, I don't see him the room, but he's been  
24 putting in substantial hours on this activity as well. And I know that behind you,  
25 even if they're not in this room you have many hundreds of very devoted NRC

1 staff that are working these issues.

2           And I know there was some discussion this morning about public  
3 confidence and I just want to express -- well, there's public -- I guess I'm not a  
4 member of the public; I am in some capacities but from my side of the table I  
5 have a lot of confidence in the leadership, the senior staff leadership of this  
6 agency; you bring tremendous experience to these questions. This is a very  
7 historic and very demanding time to be in a leadership position at NRC. So I  
8 want to thank all the members of the steering group. I hope the Commission will  
9 conclude action on your charter soon; I think we owe you that.

10           But in any event, you are already, as you always are, busily  
11 underway with everything whether or not you have a charter in hand, you're  
12 engaged in doing the work that needs to get done. And I, you know, there's one  
13 thing I don't question, it's the commitment of all of the NRC employees that I've  
14 met in my years that I've spent here now. But people are very devoted to the  
15 task at hand, and I think as I sat with the paper and read it through, I just don't  
16 know that I could have produced something as thoughtful in the short amount of  
17 time you were given. And so I really -- and the 21 Day Paper was good and hats  
18 off to those folks, but they had hardly any time at all. But I think what you did is  
19 you built on that 21 Day Paper in such a thoughtful way. And I'm like Mr.  
20 Borchardt; I don't give out a lot of A's, and I don't give out a lot of praise that isn't  
21 merited, but thank you to the three of you for your leadership, for your colleagues  
22 on the steering group. And all of the -- Mr. Skeen and the project directorate that  
23 I think has been very, very busy devoting themselves full-time to this.

24           And I think that if I had to assess my own confidence at the  
25 agency's response I think that we have really hit the ground running on a lot of

1 activities and I think also, though, I would resonate with what Mr. Borchardt said  
2 when he talked about doing it right and doing it one time. And so maybe I like  
3 simple questions; they read really well in the transcript. And I was reading the  
4 transcript of my own words from the mandatory hearing and it's very painful to  
5 read transcripts of yourself because you think you sound so eloquent, but I have  
6 a propensity for run-on sentences and this is one long run-on sentence as I say  
7 this, but Commissioner Magwood asked a wonderful question in the mandatory  
8 hearing to me as I reviewed the transcript; it was the highlight of the mandatory  
9 hearing. He turned to Mike Johnson and he said, "Mike, is thing safe?" And I  
10 thought it was really -- it was a great question. So I'm going to ask Mr.  
11 Borchardt, in your view do we have the time to take the time to do this right?

12 BILL BORCHARDT: Yes, that is my simple answer. I mean the  
13 more complete answer is I believe today, as I did immediately after the events at  
14 Fukushima that there was no reason to take an immediate regulatory action to  
15 shutdown the 104 operating reactors in the country. That they were of robust  
16 design, we had the processes, procedures, everything in place to assure  
17 adequate protection of public health and safety; I believe that's still true today.  
18 Does that mean we shouldn't look at opportunities to make necessary  
19 improvement, or important improvements; of course, we ought to. And that's  
20 what this effort is all about. But it's also why there's other important activities, like  
21 GS-1191 that are perhaps equally, if not more, important in the grand scheme of  
22 things. So just because it's a lesson learned or an activity coming out of the  
23 events of Fukushima, it doesn't mean, in my mind, that it ought to be number one  
24 on the priority list.

25 COMMISSIONER SVINICKI: And I appreciate that, because

1 although I was very impressed with the 45 Day Paper, as I got to thinking about  
2 it, my concern in moving forward is that we can't allow viewing the Fukushima  
3 response in its very singular light. We're still at a phase where we get papers on  
4 it one by one, and we can't view it as immediately from a safety standpoint,  
5 displacing everything else that the agency had going on, would be a great  
6 budgeting gimmick, I guess, if you were a program official in NRC, if you could  
7 hang a label of Fukushima if that meant you got budget priority. I don't know if  
8 that's the most risk-informed way for us to go about our work. Eric already  
9 enumerated a list of things that are very important safety initiatives. And I might  
10 ask Eric to respond to the statement in the staff's paper, which is that after each  
11 recommendation I think that it says something about the staff assesses that this  
12 recommendation, meaning a near-term task force recommendation, "will improve  
13 safety."

