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UNITED STATES NUCLEAR REGULATORY COMMISSION  
BRIEFING ON FIRE PROTECTION ISSUES

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THURSDAY

July 17, 2008

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The Commission convened at 2:00 p.m., the Honorable Dale E. Klein, Chairman  
presiding.

NUCLEAR REGULATORY COMMISSION

DALE E. KLEIN, CHAIRMAN

GREGORY B. JACZKO, COMMISSIONER

PETER B. LYONS, COMMISSIONER

KRISTINE L. SVINICKI, COMMISSIONER

1 PANEL 1: STAKEHOLDERS

2 RICHARD MUENCH, President and CEO, Wolf Creek Nuclear

3 Operating Corporation

4 JOSEPH DONAHUE, Vice President Engineering, Shearon Harris

5 Nuclear Plant, Progress Energy

6 DAVID BAXTER, Site Vice President, Oconee Nuclear Station, Duke

7 Energy

8 KEN CANAVAN, Senior Program Manager, Risk and Safety

9 Management, Electric Power Research Institute (EPRI)

10 JIM WARREN, NCWARN

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1 PANEL 2: NRC STAFF

2 WILLIAM BORCHARDT, Executive Director for Operations

3 JACK GROBE, Associate Director for Engineering and Safety

4 Systems, Office of Nuclear Reactor Regulation

5 MARK CUNNINGHAM, Director, Division of Risk Assessment, Office

6 of Nuclear Reactor Regulation

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CHAIRMAN KLEIN: Good afternoon. We're meeting today to have a briefing on fire protection issues. We're going to hear about NFPA 805 and the pilot programs. We're also going to talk about the fire PRA modeling. We'll hear first from a group -- from industry and then later we will hear from our staff.

This is an area where it has not been a stellar performance I think either for the NRC or the industry. One of the objectives I think we all hope to come out of this meeting today is a closure plan with definite milestones and deliverables. So, with that in mind, any comments from my fellow Commissioners?

COMMISSIONER JACZKO: I'll just make some brief comments. I appreciate the Chairman's comments and I agree. I think this has not been one of our most transparent and consistent regulatory initiatives and that dates back several decades, I think.

And I do think we need to get to the point where we put closure to this issue and we have a clear, transparent regulatory program that licensees can comply with and it is clear when they're not complying and we enforce against noncompliance.

And that the public is able to understand what the level of protection is at facilities and what we're doing to ensure that that protection is established.

And I don't think that either of those criteria -- any of those criteria are currently being met by our fire protection program. I think that is something that we do need to address.

1 I do continue to believe that NFPA 805 provides a path forward, but it will  
2 only provide a successful path forward if we're able to ultimately enforce whatever  
3 regulatory provisions we have in place, whether they be the existing regulatory  
4 provisions or the new provisions for NFPA 805.

5 So, I look forward to hearing the comments today from individuals and then  
6 from the staff as well as we go forward.

7 CHAIRMAN KLEIN: Commissioner Lyons?

8 COMMISSIONER LYONS: I guess I, too, would like to comment that  
9 this area has probably raised more concerns in my mind and in my time at the  
10 NRC, more concerns than any other area.

11 I was dismayed shortly after Greg and I arrived to hear that some of the  
12 Hemyc tests were still ongoing and that truly did amaze me. I agree it's an area  
13 where I think in retrospect we could have and should have been moving faster.

14 At the same time, I have been impressed in visits now to many, many sites  
15 that we have -- that the licensees have under our oversight put in appropriate  
16 defense in depth and compensatory measures.

17 Nevertheless, it's not an area that I think is, as you said, a stellar  
18 performance by the agency and one that I would look forward to changing. And I  
19 look forward to this meeting as being a step towards those changes and towards  
20 closure on the whole issue.

21 CHAIRMAN KLEIN: Well, I think you might -- as I recall you're going  
22 to be starting with your presentation.

1 MR. MUENCH: That's correct. Thank you for the introductions. I  
2 appreciate the opportunity to brief the Commission on the status of Industry  
3 activities to address the fire protection issues that you've discussed. And if we go  
4 to the next slide.

5 As requested we'll be covering Operator manual actions, fire induced circuit  
6 failures and the implementation of NFPA 805.

7 I'd point out on the last topic there'll be three other speakers who will touch  
8 on fire PRA and so forth. So, we'll be covering that in a fair amount of detail this  
9 morning.

10 As far as Operator manual actions are concerned, that's the third slide. The  
11 licensees are working very hard to complete their corrective actions for the  
12 inspection findings that need to be resolved before March of 2009 consistent with  
13 the enforcement discretion. We all intend to be there on or before that date.

14 I would point out to be clear that there is an overlap between that activity  
15 and the activity to address circuit induced -- or fire induced circuit failures, multiple  
16 spurious operations because in both NFPA 805 and in the proposed alternative  
17 approach that's contained in SECY-08-0093, there are allowances for Operator  
18 manual actions under certain circumstances; credible Operator manual actions.  
19 And so, I think what you'll find is that in some cases some of the Operator manual  
20 actions that have been -- that will have been dispositioned by March of 2009 there  
21 may be a change in those as a result of the application of the methodology NEI  
22 00-01 and SECY-08-0093; the methodology that's in SECY-08-0093.

1           In addition to that obviously you'll see more application of Operator manual  
2           action subsequent to March 2009 if we adopt that methodology. So, I just wanted  
3           to clarify that.

4           As far as fire induced circuit failures, we have reviewed the information  
5           that's in the SECY-08-0093. Of course, we've discussed many elements of that  
6           with the staff before the issuance of that document.

7           Conceptually, we believe it's a meaningful alternative to addressing fire  
8           induced circuit failures, multiple spurious operations. There are a lot of details that  
9           we need to work out and according to the schedule that the staff has proposed we  
10          need to work those out before the end of the year.

11          There's quite a bit to do before the end of the year and we're committed to  
12          working quickly and frequently to resolve those details.

13          These have to do with making sure that we draw the right line between the  
14          required training and the associated circuits. We address issues having to do with  
15          making sure that we can make adequate use of fire modeling and other issues  
16          such as the application of 3G3.

17          We have some questions about the treatment of multiple spurious  
18          operations when we control shut down from the ultimate shutdown panel. But as I  
19          said, we're committed to address those issues and we're optimistic that we can  
20          resolve those details.

21          In addition, we still believe probably one of the important points of  
22          contention between us and the staff at this point still is some use of risk insights

1 and I'll talk a little bit more about that a little bit later.

2 For the next few months, we intend to continue to meet with the NRC to  
3 discuss and ask the questions about the details, make sure that we understand it  
4 correctly and make sure that we know how to proceed in a way that we can apply  
5 that methodology consistently across all the different plants in the United States.

6 And in parallel with that we will be developing implementation guidance for  
7 the use of risk insights for resolutions of some remaining issues after the  
8 application of that methodology and preparing a revision to the industry guidance  
9 in NEI-00-001.

10 Our goal ultimately would be for the NRC to endorse that guidance.

11 On the next slide I talk about the use of risk to address fire induced circuit  
12 failure in associated circuits. We believe that's appropriate to a limited extent.

13 Even for non-NFPA 805 plants we believe the regulations do not prohibit it.  
14 We believe it's consistent with the Commission's policy statement on the use of  
15 PRA and the failure to allow that could result in some potential less than optimum  
16 situations.

17 So, the first one would be the actions -- we could decide to adopt some  
18 Operator manual actions for associated circuits, for example, that while they would  
19 be safe and they would result in a level of risk that's very acceptable they may not  
20 be as -- they may raise a relative risk compared to what it would be if we did not  
21 take those actions.

22 For example, if you had a spurious operation of a valve that isolated the



1 refueling water storage tank from the safety injection system we may choose --  
2 and this is just a very hypothetical example -- we may choose to take a safety  
3 injection pump and put it in the pull to lock situation until we were able to ensure a  
4 flow path for that safety injection pump.

5 As long as we could prove that that was a credible action and we had an  
6 amount of time necessary to do that. Whereas if you would model it with your risk  
7 model it would say you probably didn't need to take that action in the first place.

8 We think it could result in a time-consuming and costly requests for  
9 exemptions and license amendment requests and perhaps even costly  
10 modifications to our plant for low risk and low safety significant items.

11 I'd like to move ahead to the transition to a NFPA 805. Of course, the  
12 license amendment requests for the pilot plants, Oconee and Harris, are in. We  
13 think it's important if you look at the other 14 utilities with 46 plants that have  
14 committed to NFPA 805, we think it's important to learn the lessons from those  
15 pilots. We have learned a lot about those licenses submittals already and we're  
16 sure we're going to learn some more as your review proceeds on those license  
17 applications.

18 We want to make sure that the ensuing plants have the benefit of  
19 refinements to our license application request template, that we resolve some PRA  
20 issues that have surfaced in the development of those models, and we want to  
21 take full advantage for the ensuing plants for learning from the request for  
22 additional information that will come on the pilot plants.

1           We'd like to give you the next round of submittals that minimize your effort  
2 because we've answered those questions -- as many of those as we can -- in the  
3 ensuing license amendment requests.

4           Fire PRA is a challenge. You're going to here a little bit more about that  
5 from Joe and Dave and especially Ken. The preliminary results are conservative.

6           That can resolve in us taking some actions that are less than optimum and  
7 we're working with the NRC to improve on that modeling and to make the model  
8 more realistic. Our goal is to resolve those issues by the end of this year.

9           The final slide, I'd like to talk a little bit about the extension to enforcement  
10 discretion. We have received a copy of the proposed staff approach to extending  
11 enforcement discretion.

12           We have on two occasions in the past few years submitted a proposal that  
13 was different than the staff's proposal. In the staff's proposal we are delaying the  
14 plants that would be committed to submit their license application request within  
15 the first six months of the safety evaluation reports for the pilot plants.

16           They would be allowed six months to make that application and people who  
17 are scheduled after that would look to their current committed schedule. We are  
18 concerned about the resource constraints in our industry.

19           We think that approach will exacerbate that and attenuate the peak demand  
20 on those resources by overlaying the development of the models and the license  
21 application request for those plants on top of some of the later plants that will be  
22 making their application.

1           So, we would request that the Commission consider an alternative  
2 approach where we would come up with a more realistic schedule for all of the  
3 ensuing plants, not just the plants that are scheduled to submit in the first six  
4 months after the SER. That concludes my remarks.

5           CHAIRMAN KLEIN: Thank you.

6           MR. DONAHUE: First of all, I'd like -- Joe Donohue, Vice President,  
7 Progress Energy. I appreciate the time to discuss our transition. First of all, I want  
8 to state that we realize and we think it's very important that fire protection really is  
9 a defense in depth approach and I think that's an important piece both in  
10 preventing fires, prompt detection of fires, control and suppression of fires and the  
11 separation of safety systems.

12           And by bringing all that together, we do believe that NFPA 805 gives us our  
13 best tool for improving the safety at our plants.

14           A little bit about the fire PRA implementation. It is a very significant effort  
15 and I will admit that it was probably -- we did underestimate the size of the effort it  
16 was going to be.

17           Extensive fire walk-downs were done in the plant which actually is very  
18 good because we now model every fire source that we have in our plant.

19           We have evaluated over 4,000 fire scenarios so when we actually run the  
20 fire PRA model we try to look at as many opportunities and that allows us to get at  
21 not only the way the plant is designed, but then the hot short issues and the  
22 multiple hot short issues. But it is running 4,000 fire scenarios.

1           We did have an extensive preliminary review with the NRC team in March  
2 that did come in when we were not fully complete with our fire PRA. We do  
3 appreciate their time coming in. It was very good input at that point in time.

4           Many of their comments we had on our radar screen of areas we needed to  
5 finish up, but getting that information was important to us. In the time from the  
6 NRC peer review – our review, we spent an awful lot of time in the last two months  
7 finishing the PRA, taking as many of their comments to heart and we believe we  
8 addressed many of the concerns from the team.

9           We brought in an additional industry expert team, some of which have been  
10 involved in the 6850 process, which is important because that's the basis of our  
11 fire PRA.

12           And we did a focus review on those areas that the NRC felt that they could  
13 not pass judgment because we were not complete in those areas. So, we do  
14 believe with the submittal of the fire PRA that came in with the LAR that we do  
15 have a very strong PRA that for the most part meets Category -- greater than  
16 Category 2 and 3 quality standards.

17           We have some that are Quality 1. We do have a couple open items we're  
18 working on. Predominately, that's in the area of documentation. And we do look  
19 forward during the NRC review of our LAR that they'll come back and take a look  
20 at where we are and substantiate our completion of that model.

21           We do believe that the fire PRA that we did submit is accessible for use in a  
22 risk-based application. In this case, NFPA 805.

1           We did spend nearly 50,000 man hours; 20,000 probably in what I'll call the  
2 safe shutdown area and the transition area and another 20,000, 25,000 in the fire  
3 PRA. So, it was a very extensive effort, but I do believe we've got a good model of  
4 the plant.

5           The other part to keep in mind is a lot of times we focus on the fire PRA. It  
6 is just one input into making decisions as we move forward because we still have  
7 defense in depth.

8           We use the safety margins in the plant and the actual modeling and we use  
9 the fire PRA to make the risk decisions or to make the right decisions. It is not just  
10 based on one model and one tool.

11           Also, as we transition to NFPA 805 you do carry forward your classical fire  
12 protection requirements: fire brigade, fire training, fire programs, corrective action  
13 programs and we have carried those over and we affirmed our programs at Harris  
14 as it exists today.

15           We have looked at implementing a nuclear safety performance criteria  
16 consistent with the new code. We've addressed fire safety and non-power  
17 operations, which we have not done before. So, we have that in our toolbox.

18           But as I mentioned, the transition resources were far greater than  
19 estimated, but we'll take that, have shared that with the industry and will continue  
20 to share that with the industry and we will improve on that as we deploy across our  
21 fleet.

22           Generic issues addressed: Not only did we ensure we're in compliance

1 with the NFPA 805. We did address the Hemyc and Mt fire wrap. We did  
2 extensive testing of our equipment and our fire wraps physically in the plant and  
3 incorporated that into our models.

4 We have addressed the manual actions that were addressed in the risk  
5 2006-04 and we have addressed the multiple hot shorts in our model and in our  
6 LAR as we go forward.

7 Even with the NFPA 805, we are implementing modifications: new cable  
8 raceway, new fire rated cable upgrades to the Hemyc wrap to make it compliant  
9 with the code, additional cable separation and we have added some incipient fire  
10 detection in critical cabinets.

11 Eighteen mods are complete to date, so we're not waiting to the LAR. We  
12 have another set of mods on our next outage and we do plan to complete our full  
13 compliance mods by the end of 2010.

14 We hope the SER is approved by March of next year and we'll be  
15 implementing the mods as we go forward.

16 So, kind of in summary, NFPA 805 transition has been submitted. We do  
17 believe it's a good process, but it does take significant resources and we are on  
18 track to complete our implementation by the end of 2010 with both transition to the  
19 code and the modifications to the Harris plant. Thank you.

20 CHAIRMAN KLEIN: Thanks. Dave?

21 MR. BAXTER: I'm Dave Baxter. I'm the Site VP at Oconee nuclear  
22 site. I had the great fortune of seeing some of the presentation Joe was going to

1 do, so I was not going to repeat some of the same things hopefully.

2 One of the things I wanted to mention was Oconee being one of the older  
3 plants; we're celebrating our 35th year in commercial operation actually this week.  
4 I think we've proven that using NFPA 805 it's a good fit for older nuclear sites and I  
5 think it will be for the other older nuclear sites as they come along. So, it is a good  
6 fit.

7 One of the things that we've learned from a lessons learned point. On our  
8 safe shutdown analysis when we first went into Appendix R we looked more at  
9 where cables were not. And to really truly implement 805 you have to find out  
10 where all the cables are.

11 And so, we had a large reconstitution effort to find out where all the cables  
12 are because we started from Appendix R a different flow path than some did  
13 knowing what functions we needed; figuring out where cables were, where fires  
14 were.

15 And so coming into 805 we had to start with the reconstitution effort. We  
16 had already started that before we moved into 805, but that was a big chunk of our  
17 work was just the reconstitution effort of finding out where every single cable is.

18 Going through the pilot process as any pilot process it's complicated, it's  
19 time-consuming and sometimes expensive. You go to numerous industry  
20 meetings.

21 We try to stay in lockstep with Harris and with the industry because we  
22 weren't just representing Oconee, we were representing the industry. So, that

1 adds some to the time and some to the complications.

2 Like Joe, we probably spent somewhere in the neighborhood of 60,000  
3 man hours on this project up to this point. And again, a good part of that was  
4 reconstitution.

5 Looking at it further down the road and just going through the  
6 implementation phase, not counting the modification, for the three units at Oconee  
7 we'll probably spend about \$10.5 million to go through this process.

8 As we were going through it one of the things we found that documents and  
9 calculation reviews took a little bit longer than we expected. We had a main team  
10 doing the work and taking some of the burden off the plant folks and the plant  
11 engineers, but in the end the plant engineers have to own it, operations has to own  
12 it and so that review process does hit at the end of the project.

13 We didn't give ourselves enough time for that review. That's one of the  
14 things we learned and as we go forward we'll make sure that doesn't happen  
15 again.

16 We also made an assumption early on, Oconee being a three unit site, we  
17 were hopeful that we could have one fire PRA for the site; that the units would be  
18 similar enough that we could just have one fire PRA.

19 What we found as we were going through the cables and the fire PRA  
20 Unit 1 and 2 are similar enough to have a PRA in and of themselves, but Unit 3  
21 was different enough that we ended up with separate PRAs for the site.

22 So, we have a Unit 1 and 2 fire PRA and a Unit 3 fire PRA which adds



1 some to the cost and to the time.

2 As we work through NUREG-6850 we found that it turned out to be  
3 somewhat conservative, but it also allows you to do some detailed analysis in  
4 those areas where you might have a hard spot or a burden. And that's very good  
5 to have in there.

6 We believe it's a good foundation to build on, but there are efforts on the  
7 staff's part and the industry's part to continue to fine-tune it as we go through the  
8 process and that's very important to do that.

9 Although we recognize that there's further tuning to do to NUREG-6850, we  
10 still believe that the basic fire PRA models realistically modeled the plant. There  
11 are a few places where we had to do some detailed analysis, but in general it  
12 worked.

13 And again the process was fairly manpower intensive. The modifications  
14 that we'll do for both the fire PRA -- we have some modifications that we're doing  
15 for other issues at Oconee that we'll take credit for and this will just add to it.

16 Go ahead, Dale.

17 CHAIRMAN KLEIN: Thank you, Dave. Ken?

18 MR. CANAVAN: Good afternoon. Ken Canavan, Risk and Safety  
19 Program Manager for the Electric Power Research Institute, sometimes referred to  
20 as EPRI.