14                   When you go about prioritizing and looking at ongoing activities and  
15 trying to figure out where these recommendations, if approved, fall in terms of  
16 work that was already ongoing, and understanding of the degree to which they  
17 improve safety is going to be very important, and I think that's what you're saying  
18 in terms of engaging the Commission on what might not get done, or an ongoing  
19 activity that's going to be deferred or displaced. Do you feel that you have the  
20 tools -- this will to be a two part question -- do you feel you have the tools to  
21 inform that degree of safety that is enhanced to give us some sort of a qualitative  
22 or a quantitative feel for that? And then when you do that and present that to us,  
23 do you feel that you have good quantitatives on the ongoing activities so that you  
24 can present the Commission with a truly safety-informed prioritization? As you  
25 move forward, I imagine you also might learn things, as you're moving forward on



1 the Fukushima recommendations that might either elevate them in priority, or  
2 decrease their priority. And then how will you engage in a very dynamic fashion  
3 to make sure that you're always putting first things first? I think that ended up  
4 being a four-part question.

5 ERIC LEEDS: Yes, ma'am. I think it did. Let me see if I can get, I  
6 don't know if I got them all, but I'll try.

7 The short-term, the tools, do we have the tools necessary to inform  
8 the degree of safety, of these actions, vis-a-vie all the other actions than NRC  
9 has ongoing. And the short answer would be yes, I do believe that we have  
10 those tools. But when you take a look at the breadth of activities and you think  
11 about that the staff normally processes some 950 license amendments a year,  
12 and those include near-term NFPA-805 actions or extended power uprates, or  
13 any numbers of activities, culling those out amongst the staff is going to be our  
14 challenge. Making sure that we don't miss something that's more safety  
15 significant for something else. And making sure that all the staff is aware of how  
16 to prioritize and how to raise those issues up through management, such that we  
17 can make those decisions.

18 And let me give you an example. I can't give the staff just blanket  
19 guidance that safety comes first, and impacting power operations comes second,  
20 or what comes third, because it's all too nuanced. If you take a look at extended  
21 power uprate, and extended power uprate, you think, well, you're raising the  
22 power of the plant, that's a licensee, something for the licensee, how does it help  
23 safety? Well, I'll give you an example of an extended power uprate that we  
24 granted to a licensee that completely redid their auxiliary feed water system,  
25 reduced the core damage frequency for that plant, made that plant safer. You

1 know, as a result of going up at a higher power. That would not be something  
2 that we would have not wanted to do, because auxiliary feed water, those  
3 transience occur during a plant's lifetime. The Fukushima event is a low  
4 probability high consequent event, something we don't expect to happen during a  
5 lifetime, something we have to be ready for, but we don't expect. So how do you  
6 prioritize those? Those need to be raised.

7 License renewal would be another example, where you intuitively  
8 think, well, we could just stop license renewals. Well, there again, license  
9 renewals have uncovered some very significant issues, safety significant issues,  
10 such as the wetting of underground cables, such as containment shell  
11 degradation. We want those programs to go on, they raise safety significant  
12 issues, issues that are safety significant today, that we need to address. I'm  
13 sorry, I may be going off on a tangent. Am I answering your question?

14 COMMISSIONER SVINICKI: No, that I think is at least at a broad  
15 brush how you're going to balance that and I'll add a third variable into the mix.  
16 And I hate using this phrase, because I think each of us has a different definition  
17 in our mind, but cumulative effects was talked about quite a bit this morning. And  
18 there is only, I think, so much -- we're going to come up against some logistical  
19 and practical challenges. So I think, I know there's a diversity of opinion about  
20 the tiers for principally, the EP recommendations, and Mr. Wiggins has been  
21 permitted to be much too quiet here, but I'm actually pleased somewhat that I  
22 think there's an acknowledgment there of what we heard about from the second  
23 external panel this morning, which is that as a practical matter, a lot of those  
24 participants have a lot to do right now in implementing the rule. And I felt that  
25 some of your determination on Tier 3 for some things was a very practical

1 acknowledgment of the fact that the agency decided to push forward with  
2 finalizing those changes to the EP rule that we already had in process, and that  
3 that was already something we felt had a safety value to us, and we wanted to  
4 get that in place. So I thought that your binning in the tiers was consistent with a  
5 value judgment that we made some months ago, and that's how I viewed it. I  
6 acknowledged that there's diversity of opinions there.