21 I'm here today to discuss a little bit about fire PRA technology and that's  
22 Probabilistic Risk Assessment for those who aren't familiar. My presentation today

1 is divided into three parts.

2           The first is EPRI's fire PRA philosophy. The second is a little bit of  
3 information on the methods development for fire PRA and the third relates to some  
4 methodological issues as well as our progress to date on some of the  
5 conservatism's that you've heard about earlier today and some of the challenges  
6 that we see in the future for fire PRA methods. Next slide.

7           The EPRI fire PRA philosophy and, in fact, the general philosophy of the  
8 risk and safety management program at EPRI is consistent with the PRA policy  
9 statement which endorses and encourages the use of risk technology in all risk  
10 informed regulatory matters as supported by the state of the art and in this case  
11 EPRI is committed to supporting the risk informed performance based approach  
12 for fire protection.

13           What does that really mean? Well, it means that we need to develop and  
14 use realistic methods which involve research to reduce the conservatisms or the  
15 bounding approaches that we initially adopt as a way to simplify our models, to  
16 make our models more attractable.

17           It involves the collection of realistic input, operational experience and other  
18 events so that we can reflect the as built and as operated plants.

19           And lastly, all good risk informed approaches involve monitoring and  
20 feedback process. So, looking into continuing to improve the methods and the  
21 data collection so that we can ensure that the applications we do today remain  
22 applicable in the future.

1           Generally, this approach applies to all risk informed regulations regardless  
2 of the hazard group that they're in. Next slide.

3           In the area of fire PRA method development. NUREG/CR-6850 and EPRI  
4 1011989 is a joint NRC and EPRI -- NRC Research and EPRI developed  
5 document that provides the majority of guidance for developing a fire PRA. It's  
6 commonly called 6850 for short. I don't understand why people don't use EPRI  
7 1011989. I guess it's a little harder to say.

8           During the development process portions of the methods were piloted  
9 individually and at various plants, but no integrated pilot was performed during  
10 development process.

11           Currently, there are two fire PRA pilots of the integrated type and you've  
12 heard some of their results already today. These pilots are the first time it's  
13 integrated and as an integrated methodology as we outlined in 6850 and initial  
14 results are conservative.

15           That outcome is not unexpected. Actually, it's quite expected. And it's a  
16 product of a number of minor to moderate individual conservatism's that come  
17 together in ways that were not predicted by individual pilots of selected portions of  
18 the methodology.

19           Some of those individual minor or moderate conservatism's are in the  
20 methods and some are in the first time application of the method's  
21 misunderstanding, for example, which is easy to occur when somebody is writing a  
22 several hundred page guidance document.

1 But at this point it's important to talk a little bit about where conservatism is,  
2 and at least to some degree, it's present in all PRAs. And it's important to note  
3 that it's okay, but significant departures from reality are not desirable from a PRA  
4 perspective. So, we don't want to get too far from it, but minor conservatisms are  
5 expected.

6 I have a little analogy here and at the risk of getting myself in trouble I'm  
7 going to go ahead and use it. Conservatism in the PRA is like clouds to an  
8 astronomer. The clouds can make it a little bit hard to see exactly what you want  
9 to see or they can make you wait till another day or put in a little more work to see  
10 clearly the risk insight you need to get. Next slide.

11 COMMISSIONER JACZKO: I think you survived that. Good  
12 analogy.

13 MR. CANAVAN: I was a little nervous about that. I put up a number  
14 of the fire PRA methodology issues that we're working through right now in the  
15 area. I won't go through the whole list, but I will go through a couple of my  
16 favorites

17 Fire ignition frequencies. We need to review and potential revise the fire  
18 ignition frequencies to reflect the as-built/as-operated plant and what kind of  
19 experience we're seeing today.

20 Credit for incipient detection. Currently the methodology in 6850 does not  
21 describe or recommend a treatment for the incipient fire protection systems in the  
22 PRA, which means if you put in an incipient system you wouldn't get full credit in

1 the study. That's sort of important reinforcement to good behavior.

2 Treatment of large oil fires. We need to clarify some of the guidance on  
3 modeling of large oil fires. And I'll let you read through the rest of the issues and  
4 just move on to my next slide, Others Issues, Progresses and Challenges.

5 In the area of other issues there's a shortage of trained risk personnel. This  
6 affects not only the fire PRA performance, but although more acutely in fires  
7 because there's even less people qualified to do fire PRA, but risk analysis in  
8 general are in short supply.

9 It's due to attrition, even to other industries like aerospace and  
10 petrochemical industries, as well as normal attrition due to retirement.

11 Practical modeling limitations. We've heard a little bit about fire modeling.  
12 There's actually two kinds. There's the probabilistic kind and then there's the fire  
13 growth and propagation modeling.

14 And in this case we're talking about fire propagation and growth, which  
15 have some limitations. And in some cases a limited amount of judgment is  
16 necessary to address the fire growth and propagation issues and ways to  
17 document that and what is considered good judgment needs to be put in the  
18 guidance. Okay. That's the issues.

19 Progress. Hopefully this is good news. Education of risk professionals and  
20 fire PRA training are being performed. Education of risk professionals - EPRI has  
21 a one-year course designed to train the next generation of risk professionals and it  
22 occurs over a year.

1           We recently had 14 graduates in June and in the area of fire PRA training  
2 we're offering training periodically both by the NRC and by EPRI. These courses  
3 are usually joint with the developers of 6850.

4           And not only that, but vendors and consultants are now offering training on  
5 a per fee basis. So, there's training out there if you really want it.

6           EPRI and NRC Research are working to refine the PRA methods and draft  
7 resolutions are under development for all those issues identified on the previous  
8 slide.

9           These resolutions are being developed by the extended 6850 team, which  
10 includes not only the original 6850 team, but it's augmented by other industry and  
11 NRC personnel.

12           And significant progress has been made in a very short period of time. It's  
13 impressive. We think the extended 6850 team deserves credit for the amount of  
14 work accomplished in such a short period of time.

15           However -- there's always a however -- challenges remain and these  
16 include the available resources. And while we're training people as quickly as we  
17 can, training qualified people does take some time and there are some time  
18 constraints and the iterative nature of fire PRA development.

19           Just as a quick aside, prior to NFPA 805, fire PRA methods were being  
20 developed by EPRI and NRC and they were on a much slower pace to completion  
21 then they are now.

22           And while 805 has accelerated development, it's clear that we're going to

1 have some -- at least short-term -- that the methods will evolve over at least the  
2 short term.

3 But as an aside and in closing I did want to say that internal events PRA  
4 methods have matured over the last decade or so and they continue to evolve and  
5 mature. And they still remain important tools to safety. And that concludes my  
6 remarks.

7 CHAIRMAN KLEIN: Thanks, Ken. Jim?

8 MR. WARREN: Hello. Jim Warren with NCWARN. (Low audio)

9 However, from this morning's meeting, It's quite clear that NRC is still many years  
10 away from enforcing fire protection regulations.

11 A lot of hard work and important work is being done by NRC staff and the  
12 utilities, but it really looks more as if NFPA 805 has become a PR exercise to  
13 make Congress and the public believe that a serious problem has finally been  
14 solved.

15 A lot of hopeful talk this morning in the kickoff ceremony and it was kind of  
16 amazing. The only thing lacking was a burnt offering, but when you got into the  
17 actual discussion and what you're hearing today is there are just major  
18 overlapping complexities with this approach.

19 And even if it were an excellent approach it's looking like a 10 to 20 year  
20 program. It feels like 805 is yet another end run, a scheme to relax the regulations  
21 instead of requiring the utilities to spend the money to correct known deficiencies.

22 We heard this morning that there are 47 units committed to moving to 805.

1 There is no timeframe being offered. The staff is seeking another extension for  
2 enforcement discretion, so it looks like that's indefinite.

3 Progress Energy predicts compliance of Harris in late 2010, but NRC  
4 admitted to me earlier, the staff, that it has no authority to prevent licensees from  
5 changing schedules shown in the LARs.

6 Oconee at this point cannot even predict a compliance date. I'm concerned  
7 that Harris may have skipped some steps since the March preliminary assessment  
8 from NRC.

9 Our understanding was they had to complete both the NRC and  
10 independent peer reviews prior to the LAR and this morning we learned that NRC  
11 itself performed what was planned to be an independent peer review.

12 And I'm concerned and ask you was this done in order to help Harris beat  
13 the clock on enforcement discretion running out? I'm concerned that the LARs  
14 were filed early to mute public concern. And I'm concerned it creates more  
15 pressure for the staff to allow them to skip more steps.

16 Now, this is -- if some of you have been following, it seems like a parallel  
17 mess to the COLA process where you get design certification intertwined with  
18 application reviews and I caution you to watch out for this. You're talking about  
19 pressing your NRC staff and putting them into a really tough situation here.

20 North Carolina and I in particular, we've been hearing promises -- similar  
21 promises from CP&L and Progress Energy for years and years. They've  
22 repeatedly promised to correct all the fire non-compliances for over 10 years. And



1 these are for laws that were prescribed in 1980.

2 I ask you also -- Congress Appropriations Committee is calling for, "full  
3 compliance on an expedited basis". And I ask you what does that mean to you?  
4 Does expedited mean years and years more?

5 I'm concerned your predecessors have caved so many times to this industry  
6 on Thermo-Lag, on Hemyc/Mt and I urge you not to cave on 805.

7 The chronic inability for the industry and the NRC to conform with the  
8 explicit criteria and the existing regs is an unsound basis for shifting to the vague  
9 and nondescript criteria of the 805 option.