7           And the one last comment I want to close on is I appreciate, Eric,  
8 your comment about the length of time for rulemaking, and the fact that under the  
9 staff's proposal, if it's adopted, you do have orders which I'm going to call kind of,  
10 compensatory action in this case. And it's important to note there's been  
11 criticism, I think, lately that the agency quote, you know, "did nothing to react to  
12 9/11 until 10 years later." And what that misunderstands is the fact that the initial  
13 tool available to this agency was orders, security orders were put in place, a  
14 whole plethora of security orders were put in place. And yes, it took some time to  
15 codify those changes into Part 73. And also the agency in 10 years' worth of  
16 learning even changed some of the things that were in the orders, so we made  
17 further enhancements to security. So I see what you're describing, Eric, as just a  
18 parallel to what we did in that incidence. And again, I think the criticisms that we  
19 didn't respond for 10 years misunderstands the tools and the way that we use  
20 them. So I think to the extent that station blackout is on a normal path of  
21 rulemaking, if the agency has put other measures in place, you need to look at  
22 that, and that gets -- I'll close with Mr. Borchardt's comment about assessing this  
23 holistically. And I think that's what we need to do. So I'm over my time, thank  
24 you.

25           COMMISSIONER APOSTOLAKIS: Thank you. Commissioner

1 Magwood?

2 COMMISSIONER MAGWOOD: Thank you. I won't repeat the  
3 praise that Commissioner Svinicki uncharacteristically heaped on the staff.

4 [laughter]

5 COMMISSIONER SVINICKI: One per meeting.

6 Just one per meeting. But I do agree with that, I think this is a very  
7 good effort particularly considering the short time frames involved, so I  
8 congratulate you for doing that. Just a few questions. You responded to  
9 Commissioner Ostendorff's question about the relationship between your  
10 recommendations and GI-199. I wanted to explore that a little bit further,  
11 because I look at Recommendations 2.1 and 2.3 and I -- maybe I should start  
12 with that. Would you walk me through how you think those two are going to  
13 interrelate? What are the steps that you actually envision going forward with  
14 those two recommendations together? And then how, sort of on a schedule time  
15 frame, how does it all come together in the end? How do you see that actually  
16 unfolding?

17 ERIC LEEDS: So as I understand the question, how does 2.1 and  
18 2.3 relate? The 2.3 are the walk-downs, seismic and flooding walk-downs. 2.1  
19 are the seismic and flooding analyses at their sites that we talked about. The  
20 walk-downs -- the way the task force, my understanding of the task force  
21 recommendation, was to -- for these plants to get seismic and flooding experts,  
22 and take a look at their sites, walk down their sites, and look for vulnerabilities,  
23 look for possibilities for improvement. Take a look at what can be done to make  
24 the plants more robust and more able to resist a seismic or flooding event now.  
25 What can be done immediately?

1                   For the longer term, the 2.1, it would be informed by the work done  
2 by the activity on the walk-downs. I think that would inform the work on seismic  
3 and flooding for the longer term. Where seismic we'd take a look at GI-199 that  
4 Commission Ostendorff talked about, the new data that we received from the  
5 U.S. Geologic Survey, and have licensees do a more thorough reevaluation of  
6 the seismic hazards for their plant. And for flooding, that would go along a  
7 similar vein as the seismic, where licensees would take a look at what we've  
8 learned about flooding in the past decade since these plants have been licensed.  
9 Take a look at all the new information, and similarly, upgrade their plant. But it  
10 would be informed by the walk-downs, it would inform a longer-term, more  
11 permanent solution to whatever seismic or flooding issues we identify.

12                   COMMISSIONER MAGWOOD: That's the way it reads, and I  
13 guess I really, just let me sort of chat with you about that, because it seems to  
14 me that when you do the walk-downs, you have to have a basis in mind as to  
15 what the hazard's going to be before you do the walk-down. So when you do  
16 these initial walk-downs, are we going to do them based on the current design-  
17 basis earthquake? Or are we going to do them on the basis of what we think  
18 might happen? I mean, what's --

19                   ERIC LEEDS: It has to be based on what's current. What the  
20 current design basis -- current known flooding issues.

21                   COMMISSIONER MAGWOOD: And if those, for example, if you  
22 were to have done a walk-down of Fort Calhoun last year, you might not have  
23 walked down with the idea that you would have the flooding we actually saw in  
24 the spring, but --

25                   ERIC LEEDS: Well, sir, I wish you hadn't used that one as an

1 example, because that's where we actually did find an issue with the licensee's  
2 preparedness for flooding and had them upgrade, they actually received a  
3 violation, and we had them upgrade to -- and then, so they were much better  
4 prepared, and that's why they survived this flooding episode.

5 Jim, did you want to jump in?

6 JIM WIGGINS: I would just provide a maybe slightly enhanced  
7 perspective. I'll just add to what Eric said. Again, Fort Calhoun, we did find  
8 some problems with it, Elmo's people found some problems beforehand, but  
9 once the licensee was motivated by the fact that they knew the river was coming,  
10 then they got the right skill sets to go walk down the facility, they found other  
11 things. And they did work before the flood occurred to strengthen the resiliency  
12 of that site.

13 I would go back to North Anna. To me, this is just my own personal  
14 view, part of the reason why you can have an exceedence of a seismic design  
15 without any apparent effect, is it relates to the nature of how these facilities were  
16 actually constructed. You have all this elegant design work and calculations that  
17 engineers do, but they're actually built by constructors that have different sets of  
18 field engineers that use more conservative conventions. So there's a lot of extra  
19 margin built into these.

20 Again, though, if it's a walk-down, having done a walk-downs as an  
21 inspector, I've always found that you -- I think you're getting this, as you would  
22 say, you're best able to find something if you know what you're looking for. And  
23 the key to 2.3, as it separates out from any kind of a normal inspection walk-  
24 down or something that we might be able to reasonably pull off, is the licensee is  
25 going to be required to have the right skills looking at the facility. And I believe

1 that they will react to what they see. There will be things – if you have the correct  
2 skilled individuals there, they can see that something is off. And our expectation  
3 would be that they would react to that as they would to anything you would find --  
4 that's how the ROP, that's the foundation of the oversight process. They won't  
5 make a -- they will react to it. So I don't know if that helps much, but I think the --  
6 I think sometimes people tend to undervalue the effect of a walk-down, and when  
7 you say, well, it will be to current standards, you think you're going to get an on-  
8 the-cheap activity. I don't expect that that's actually what's going to happen.

9 COMMISSIONER MAGWOOD: So I guess what you're saying  
10 then is that the walk-downs, if done correctly, would be to somewhat  
11 conservative walk-downs.

12 JIM WIGGINS: Yes.

13 COMMISSIONER MAGWOOD: It would be based on a best  
14 understanding of what the risks and what the threats are, as opposed to the  
15 specific criteria that might be --

16 BILL BORCHARDT: Another way of saying it, I think, is it's more  
17 than just a simplistic, regulatory compliance walk down. You couldn't have just a  
18 general engineer take the regulations, take the Reg Guides and the Standard  
19 Review Plan, and do what we think needs to be done.

20 COMMISSIONER MAGWOOD: Okay, that makes me feel better, I  
21 appreciate that. And there was a lot of discussion this morning about station  
22 blackout. Commissioner Ostendorff mentioned this also. And as we were talking  
23 with the first panel, it was clear that particularly from NGO participants, that the  
24 idea that this will take four years was kind of, I don't think that they used the word  
25 outrageous, but they may have used the word outrageous. And I appreciate the

1 staff's explanation that it doesn't have to be four and a half years, it could be  
2 shorter depending on priorities. But at the same time, with all these different  
3 things going on, it's unlikely you'll be able to shorten all these things too  
4 significantly; we'll have to be very selective.