10 Now, NRC told the GAO that there hadn't been too many serious fires. Of  
11 course, that's a problem with trying to get a database large enough to help with  
12 PRA.

13 I'll remind you, there was a trade journal called a major fire at Shearon  
14 Harris in 1989. There are dozens of emergencies declared at US plants. That  
15 designation is supposed to mean something. There are more fires likely in the  
16 future due to the aging of the cable jacketing.

17 In 1993, Congressman Dingell was promised that the fire watches would be  
18 limited. The industry went from fire watch to unauthorized OMA while hiding it  
19 from the NRC. Where was the penalty for that?

20 The GAO obviously notes a lot of concern about the risk assessment and  
21 the real problems with modeling in gray areas in risk assessment, lack of  
22 resources. We're hearing it across the board. This is not a good basis for moving

1 into a new regulatory scheme.

2           Meanwhile, 805 clearly is a weaker set of regulations including real  
3 problems with inspectability. And as of now we understand from the former head  
4 of the fire unit at NRC that fire areas and noncompliance are not being inspected.

5           If you can't enforce current, direct regulations then how are you going to  
6 enforce gray coated PRA? You can't PRA a deliberate fire or one involving  
7 thousands of gallons of jet fuel.

8           It really looks like you're facing years of more exemptions, enforcement  
9 discretion, terribly inefficient use of staff resources, and years of more reliance on  
10 interim -- so-called interim comp measures even though as GAO pointed out NRC  
11 has identified weaknesses in comp measures in particular over reliance on fire  
12 watch.

13           Now, we're hearing talk about even more OMAs coming forth. So, I ask you  
14 Commissioners to be as serious about the time frame on this issue as you are  
15 about the time frame on new reactors.

16           Fire protection is only one part of the many systems and functions in a  
17 nuclear power plant. How can Progress and Duke and NRC move so rapidly  
18 through fire protection and all the other topics for a new plant in considerably less  
19 time than it takes to resolve known fire protections at operating plants?

20           Another question for you. Will the NRC commit to completing this safety  
21 compliance program industry-wide within the planned time frame for nuclear-- for  
22 new reactors? Why should the public expect any less? Because with fire regs

1 you have a 30 year head start. I challenge you to please do that.

2 Public confidence in NRC continues to decline. Maybe you know that. It's  
3 for good reason.

4 Here's an issue no one has addressed and we'd sure like to know. Maybe  
5 you can find out. Progress spent years of meeting with NRC staff, came up with a  
6 set of Thermo-Lag corrective actions that we believe they abandoned many of the  
7 corrections in favor of OMAs. Did NRC staff ever go back and compare what  
8 Harris consented to do with what they actually did?

9 That's a really important precedent if you're moving forward with 805 or any  
10 regulatory scheme.

11 So, I guess in closing as had been predicted by Dave Lockbaum, Paul  
12 Gunter and others, the 805 option appears to us not to have provided an  
13 alternative means of compliance, but it's provided an alternative set of excuses for  
14 noncompliance.

15 So, rather than allow the interminable delays with fire safety to continue, we  
16 reiterate our insistence first put forth in October of '06 that you use your  
17 discretionary authority to enforce the existing fire safety regulations and assess  
18 daily financial penalties until full compliance is achieved and we also urge you to  
19 drop the 805 program.

20 You know, I know, everyone knows the reason these licensees are in  
21 noncompliance is simple: It's cost. But there's no provision in 3G2 or in your  
22 mandate for the economic benefit of the company taking precedence over safety.

1           And finally, the public -- and we are really concerned that the NRC's  
2           seemingly permanent lack of enforcement not be allowed to continue. We need to  
3           really make sure that these nuclear plants are in full compliance now.

4           None of us wants somebody to melt down a nuclear plant, certainly not on  
5           your watch. Thank you.

6                       CHAIRMAN KLEIN: Well, thank all of you for your presentations.  
7           We always have a list of who starts the questions and I get to start today.

8           I actually have -- in my normal mode I will start with the order in which  
9           they're given; however, I want to just ask Jim -- you made a statement that I was  
10          surprised at.

11          You said the public confidence is declining in the NRC. I've only been here  
12          three years. Can you tell me some data that shows that because what I see is a  
13          lot of public outreach?

14          Could you just give me some data where you have that that public  
15          confidence is declining?

16                       MR. WARREN: We probably ought to schedule a whole additional  
17          meeting for that and bring in some of the other folks from around the country. But  
18          I will tell you that based on -- part of it is based on enforcement of the current  
19          safety regulations.

20          A lot of it is involving the processes that NRC puts forth involving  
21          relicensing and new licenses. Despite all the efforts for public outreach -- and I  
22          know you're trying to do some of that -- you've got a very complicated system.

1           The public groups like ours all over the country believe the rules are rigged  
2 against the public. We're trying to gain a little bit of fairness and a little additional  
3 time.

4           As just one example involving an intervention in potential COLA at Shearon  
5 Harris, we find out the design -- the Westinghouse designs are three or four years  
6 away from being completed. The very ones that we were assured had been  
7 certified in 2005.

8           Not only is that a fairness issue and a challenge for non-profits and local  
9 governments to be able to meaningfully intervene, but it's also a resource issue.

10          You're heading toward a real mess with staff resources and taxpayer  
11 dollars going in the wrong direction.

12                   CHAIRMAN KLEIN: Let me repeat my question. Do you have any  
13 data that shows public confidence in the NRC is declining?

14                   MR. WARREN: What kind of data do you suggest would be --?

15                   CHAIRMAN KLEIN: You made the statement; I didn't. I'm asking  
16 you to document your statement.

17                   MR. WARREN: I'm giving you a lot of examples. I'd be happy to  
18 cooperate with NRC in doing a survey.

19                   CHAIRMAN KLEIN: Have you done surveys? Have you conducted  
20 any?

21                   MR. WARREN: I'm in meetings with hundreds or thousands of  
22 people month in and month out and I can promise you if you're really interested in

1 listening to what the public mood is toward NRC for those that are paying  
2 attention, I promise you you will not find confidence.

3 CHAIRMAN KLEIN: What I would like to see, though, is -- because  
4 we do deal with data, I would like to see some data that indicates the public  
5 confidence is declining in the NRC.

6 I looked through the '70s and '80s where there was a lot of discussion and I  
7 guess my perception is different. If you could provide some data I'd like to see  
8 that.

9 MR. WARREN: Final thought on that. I'll try to work toward that. I  
10 think part of what you've got is you've got an incredible PR offensive that the  
11 industry and the NRC have cooperated in. So, there are a lot of folks out there  
12 that are confused now.

13 Even over the last recent months people are looking at the GAO report and  
14 the whole licensing process and people are really seeing through a lot of the  
15 smoke and mirrors.

16 CHAIRMAN KLEIN: Again, I'd appreciate the data to support the  
17 claim.

18 MR. WARREN: Okay. Thank you.

19 CHAIRMAN KLEIN: Richard, I'll start with you since you began first.  
20 Obviously, 805 has been a challenge, I think; a learning process. Pilots do that.  
21 You talked about eliminating Operator manual action in that activity. You  
22 mentioned it on slide 3.

1           Could you talk a little bit more about the Operator manual actions and  
2 things that 805 will--

3           MR. MUENCH: What I actually was referring to is Operator manual  
4 actions that would be selected to be adopted either through the 805 process or  
5 through the proposed SECY-08-0093 process.

6           It wasn't eliminating them. It was adopting. So, I wasn't very clear on that.

7           CHAIRMAN KLEIN: Okay.

8           MR. MUENCH: What I was concerned about there -- not concerned,  
9 but I just wanted to point out that when we say we're going to be done by March of  
10 2009 that some of what we've done between now and then may change as a  
11 result of further application of NFPA 805 or the proposed methodology from the  
12 staff.

13           CHAIRMAN KLEIN: You also had indicated, I think, that several  
14 more plants are considering 805. Do think they're waiting to see the results of the  
15 pilot before more plants would continue to look at 805?

16           MR. MUENCH: Yes. I think that there are other plants that are  
17 considering it. Some of them are transparent in that and some of them are not.

18           I believe they are definitely waiting to see whether the benefit of 805 is what  
19 it was intended to be; that the regulatory process does work; that the kinks are  
20 taken out of the PRA modeling process. I think you could see some more people  
21 go for 805.

22           CHAIRMAN KLEIN: Okay. Well, I obviously have more questions,

1 but I will -- we have a rotating scheme. And so, Commissioner Jaczko?

2 COMMISSIONER JACZKO: Thank you, Mr. Chairman. I want to  
3 make a couple of comments before I get to some questions. As I was going  
4 through and reviewing the material for this meeting, in many ways, I think I can  
5 share some of Mr. Warren's frustration as this issue has developed and  
6 materialized. It is somewhat frustrating.

7 I looked at NFPA 805 and that is obviously a voluntary rule that we have.  
8 As I went through and looked at various incarnations of Appendix R, the various  
9 incarnations of the Branch technical positions, the implementations of the general  
10 design criteria; three, I guess, is related to fire protection. And the myriad of  
11 issues that relate to fire protection throughout. And this goes back to 1976.

12 I guess I had realized the challenges were existing as early as then. We  
13 have never really been able to have a clear set of criteria that we enforce as a  
14 regulatory body in fire protection. To this day, I do not think we do.

15 I think NFPA 805 is the clearest example of that that we have, but I should  
16 say the Appendix R type program is relatively straightforward, but clearly we've not  
17 been able to enforce that and bring people into compliance with Appendix R.