5 In that respect, it would seem to make some sense to consider --  
6 and I fully agree with the staff's interest in trying to get the right answer first out of  
7 the box, as opposed to having the wrong answer quickly -- but did the staff give  
8 consideration to interim measures on station blackout before proposing just going  
9 down a rulemaking path? Is that something that you're giving serious thought to?

10 JIM WIGGINS: I think in the staff's view the actions that are in  
11 there separately, namely the 50.54(hh)(2) actions, the expansion, what that was,  
12 you know, the alternative role that those little pieces of equipment provide, would  
13 bolster, would strengthen the unit's capacity to deal with a blackout. I think that  
14 it's important, at least to me, it's important to understand what's going on in this  
15 station blackout rule. We are fundamentally changing the way station blackout is  
16 approached in plants.

17 The current station blackout rule comes with a coping time that's  
18 connected to an assumption about grid reliability and return of service to the grid.  
19 What this rule will do is it will be completely -- it won't need to consider that at all.  
20 It'll segment the station blackout responses into three pieces. An initial piece  
21 where you can apply this coping language, which is a amount of time that the site  
22 will need, with some margin, to use that equipment that's available at the site,  
23 and rig it so that you can bring it to bear for containment core and spent fuel pool  
24 treatment.

25 Then you have this next gap, and the next gap in time. So that



1 piece -- so you have installed equipment, then you have this next increment --  
2 you have the regular equipment, and then you have this next increment of  
3 equipment that's at the site that would be brought to bear. And then you have  
4 this next time period, and that's the time period that they're bringing in off-site  
5 resources. And once you get the off-site resources in place and usable, and you  
6 provide for sustaining those like getting fuel oil, or whatever you need to run the  
7 equipment, you basically have an undefined duration response, you can run that  
8 way for as long as you need to. That's not what the current station blackout rule  
9 does, that's one of the problems with the current station blackout rule. I think --  
10 you know, sometimes I think it gets -- people don't catch the subtlety of what's  
11 going on here.

12           The other part of that is now, I know the Commission is going to  
13 have to make a decision about timing and the staff said yeah, we can probably  
14 advance things, not by shortcutting but by compressing and trying to do things in  
15 parallel that we'd otherwise do in series; you might be able to do that, not without  
16 an opportunity cost.

17           Where was I going with this? You know, I think when you think  
18 about -- oh, what it does is there isn't anything that's going to require you know,  
19 large calculations or large assumptions, it's basically how long will it take to get  
20 this piece -- this increment of equipment in place. That sets how long you have  
21 to be able to survive with normal equipment and how long would it take you to  
22 get the other stuff in place and usable. That's not calculation, that's just basically  
23 assessment of time and motion studies, things like that. It's a little less -- it's a  
24 little more straightforward to do.

25           Once-- the key though, is to figure out what's the assumption about

1 what's going on in the vicinity, that's what we'll have to get with the stakeholder  
2 interaction. Are we looking at seismic, flood, seismic and floods, we look at fires,  
3 tornadoes, whatever, whatever is the scenario that you have to impose in there  
4 so you can understand how hard it will be to get those -- get in to those latter two  
5 phases.

6 COMMISSIONER MAGWOOD: Is it-- sounds like your instinct  
7 might be that at the end of this-- four and a quarter years from now, or whenever  
8 this is done, that we would not necessarily have a change in the coping time is  
9 being the basis of the new rule, it would be something a lot less prescriptive. Is  
10 that a fair --

11 JIM WIGGINS: There will be a period of time that a licensee will  
12 need. I don't know how it's going to come out, but we'll have to see. Will we do  
13 one standard across, but we've heard issues about everything's different, all the  
14 approaches are different --

15 COMMISSIONER MAGWOOD: I guess that's my point, I mean you  
16 don't see this whereas now we have this --

17 JIM WIGGINS: I can see it can go a couple ways. You can go  
18 performance oriented rule or it can go more deterministic with some gates but  
19 you have performance pieces in between the gates. I can see either of those.

20 COMMISSIONER MAGWOOD: All right, that makes a lot of sense.  
21 Thank you.

22 JIM WIGGINS: The point I was trying to make is that a lot of times  
23 what hangs up rulemaking is technical basis development. It's a lot -- this is a lot  
24 more straightforward than ECCS rule change in terms of a technical basis  
25 development, you don't need experiments, you don't need that kind of data

1 analysis. So there is some opportunities for this to be done in a short time  
2 period.

3 COMMISSIONER MAGWOOD: Thanks a lot. Thank you.

4 COMMISSIONER APOSTOLAKIS: Well, let's talk about the walk-  
5 downs. When I read the task force recommendation, I was really perplexed to  
6 what the seismic walk down, what the value of that would be? For flooding, you  
7 know, I could see the doors closing and all that, but for seismic I was perplexed.  
8 And then I read part of an IAEA document, I think is cited in the report, that says  
9 the term plant walk down is used here to denote the seismic capability walk down  
10 for the seismic modules analysis and the fragility walk down for the PSA analysis.  
11 So it seems to me that the walk down is much more than just walking down. It's  
12 some analysis too; it's some fragility work, or capacity assessment that would be  
13 done in an office someplace, not walking down the plants. I'm still a little  
14 confused; can someone explain to me what walk down means and why it's so  
15 important?

16 JIM WIGGINS: I get that one. Let's see, I can try to pawn on the  
17 question and see if I can get away with it, we're going to have stakeholder  
18 involvement up front to figure out what the ground rules are for these key  
19 activities. So one of the things that you would discuss would be what are the  
20 ground rules for the walk down, what are we looking for, and what would we  
21 expect licensees to look for out there, how would they set it up from a staffing  
22 point of view? I can tell you this, we haven't had a discussion in the Steering  
23 Committee of those two definitions, that has not come up. That is certainly  
24 cannon fodder for the stakeholder interaction, certainly something that licensee  
25 might want to do. There was a question in the morning panel that kind of gets to

1 is there some potential of doing more than one thing at the same time. That may  
2 be one of those, I think it came up in the EP discussion and Sue Perkins-Grew  
3 was talking about several things in the EP that can be done simultaneously. It's  
4 certainly possible, but what I envision in these walk-downs, and I think this is  
5 what the team, actually what task force envisioned, is you can send someone  
6 who's a knowledgeable civil structural and pipe design person through the facility  
7 and you can see some things that are maybe rather obvious, you can see  
8 fasteners missing on pipe supports, you can see kind of unusual designs for the  
9 supports, you can look above the system or next to the system and look to see if  
10 there's non-seismic equipment that's in the vicinity that if you have an event the  
11 failure of that equipment affects the seismic, that's referred to in the jargon as the  
12 seismic two over one issue. Those kinds of things can be done in a walk down  
13 and I would contend, at least from a seismic point of view, restore this back to the  
14 way it was originally built, or the way it was intended to be built through the  
15 construction standards, there is a substantial amount of conservatives in most in  
16 these designs.

17           ERIC LEEDS: Can I add a thought Jim. I agree with everything  
18 that Jim said, and recall, we talked about -- you'd have seismic experts do these  
19 walk-downs, not just a general engineer and it would also be -- I think would be a  
20 combination of what you suggested, Commissioner, where there would be some  
21 office work as well as a walk down. Take a look at individual plant examination  
22 for external events, the IPEEE. But we have them go back and take a look at  
23 higher seismic load than they had originally been designed for and these  
24 licensees did that. Well you can mine that for a lot of very pertinent information  
25 that could inform the walk down, what are the most vulnerable systems, how are

1 systems currently configured with snubbers, hangers, piping arrangements, you  
2 know, where are the vulnerabilities. Someone knowledgeable in the seismic  
3 area, there can be some short term, highly worthwhile actions could come out of  
4 that.

5 COMMISSIONER APOSTOLAKIS: I'd feel much better if it includes  
6 a kind of analysis, because even if you are an experienced seismic engineer, just  
7 by looking at something, it seems to me you can't really tell what's going to  
8 happen in the case of a strong earthquake. So, okay, that settles that.