18 At some point if we take a step back from some of these issues it's very  
19 easy to get caught up in a lot of our discussions and we lose sometimes the bigger  
20 picture here.

21 But the reality is that we have licensees that are using unapproved  
22 Operator manual actions, that have been using them for a long period of time and



1 to this day we still don't know what all of them are. That's simply unacceptable for  
2 a regulator.

3 It is precisely our job to know and to make decisions about what we're  
4 doing and what licensees are doing. It's clear when you read Appendix R -- and I  
5 remember I gave a speech on fire protection a long time ago or three years ago at  
6 a conference. I was trying to learn what our regulations are. Well, it's really pretty  
7 straightforward.

8 We have four criteria right now. You have to have a three hour fire barrier.  
9 You have to have an hour separation with fire suppression or you have to have  
10 20 feet of separation. And if all of those fail you have to have an alternate shut  
11 down capability.

12 Simple, straightforward regulations and I don't think there is one plant right  
13 now that is in compliance with those regulations that doesn't need to rely on  
14 unapproved Operator manual actions.

15 And I challenge someone to tell me that's the case. I would be more than  
16 happy to know that there is a single plant that can answer "yes" to that question. It  
17 is ultimately unacceptable.

18 We're the regulators. We probably can't answer that question directly. And  
19 we are dancing around this issue over and over again and it is simply a matter --  
20 I'm a firm believer -- with all due respect, Mr. Warren, I believe NFPA 805 is a  
21 good program.

22 But I am somewhat concerned by the time it may take to get us there. And

1 as far as I'm concerned in the interim we have to get into compliance with the  
2 other regulations. I think NFPA 805 is where we should go.

3 I think it should be a mandatory rule, but in the meantime we have to deal  
4 with the existing requirements that we have. So, if anyone wants to comment on  
5 that.

6 If you want to list for me the plants that are in compliance with Appendix R  
7 or their licensing basis equivalent or the licensing condition equivalents, I'd be  
8 more than happy to have somebody tell me which plants are.

9 And if there's any that are missing then that's a problem. That's where we  
10 need to start.

11 MR. MUENCH: We do believe we're in compliance with our license  
12 basis based upon the safety evaluation.

13 COMMISSIONER JACZKO: And there are no -- and you are in  
14 compliance based on the current staff interpretation of multiple spurious actuation?

15 MR. MUENCH: I think the interpretations have--

16 COMMISSIONER JACZKO: The question is: Are you in compliance  
17 with Appendix R? And I think the answer is "no" because right now there are no  
18 plants that are in compliance -- or there -- maybe not all plants are in compliance  
19 with multiple spurious actuations.

20 The assumption, which was an invalid assumption, was that there would be  
21 a single fault, a single circuit failure that clearly has been shown to be incorrect.

22 So, I'm not aware that any one is fully in compliance with the provisions on

1 manual operator actions. We just went through and pulled back a rulemaking  
2 because we were told that everybody was going to come in and file exemptions to  
3 that rulemaking.

4 So, we know there are plants that are out there that have unapproved  
5 Operator manual actions. Those plants are not in compliance with Appendix R or  
6 their licensing conditions.

7 I don't think all plants are in compliance and I would be very troubled to  
8 hear that as a statement. But please tell me if those assumptions are wrong.

9 MR. MUENCH: What I said was -- and before I say it again, I want  
10 to make sure that we as an industry have agreed it's time to get on past that  
11 discussion.

12 We do support either NFPA 805 or an alternative approach such as in the  
13 NEI guidance document and in the proposed SECY-08-0093. We do want to  
14 move on from that.

15 What I said was is we feel like we've been in compliance with our safety  
16 evaluation report and our license basis. We think the interpretation of multiple  
17 spurious operations has changed, but we want to get beyond that.

18 We're moving beyond that now. We want to move as quickly as we can in  
19 that direction. We just want to make sure that we do it in a way that's smart; that  
20 we do end up with a consistent set of bases out there; that we do end up with  
21 good decisions based on good PRA models.

22 But we're ready to get past that. We don't want to argue that basis any

1 more.

2 COMMISSIONER JACZKO: I certainly appreciate that, but again,  
3 the staff has put on -- and with the exception of my understanding of a typo has  
4 suggested that they would not support resolving the multiple spurious actuations  
5 through the use of a limited risk informed approach.

6 That's something that I certainly agree with the staff on -- and here this has  
7 come up again as an issue in your slides. I think the comment that you made was  
8 that it was imperative or that it was crucial that that be one of the viable options for  
9 resolving that issue.

10 Right now, the staff, I believe, does not support that as an alternative for  
11 resolving that issue. It would be up to the Commission to make that decision.

12 If the Commission decides not to do that, I don't know what the path  
13 forward is then for resolving this. That is troubling as we go forward.

14 I feel like we get back into this and then we will have another series of  
15 discussions, another two years will go by and we won't get to closure and  
16 completion of these issues.

17 I've gone on far too long, so I'll stop there. Thank you.

18 CHAIRMAN KLEIN: Commissioner Lyons?

19 COMMISSIONER LYONS: I started with some comments knowing  
20 that probably no area of your or our performances bother me more than fire  
21 protection.

22 Having said that, I very much agree with what you just said, Richard. I think

1 it's very important that we do move ahead and that we be working towards  
2 closure.

3 In my mind, NFPA 805 is a significant step towards closure. I had the  
4 opportunity to visit Harris a few months ago. I was honestly very impressed with  
5 the progress that you were making on NFPA 805.

6 I was particularly impressed as we went through the plant and you showed  
7 me the large number of upgrades that have already been made in the plant driven  
8 by your analysis connected with NFPA 805.

9 So, to me, those are very positive steps and I would hope that as a  
10 Commission that -- certainly given all our frustrations and I'm sure there's plenty  
11 among the staff, there's plenty among industry and there's plenty on this side of  
12 the table.

13 Nevertheless, I agree with your comment. We need to move ahead and we  
14 need to strive for closure.

15 I guess if I was going to add one other comment while I was at Harris there  
16 was quite a bit of discussion on combustible material control programs. I've had  
17 similar discussions at many plants.

18 I've been uniformly impressed at plants across this country with the control  
19 of combustible materials. The program at Harris was just beyond belief.

20 I thought that was about as close to a perfect program on combustible  
21 materials performance as I had ever seen. I don't mean to downgrade certainly  
22 Oconee because I haven't visited Oconee, but I was extremely impressed with

1 Harris. That was, to me, a clear outgrowth, I believe, of your work on the NFPA  
2 805.

3 But to get to a few questions. I don't know whether this is best for perhaps  
4 Richard, perhaps Ken. As I read through your information on the different types of  
5 fire barriers that are in use in many different plants the question comes to my mind  
6 of how are we now -- how is industry now certifying those materials from a fire  
7 protection standpoint?

8 We certainly had substantial issues, I think back in the '80s, on certification.  
9 What are we doing different now to have good certification data and are the  
10 standards to which you are certifying adequately defined? I'm not sure who  
11 should address that; I thought Ken or Richard, but whoever.

12 MR. MUENCH: I'm not familiar with the technical specifics of the  
13 certification requirements, but I can tell you that we are -- our material is certified  
14 to the accepted criteria. But I don't know the specifics of that.

15 MR. DONAHUE: It may be a good question from an industry.  
16 There's quite a few different types of fire barriers used by Harris.

17 COMMISSIONER LYONS: I was frankly amazed by the number of  
18 fire barriers.

19 MR. DONAHUE: The fire barrier systems that we're using today  
20 both Hemyc, Thermo-Lag and Mt and as we've gone to several other products  
21 we've been using the existing fire codes and fire test protocols that have  
22 promulgated over the last several years.

1           The key items are know your configurations, test your configurations, install  
2 them as you test them. If you do that, all of these fire barriers typically are very  
3 good and meet the standards, but you have to do all four of those. And that's  
4 probably our biggest lessons learned from probably some of these other one-time  
5 acceptable fire regs.

6           So, we're trying to apply basically that logic on anything we do going  
7 forward and if we pick a new fire barrier because we deem that's the right way to  
8 add separation and we've added two different other products.

9           We have been able to maintain many of the fire barriers that we had in the  
10 plant. We're just using them in now a compliant mode by the way they're  
11 physically installed and tested.

12           COMMISSIONER LYONS: From what you're saying, there is a solid  
13 understanding of what the criteria are and how to do the tests? So, there should  
14 not be a debate on tests that are done today?

15           MR. DONAHUE: We are doing -- we understand the test protocols  
16 as the OE has been propagated over the last couple years. In particular on the  
17 ones like I talked about on my plant are the ones we have in our facilities. We  
18 have done many of those tests with independent labs.

19           COMMISSIONER LYONS: I'll be coming back for more questions,  
20 but let me just try to get in one more. I guess, Joe, this would be for you.

21           You mentioned in evaluation of Harris you mentioned that you are to a point  
22 where your fire PRAs you believe are acceptable for use.

1 I'm curious, though; acceptable by what standard? It's another standard  
2 question. Are those standards confidently defined in your mind?

3 MR. DONAHUE: We used Reg Guide 1.200 existed Rev and Reg  
4 Guide 1.200 Draft Rev. 1 and used those as the standard, which are the industry  
5 propagated standards.

6 Using both of those information, which I know the staff is about ready to  
7 propagate the Rev. 1, we then graded our application consistent with Category 1,  
8 2, and 3; three being the highest. From that peer review we used that standard.

9 So, not only as a basis of our fire PRA the 6850, we then came in and  
10 applied Reg Guide 1.200 Rev. 1 -- the draft of Rev. 1 on top of that.