9 You mentioned vulnerabilities, a term that has remained undefined  
10 for 20 years now. If a heavy piece of equipment is hanging over a pipe, you  
11 might say well, gee if you can move it, you're removing a vulnerability, but what  
12 exactly is a vulnerability? Are we relying on the kindness of strangers to interpret  
13 the word vulnerability? The expert says, well, gee do this because it's vulnerable  
14 there. Say, okay we'll do it, unless it becomes too expensive. So what is a  
15 vulnerability?

16 ERIC LEEDS: I'll take a shot and pass this one to Jim right away,  
17 and maybe Jim will come in later. Vulnerabilities. We mine operating experience  
18 for vulnerabilities. We constantly look for ways that we can improve the safety  
19 profile of these plants through looking at operating experience here in the United  
20 States, operating experience internationally. I like to think of operating  
21 experience as the feedback mechanism for the regulator to know how well our  
22 processes and our systems are working, because we'll take what we learned  
23 from operating experience and we'll feed it back to the licensees in the form of  
24 generic communications, in the form of generic letters, in licensing actions, how  
25 we structure our technical specifications, and those -- that's what I would talk

1 about as vulnerabilities.

2 COMMISSIONER APOSTOLAKIS: It's really judgment, that's what  
3 you're saying?

4 ERIC LEEDS: Well we learn from events, we learn every day. And  
5 when you have those learning's, you got to mind them, you got to understand  
6 them, and then you pass that information out and you pass that knowledge on.  
7 And you have other plants learn from that and that's how the industry gets safer.

8 COMMISSIONER APOSTOLAKIS: Okay. I'll come back to  
9 something I raised this morning about the seismically induced fires, floods and  
10 maybe other things. Which brings a more general question in my mind, I mean  
11 we have the three tiers -- by the way, as a side remark, Tier 1 says  
12 recommendations which should be started without unnecessary delay, you don't  
13 imply that the others should have a necessary delay, obviously.

14 Tier 2, are recommendations which could not be initiated without  
15 delay, due to factors that include need for further technical assessment and so  
16 on. In Tier 3 require for the staff delay, but I think there is an implicit  
17 consideration here to safety significance, right? You didn't bother to put it down,  
18 but that's the number one consideration.

19 Well, again, as I said this morning, when we think of something as  
20 a community, we usually do a pretty good job because it's not just one guy  
21 saying, "Let's do this." There is a process. There is people thinking and so on.  
22 So, the real concern is the unknown unknowns, something that we haven't  
23 analyzed or known unknowns, that we know that an earthquake can cause a  
24 flood, but we haven't really analyzed it, and then we find it and we have a  
25 problem. So, one of the major lessons from Fukushima in my mind is, you know,

1 the tsunami following -- or caused by the earthquake. And I would -- I'm a little  
2 uncomfortable saying that this is a Tier 3.

3           Now, it could be 2 or 1. In my mind, it should be 1. Now, what  
4 does that mean? Again, without the necessary delay, it seems to me that in  
5 order to do that somebody has to develop some approach, some methodology,  
6 and I don't see why we cannot start it immediately. To have maybe a group of  
7 smart people think about how to approach this problem. If you say that no, it's  
8 really Tier 2 because we need the results from Tier 1, again, that's debatable.  
9 But, again, reevaluating the design basis -- the seismic design basis or the  
10 flooded design basis, I don't think that's going to enlighten the methodology, the  
11 development of the methodology for a flood following an earthquake. So -- but, I  
12 certainly disagree that it's a Tier 3. So, you can argue 1 or 2 and when to start  
13 and to what level, maybe somebody has to approach it at the conceptual level  
14 first, which doesn't cost much money, usually those guys are fairly inexpensive.  
15 Then, you know, you go into more detail, what it would take to do it, and so on.

16           So, I'm really -- I would say that this is not a Tier 3 and maybe it's  
17 really Tier 1, but I'm willing to live with Tier 2, and I wonder if you have any  
18 objection to that.

19           BILL BORCHARDT: I'll tell you, I'm not on the Steering Committee,  
20 but as a consumer of the product, I was comfortable with Tier 3 on this item for  
21 the reason that the methodology still needed to be developed. So, in my mind  
22 the work of doing, of carrying out the methodology is Tier 3 because we're  
23 waiting on the developmental work to take place. Well, now, you could put the  
24 developmental if you've got more refined in the number of steps required, you  
25 could make the development of the methodology Tier 1.