11 We've given some feedback on some of the differences. That's the  
12 standard we're using. Again, trying to use the latest standards that are  
13 propagated in the industry.

14 COMMISSIONER LYONS: Thanks. I hope we do have another  
15 round.

16 CHAIRMAN KLEIN: Yes. There will be. Commissioner Svinicki?

17 COMMISSIONER SVINICKI: Thank you. I appreciate the  
18 presentations. As I begin to look more deeply into this issue, I appreciate the  
19 status update. I'm listening intently and the candid assessment that we're hearing  
20 today is very helpful to me. So, I'm mostly in a receive mode today. But I did have  
21 one question, Ken.

22 On your slide 5 you talk about a shortage of trained risk personnel. I have



1 heard discussions that as we have so many sites that move forward it may be a  
2 circumstance where everyone is scrambling to hire just a handful of a few experts  
3 that exists.

4 Is this shortage of personnel serious enough that you worry that it would  
5 jeopardize our ability to move forward on the kind of schedules that we're thinking  
6 about?

7 MR. CANAVAN: Short answer, yes. I think it would be the current  
8 schedules that call for even staff review of the large number of submittals that are  
9 coming, I think are -- it's a lot of work.

10 On the industry side, the number of submittals being developed over the  
11 course of the next several years really certainly pushes the existing resource pool  
12 to its limit.

13 And I'm aware of some studies done by the BWR owners' group to look at  
14 the number of resources over the course of the year and when peak resource  
15 loading occurs.

16 Based on that study, I would subjectively say it will be difficult to meet that  
17 resource burden with the existing personnel. At the same time, we are developing  
18 new personnel.

19 COMMISSIONER SVINICKI: Okay. That was going to be my other  
20 question. Is anyone doing anything about this shortage?

21 MR. CANAVAN: Two things. The first is we're bringing new risk  
22 professionals in. We're also training existing risk professionals in the ability to do

1 fire PRAs.

2 That's through the NRC course as well as the NRC/EPRI course which is  
3 offered jointly by NRC/EPRI and there's also some vendors that offer a similar  
4 course.

5 COMMISSIONER SVINICKI: How long is that course if you're  
6 already working in the risk field and you want to learn how do fire PRA?

7 MR. CANAVAN: The course is three days to five days. They break  
8 it down into several sessions depending on what particular items -- selected areas  
9 of focus you're interested in.

10 Also, EPRI has a forum for PRA professionals to exchange fire related  
11 information on the PRAs. So, basically to ask an expert a question or to  
12 participate in a technology exchange forum.

13 COMMISSIONER SVINICKI: Okay. And that's, again -- to make  
14 sure I understand, that's people who are already experts in PRA, but it is to give  
15 them these techniques then for fire?

16 MR. CANAVAN: That's correct.

17 COMMISSIONER SVINICKI: Thank you, Mr. Chairman.

18 CHAIRMAN KLEIN: Joe, on your slide 2 - and I, like Commissioner  
19 Lyons, had also visited the Harris plant and I thought it was very good where  
20 you're looking at case by case of where fires might occur.

21 One of the things that I've noticed both in GAO's study and others that a lot  
22 of the fires are not necessarily in the reactor building. A lot of fires occur in turbine

1 buildings during repairs and maintenance and shut down periods.

2 So, when you look at the number of fires that occur it's a little different. Not  
3 all fires are created equal. I guess the question is when you look at the operating  
4 experience and you go through a PRA how do you factor in those - what I would  
5 call - non-operational fires; fires that occur either in switchyards during  
6 maintenance or in turbine repairs, welding; those kinds of things. How do you  
7 factor those into 805?

8 MR. DONAHUE: I really can't answer that directly. In the case of  
9 the plant specific in Harris, the turbine building is an area we look at because we  
10 do have cable that goes through there. So, there has been -- we take a look at fire  
11 initiation rates and some of that is in there.

12 From a risk perspective, the balance of plant side, unless it affects loss of  
13 power, which then affects other initiating events, that is not directly addressed in  
14 the fire PRA at this time.

15 CHAIRMAN KLEIN: You had also indicated on slide 3 that you  
16 looked at about 4,000 scenarios. And I think you said in your testimony that you  
17 spent about 50,000 hours, I think, in your 805 assessment.

18 What kind of lessons learned do you think would be transmitted that the  
19 next study -- would it cut it in a third or be as long?

20 MR. DONAHUE: Our thoughts on the PRA piece itself, it might be in  
21 my mind maybe 80% of the numbers we used. It's very plant specific when you do  
22 the modeling.

1           As Ocone mentioned some of the time in that 50,000 was in support of  
2 industry activities and being as open with our peers and that does add time. I  
3 think probably the biggest lesson we learned was if you complete the safe  
4 shutdown validation effort, whether it's an assessment or a redo and then enter  
5 the PRA process, you limit a whole set of iterations. That's probably the biggest  
6 lesson learned. I think David mentioned that, also.

7           In our fleet approaches we move across our other four sites, we are done  
8 and complete all with the exception of one of our plants the safe shutdown and  
9 that will be complete shortly. And then we've moved into the fire PRAs.

10          At our house, we've also ensured our internal models have been as good  
11 as they can be before we go to fire PRA, so we did not have to iterate on those.  
12 Those were a couple lessons learned. If you've got a good, solid internal base  
13 model, you've got a good understanding of your safe shutdown analysis consistent  
14 then with the rules we're now using for multiple spurious operations.

15          You put that into that then start your fire PRA. That will be a shorter period  
16 of time because you have less iterations.

17                   CHAIRMAN KLEIN: Dave, you mentioned that the 805 works good  
18 for older plants. What about a newer plant?

19                   MR. BAXTER: I think it will work well for a newer plant, too, but  
20 newer plants probably were deterministic criteria since they were designed and  
21 built later and they were built under new understandings of criteria and different  
22 interpretations.

1           So, I would think it would be easier from a newer plant standpoint. When  
2 we look at going across our fleet and Oconee is due in 2009, McGuire comes right  
3 behind it and Catawba comes right behind it.

4           When we compare our sites, Catawba is the newest and we believe we'll  
5 spend much less effort at -- we'll spend a lot of effort at McGuire, but much less  
6 effort at Catawba, which will be the third one.

7           Besides having the lessons learned just from the design of the plant it will  
8 be easier to implement?

9           CHAIRMAN KLEIN: I've got a question for Ken along that similar  
10 line. As the NRC looks at other reactors like NGNP, do we know enough to apply  
11 PRA towards that reactor for the fire protection?

12           MR. CANAVAN: For the fire protection? We're working on risk  
13 informed frameworks for the next generation of plants. I think -- and that includes  
14 NGNP. I think that the existing methods would apply, especially since we are  
15 making methods that are state of the art.

16           Depending on the construction of the plant, how it's built and how it's  
17 designed and how many passive features it relies on, there may or may not be a  
18 need or a role for fire protection; risk analysis, that is.

19           In other words you can literally design it to a very small risk threshold. It  
20 really depends until we have a design on paper, but the principles apply.

21           CHAIRMAN KLEIN: Great. Thanks. Commissioner Jaczko?

22           COMMISSIONER JACZKO: One of the nice features of NFPA

1 805 -- we referred to it often as a risk informed performance based rule, but it  
2 really is a performance based rule. I think sometimes we get a little bit caught up  
3 in that and we've talked and focused a lot on the PRA, but the PRA is primarily  
4 needed in NFPA 805 in order to have a change process that doesn't require NRC  
5 approval.

6 So, the PRA is not crucial for implementation of 805. I think it's important  
7 that we have that information on the record because, I think, we've talked a lot  
8 about the need for the PRA.

9 And, certainly, It is a method if you choose under NFPA 805 to go to the  
10 performance base rule rather than -- the performance based tree, if you will, of  
11 NFPA 805, rather than the deterministic tree that PRA is one of the methodologies  
12 to do analysis and the engineering analysis that you would do under that.

13 I guess perhaps I could ask the question this way. One, is anyone  
14 considering using NFPA 805 and following the deterministic path, which is in many  
15 ways comparable to Appendix R, but gives you a framework to do the analysis and  
16 to do the methodology and to do the recalibration, if you will, of what the state of  
17 fire risk is or fire areas are within the plant? Okay.

18 My next question, then, I guess would be on the role of the performance  
19 based side. So, if you go away from the deterministic side and the PRA becomes  
20 a little bit more dominant there.

21 Maybe you could talk a little bit and answer a little bit what role PRA really  
22 plays in that and can we make progress and are there other ways to identify the

1 areas of significance and identify the fire areas, identify the performance kind of  
2 measures without using the PRA that might get us to a resolution faster?

3 MR. MUENCH: I wasn't sure if I heard the beginning of your  
4 question. Can I ask you to repeat that?

5 COMMISSIONER JACZKO: Sure.

6 MR. MUENCH: I didn't understand the beginning of the question.

7 COMMISSIONER JACZKO: I'm sorry. As I understand NFPA 805,  
8 basically you have two options. You can go deterministic route and the  
9 deterministic route essentially -- if you go the deterministic way, basically it means  
10 you've got to show for -- essentially you have to show the Appendix R type  
11 requirements; the three criteria for a safety system.

12 Now, there's an option -- another option, which is to go to the performance  
13 route where you come up with a series of performance measures which the  
14 standard goes through and defines in general terms what those performance kind  
15 of metrics and measures are.

16 Now, part of a tool that you can use to do that analysis is PRA, but it's not a  
17 requirement that you use PRA. You can use other analysis and engineering  
18 methodologies.