1 COMMISSIONER APOSTOLAKIS: That's what I said.

2 BILL BORCHARDT: And start right away. So, I think, maybe we're  
3 not quite so much disagreement, but that's how I read it.

4 COMMISSIONER APOSTOLAKIS: Okay.

5 JIM WIGGINS: I think you can't underplay the resource piece to  
6 this, and it's a question of where would you put your seismic and flooding  
7 people? They're going to be fairly occupied with this 2.1 or 2.3.

8 COMMISSIONER APOSTOLAKIS: That's why I said that.

9 JIM WIGGINS: So, it comes down to 2.1 and 2.3

10 COMMISSIONER APOSTOLAKIS: The safety concern is also  
11 important here, and we can debate that, but I think it is important. It is an  
12 important safety issue. And, I mean, if -- the difference is what Bill mentioned  
13 that, you know, starting the conceptual development of a model, he doesn't see  
14 that as part of the actual thing. And that can start earlier. I don't see any  
15 problem because somebody has to think about it, how to approach the issue, and  
16 it's independent of the design basis or what you're going to learn in Tier 1.

17 JIM WIGGINS: I'm probably speaking a bit out of school, but if you  
18 look at the EP version of this discussion, it comes out to flat out skill set  
19 availability, you know. There's just not enough time to do everything. And you  
20 have to pick.

21 Now, in addition, now the EP's got some advantages that the others  
22 don't, in terms of if there's time that becomes -- if there's a skill that becomes  
23 available because you're somewhere in a gap between the other thing that's  
24 going on, you know, theoretically, once you set up the rules for the, say, the walk  
25 down for seismic and flooding and once you set up the rules that are going to be



1 applied to the 2.1 issue then you might be able to spring some people free to  
2 start working the other. But, you know, that pops up in EP. Like, today, if we  
3 were able to get going we could actually do some stuff because the OMB's not  
4 cleared the rule yet. So, that's the biggest hurdle that we're looking forward to.  
5 But, what it does is it creates a gap that we have some skills that are available  
6 that are not occupied doing the outreach that's going to tie them down on the  
7 new rules. So, we could go out and do some of the things you're suggesting,  
8 even more than the Tier 1 and arguably the Tier 2 stuff. We could go out and  
9 start discussing it. But, I'm not sure that -- what the deal is on seismic, but I  
10 would hazard a guess that it's a close comparison. There is skill to do it.

11 COMMISSIONER APOSTOLAKIS: It seems like the plant  
12 responded very well to the earthquake.

13 JIM WIGGINS: Yes.

14 COMMISSIONER APOSTOLAKIS: So, I don't know why we're  
15 checking out design basis as number one priority. They did very well. I'm  
16 running out of time. You have something urgent to say? No, you don't.

17 [laughter]

18 Go ahead.

19 ERIC LEEDS: I appreciate the opportunity. Thank you. I would  
20 like to say one thing. I don't want to leave the public and our external  
21 stakeholders with the wrong impression from this morning's conversations about  
22 how long it takes the agency to move out on some items. On March 11th, the  
23 day of the Fukushima event, we had staff members on a plane headed for Tokyo  
24 to assist the U.S. Ambassador, to assist the government of Japan, to help our  
25 U.S. citizens over in Japan the day of the event. You look back at Hurricane

1 Katrina, before that hurricane ever made landfall, we had Regional staff as well  
2 as emergency preparedness experts from headquarters at the Waterford site,  
3 you know, less than 20 miles from New Orleans before that hurricane hit. We  
4 were there. Commissioner Svinicki used a third example that I would use. After  
5 9/11 we took immediate action to improve the security profile of our -- of the  
6 plants here in the United States. When there's a health and safety issue, when  
7 there's a clear and present danger, the NRC staff acts and acts immediately.

8 Thank you, sir.

9                   COMMISSIONER APOSTOLAKIS: Thank you. Any closing  
10 comments from my colleagues here? Well, thank you very much, gentlemen.  
11 Very helpful as usual .

12                   [Whereupon, the proceedings were concluded]