19 So, if we were to not rely so much on the PRA because it's really only  
20 required in the rule per se for the change process. Of course, we don't need to  
21 have a change process to begin. That's something that's a benefit and advantage  
22 later.

1           Are there other methodologies and techniques to do that analysis under the  
2 performance method that would allow us to get to resolution quicker?

3           MR. CANAVAN: I think I understand the question.

4           COMMISSIONER JACZKO: My understanding may be slightly  
5 incorrect on the rule.

6           MR. CANAVAN: There might be some other ways to assess  
7 significance of an area or a component or a suppression system within an area,  
8 like combustible loading, for example.

9           The problem is the fire risk, the real true risk, is driven by not only the  
10 amount of combustibles, but the sources, the distance of the sources, the  
11 availability of suppression, all tied together.

12          So, one single item -- one single element doesn't override -- doesn't tell you  
13 which area is more significant than another. Some area might have low  
14 suppression -- some area might have low combustible loading, but very good  
15 suppression. Some other area might have high combustible loading, but very  
16 good suppression. Which one is worse or better?

17          I think the short answer is always being -- subjective area being questioned  
18 as to why you chose what you chose. The PRA is the one place that allows you to  
19 integrate all those features and to assess them equally and then to make a  
20 measure.

21          Okay, this is the place I rely mostly, for example, on Operator action, so I  
22 don't want that. So, I'm going to put in an incipient detector system so that I have



1 earlier notice because I know I rely on the Operators. So, I think any other  
2 mechanism would allow you to be too subjective and it would be questioned  
3 especially in regulatory space.

4 COMMISSIONER JACZKO: Anybody else want to comment on  
5 that? We talked a little bit about enforcement discretion. I know we have -- the  
6 staff has proposed an additional enforcement discretion, I believe, with NFPA 805.

7 Maybe you can talk a little bit about -- to be honest, you've heard me say it  
8 before, I'm not a big fan of enforcement discretion. I think I did one of those things  
9 where I chiseled in stone somewhere that I will never again agree to enforcement  
10 discretion in the area of fire protection.

11 At this point, I'm not intending to blast out that stone chiseled statement.  
12 But maybe you can at least talk to me a little bit about what you see the need is for  
13 enforcement discretion at this point and what we'll be accomplishing by granting  
14 any additional enforcement discretion for the plants that have committed to NFPA  
15 805?

16 MR. MUENCH: Let me start off there. I think as we said before and  
17 as you said before it's very important that we put the fire protection issues behind  
18 us once and for all. And that we have a more consistent set of license basis out  
19 there that our engineers and your inspectors know consistently what we're looking  
20 for.

21 And in order to do that we think it's important, number one, that we learn all  
22 the lessons from the pilot plants. And it's not just from the PRA modeling, but it's

1 also from the development of the license application.

2 It's from answering the request for additional information and give that all to  
3 the ensuing plants so that they can have the benefit of that or else it will be  
4 changing as the review of the ensuing plants go on.

5 But more importantly than that we talked about resources, PRA resources.  
6 We think it's also very important that we make the best decisions we can based  
7 upon having the most realistic PRA modeling, fire PRA modeling.

8 We have a constraint in our industry with PRA resources. So, we want to  
9 make sure that you need them to review our applications and we need them to  
10 develop the models. And oh, by the way, there's 1.200 activities going on and  
11 some of the non-NFPA 805 plants will be talking about limited number of license  
12 amendment requests and exemption requests that may also be using risk insights  
13 also. And they are coming in in the same time frame.

14 If we follow the time table that the staff has proposed for the alternate  
15 strategy they'll be coming in the same timeframe as the last of the NFPA 805  
16 plants.

17 So, we're worried mostly about resources and our proposal will move them  
18 all back to allow us to use those resources versus just the first set of plants  
19 because all that does is move that set of plants -- I think there's -- if I remember  
20 the numbers correctly --

21 COMMISSIONER JACZKO: I don't have very much time. The  
22 question I'm trying to get at -- that's more a question why you think you need more

1 time to do it.

2 I'm trying to understand what enforcement discretion does to ensure that  
3 this will get done faster. That is, in my mind, the only reason we would invoke  
4 enforcement discretion is to provide a mechanism to get compliance more quickly.  
5 And nothing I heard from what you said gave me an answer to that question.

6 MR. MUENCH: It was more meant to address your concern earlier  
7 making sure we get this behind us as consistently as possible so that it stands the  
8 test of time.

9 COMMISSIONER JACZKO: In my mind, enforcement as a regulator  
10 is an important tool in getting us there. So, when I hear requests for enforcement  
11 discretion I'm assuming there's a reason that it's going to get us there faster.

12 Can you give me a reason why you think that will get us to completion  
13 faster?

14 MR. MUENCH: That was not the logic that I was using. I would  
15 agree with that.

16 COMMISSIONER JACZKO: Okay. No more questions. Thanks.

17 CHAIRMAN KLEIN: Commissioner Lyons?

18 COMMISSIONER LYONS: A question for both Joe and Dave at  
19 your two plants. As you went through the NFPA 805 process, did you uncover any  
20 outstanding regulatory non-compliances?

21 I know at least in the case of Harris that you found a number of areas that  
22 you felt should be improved, but was there anything that rose to the level of a

1 national noncompliance that you came up with during the 805 review or that we  
2 came up with? I'm not aware that the NRC did.

3 MR. DONAHUE: As we go through the safe shutdown reanalysis,  
4 we have at several of our plants found some limited cases where we did put it in to  
5 compensatory action, put it in the corrective action program and in a couple of  
6 cases we've even made limited modifications. Generally when we got in and  
7 looked at detailed fire routings.

8 In the case of Harris, many of our non-compliances we found were probably  
9 as much enveloped around the Hemyc and the Mt issues, but we have found  
10 some cable and cable separations that we need to put in place to address those.

11 But they have been enveloped by the other compensatory actions we've put  
12 in place. But those get entered into our corrective action program.

13 COMMISSIONER LYONS: That was my next question. Were they  
14 enveloped in the compensatory action?

15 MR. DONAHUE: Entered in the corrective action program and they  
16 are part of our transition plan in 805. So, when we say we are compliant at the  
17 end of 2010, we are there and we're full in compliance with those ones that we  
18 need to do to be compliant with our LAR.

19 COMMISSIONER LYONS: Dave?

20 MR. BAXTER: Likewise at Oconee, as we went through the  
21 transition and as we've looked at things we do have some open issues in the  
22 corrective action program that we will get finished by 2010 to be compliant.

1 I don't know that I could say that we actually were incompliant with  
2 anything, but there were certainly several enhancements. I'm not aware of a strict  
3 incompliance that we had.

4 I'll go back and check with my staff because I don't know every detail about  
5 the 805 transition.

6 But again, anything we found that was questionable went into the process,  
7 went into the corrective action process. And again, a lot of those were  
8 enhancements.

9 COMMISSIONER LYONS: Thanks. A question for Jim. You  
10 expressed I believe in your remarks, a fair bit of concern about the compensatory  
11 actions that have been taken, like fire watches.

12 Can you give me a little bit more of a feeling as to why you view such items  
13 as fire watches to not be appropriate or not be effective?

14 MR. WARREN: Well, I guess I can refer to GAO and years of NRC  
15 statements and reports and policies where it was clear that these at one point  
16 were named interim measures.

17 As I cited earlier, Congressman Dingell had been led to believe in '93, I  
18 think, that this was going to be a short-term kind of situation. So, by its very  
19 nature, fire watch is subordinate to prescriptive measures.

20 I mean, GAO goes into some detail to describe how NRC staff had  
21 indicated weaknesses with long-term use of fire watch. So, I mean, there's a  
22 pretty good history there of concerns about fire watch in particular and in terms of

1 OMA some similar problems and then some.

2 So, it's very clear. I mean, there have been many pronouncements over  
3 the years that these were considered and were intended for interim measures, but  
4 they become a permanent part of the regulatory scheme. It's just not a sufficient  
5 and not a permitted activity.

6 COMMISSIONER LYONS: I appreciate your comment. I guess in  
7 my mind the presence of a fire watch, the presence of additional people actually in  
8 the facility available if necessary to take action is as advertised: an effective  
9 compensatory measure.

10 MR. WARREN: Well, if there were extra people in addition to  
11 physical protections as prescribed then yes, that would be a plus. But when you're  
12 trying to substitute human activity with a roving fire watch as someone is in a fire  
13 area for a very short period of time on a rotating basis, you cannot substitute  
14 human activity for the physical protections that are prescribed in a regulation.

15 COMMISSIONER LYONS: Well, again, I appreciate your point of  
16 view. At least in my mind certainly I would like to move towards the permanent  
17 barriers where possible.

18 I recognize that in many of the older plants it may be extraordinarily difficult  
19 or impossible to do it. In my mind the compensatory measures if carefully  
20 designed can be -- have proven to be - certainly based on the fire records -- to be  
21 highly effective. So--

22 MR. WARREN: Just one more point if I might on that,

1 Commissioner. The proven effective is obviously a big area of concern, too. GAO  
2 discusses some of this, too. The whole issue is the fire watch in OMA's have not  
3 been codified and approved through NRC processes as effective.

4 In fact, part of the big revelation is NRC does not even know all of the times  
5 and places where OMA's and fire watches are even being used.

6 So, public concern comes in when the agency does not even -- is not even  
7 aware of what the industry is doing.

8 COMMISSIONER LYONS: Just one more comment. To the extent  
9 that I have discussed this with a number of our resident inspectors, whether or not  
10 there is a central database at headquarters of these. When I discuss it with a  
11 senior resident or a resident at a plant they know very well what needs to be done  
12 and it is part of their inspections, which gives me the confidence that it is receiving  
13 the necessary degree of oversight.

14 Whether or not there is a central log here at headquarters of those is not of  
15 great concern to me. I'm far more concerned that the people on the ground  
16 responsible for the safety know exactly what they're doing and I've been convinced  
17 that that is the case. I'm over time.

18 MR. WARREN: One more quick reply to that, if I might,  
19 Mr. Chairman?

20 CHAIRMAN KLEIN: Short.

21 MR. WARREN: We just heard a description from Duke and  
22 Progress that they continue through their 805 process to identify additional

1 noncompliant areas.

2 I think that in itself is an example of the fact that you cannot be comping  
3 every vulnerability if you don't even know -- the inspectors and the companies are  
4 not even clear on where all the vulnerabilities are.

5 COMMISSIONER LYONS: We heard they uncovered them -- they  
6 uncovered ones that were covered by compensatory measures. But again, we're  
7 long enough on this. Thank you, sir.

8 CHAIRMAN KLEIN: Well, thank you very much for your testimony.  
9 Obviously, this is an issue that is a concern to, I think, all of us. And we look  
10 forward to bringing this to closure as rapidly as possible.

11 Thank you very much. Now, we'll move into the next panel for the staff.  
12 Thank you.

13

14 Panel 2

15

16 CHAIRMAN KLEIN: Well, obviously, you heard a lot of the opening  
17 comments and the intervening discussions. And so with that in mind I think we're  
18 probably ready to hear from the staff. Bill, would you begin?

19 MR. BORCHARDT: Thank you, Chairman. Good afternoon. We  
20 have two principal messages to convey today.

21 First, that it is our firm belief that the country's operating nuclear power  
22 plants today are operating safely and have been since the fire protection



1 regulations were established 27 years ago.

2 Second, we believe that we are now working on a proactive approach to  
3 bring the current issues to closure. We'll be the first to admit it's long overdue.

4 While tough issues remain, we believe that they are solvable and that this  
5 briefing is going to focus today on a look forward at how we're going to close these  
6 issues in an open and a transparent manner.

7 Even though the two speakers today are from the Office of Nuclear Reactor  
8 Regulations, I just want to reiterate the point that this is truly an agency wide effort  
9 and activity.

10 The offices of Nuclear Reactor Regulation and Research, the Office of  
11 Enforcement, all the regional offices, Office of Information Services and the Office  
12 of Public Affairs are all intimately involved in the activities that have been taking  
13 place and on the path forward.

14 Bringing fire protection back into a stable, regulatory environment will  
15 require the hard work of all these offices as well as other parts of the agency over  
16 the near future.

17 With that, I'll turn to Jack Grobe.

18 MR. GROBE: Thanks, Bill. Slide 2, please. My name is Jack  
19 Grobe. I'm Associate Director in the Office of Nuclear Reactor Regulation for  
20 Safety Systems and Engineering. With me today is Mark Cunningham. Mark is  
21 Director of the Division of Risk Assessment, which also includes fire protection  
22 activities in the Office of Nuclear Reactor Regulation.

1           We are here today representing the NRC's Fire Protection Steering  
2 Committee. We have the full committee here and I'd like to introduce them. Steve  
3 West. Make yourself know, Steve. Thank you.

4           He's the Director of the Division of Reactor Safety in Region III. Steve  
5 brings a great spectrum of experiences to the committee in that in his past life he  
6 was responsible for fire protection engineering here in NRR and he has since been  
7 responsible for all aspects of reactor inspection in the field. So, he has great  
8 experience.

9           Christiana Lui is the Director of the Division of Risk Analysis in the Office of  
10 Nuclear Regulatory Research who has responsibility both for risk as well as fire.

11           And Stu Magruder is our enforcement guru. He's the Deputy Office Director  
12 for the Office of Enforcement.

13           The Executive Director for Operations established the Steering Committee  
14 in 2007 to facilitate resolution of key fire protection issues and to ensure effective  
15 interface with the industry and other external stakeholders.

16           The overall goal of the Steering Committee is to ensure that the staff  
17 completes the necessary actions to return fire protection to a normal, predictable  
18 regulatory environment.

19           I realize we're short on time so I'm going to try to go quickly. Slide three,  
20 please.

21           Fire protection remains a significant safety focus for the staff.

22           Approximately one-half of the core damage risk at operating reactors results from

1 accident sequences that initiate with fire events.

2 Our presentation today will focus on operating reactor issues. Fire  
3 protection at new reactors will be simplified through designed-in separation and  
4 isolation of redundant safe shutdown systems, extensive use of fiber optic cable in  
5 control systems, as well as passive plant designs that have few active components  
6 necessary for safe shutdown.

7 The Steering Committee focus has been on the four issues that Mark will  
8 cover today in our presentation. The committee has met regularly with the staff  
9 and frequently with the industry and other external stakeholders.

10 Progress is being made in all of these areas and the Steering Committee  
11 has issued a closure plan documenting key milestones and deadlines to bring  
12 these issues to closure.

13 Few actions remain to resolve fire barrier issues and Operator manual  
14 actions. While there is more work to do on multiple spurious operations and  
15 implementation of NFPA 805, the path toward is defined, well understood and  
16 being implemented.

17 I'd now like to turn it over to Mark.

18 MR. CUNNINGHAM: I'm going to be covering this afternoon the  
19 closure path for three remaining fire protection issues, as well as the process for  
20 more broadly risk informing fire protection activities.

21 The first specific issue is fire barrier performance. NRC regulations  
22 mandate that key equipment is protected from fires and fire barriers are one

1 mechanism to accomplish this protection.

2 Over the last two decades issues have arisen and been subsequently  
3 resolved on certain barriers including Thermo-Lag. The staff is in the process now  
4 of resolving the issue on the last -- the last known barrier issue which, of course, is  
5 connected to Hemyc.

6 Inspection reports and subsequent experiments by the Office of Research  
7 indicated that Hemyc performance could be compromised if the material was not  
8 installed properly.

9 As a result, the staff took actions including the issuing of a generic letter in  
10 2006 to have licensees review their fire protection programs, identify  
11 nonconforming conditions and take appropriate actions.

12 Licensees responded -- licensee responses indicated that 16 units used  
13 Hemyc. Of these 16, six are not transitioning to NFPA 805. These licensees thus  
14 identified combinations of facility modifications and licensing actions to resolve the  
15 issue.

16 For these six issues, the staff plans to inspect the closeout activities and  
17 document the results by the end of this year. Slide five, please.

18 Operator manual actions can be used under certain circumstances to help  
19 provide the necessary protection from fires. After inspections identified a number  
20 of inconsistencies in how licensees were crediting operator manual actions, NRC  
21 took a number of actions.

22 We issued a Regulatory Information Summary in 2006 that clarified staff

1 expectations with respect to compliance, reiterated the need for establishing  
2 compensatory measures, established a timetable of March 2009 for completing  
3 corrective actions.

4 NRC also issued a guide for evaluating -- for the staff for evaluating the  
5 acceptability of manual actions. We also changed guidance used by inspectors to  
6 help focus their Operator manual action inspections.

7 The staff has been using this guidance to ensure that manual actions  
8 credited by licensees are both feasible and reliable. The staff will be closing this  
9 issue by assessing plant specific corrective actions. We expect to complete this in  
10 2010. Slide 6, please.

11 In 2006, the Commission provided direction to the staff on the resolution of  
12 fire induced circuit failures. A few years before that experiments had indicated that  
13 certain types of circuit failures, which were much more likely than had been  
14 previously understood.

15 The staff provided its response to the Commission direction in  
16 SECY-08-0093 just from last month. The paper describes acceptable methods for  
17 protecting a plant's safe shutdown capability from circuit failures.

18 It describes possible methods for ensuring that mal operation of other  
19 equipment does not compromise the safe shutdown capability and it proposes a  
20 revision to the enforcement guidance associated with circuits.

21 The staff is proceeding to finalize the acceptable methods -- the set of  
22 acceptable methods for protecting safe shutdown capability from mal operation of

1 other equipment.

2 We'll be drafting guidance on these methods and holding public meetings to  
3 facilitate the understanding. We expect the guidance to be completed by early  
4 next year.

5 Once the guidance is completed the licensees would have three years to  
6 complete the needed actions. The timing would be about the same as those  
7 plants transitioning to 50.48C as directed in the SRM.

8 The staff is also initiating experimental research on direct current circuits.  
9 The purpose of the research is to determine if failure modes of direct current  
10 circuits are similar to those found in alternating current circuits that have been  
11 previously tested.

12 The initial public meeting on this will be a discussion of the test plan and  
13 scheduled for September of this year. Slide 7, please.

14 I'm going to change now from a discussion of specific technical issues to  
15 describing a process by which issues - like we've talked about today - can be  
16 addressed using more modern technologies. This, of course, is 50.48C, that was  
17 endorsed -- issued by the Commission in 2004.

18 This rule endorses National Fire Protection Association Standard 805 as an  
19 alternative to traditional fire protection regulation.

20 50.48C is risk informed, meaning that it provides a better safety focus as  
21 performance based, which gives greater latitude to licensees to deal with small  
22 risk issues and provides better guidance on when issues must be brought to the

1 attention of NRC. To date, 47 of the 104 units have committed to the transition.

2 As you've heard earlier this afternoon, the staff has received proposed  
3 license amendments from the two pilot plants and our initial acceptance review is  
4 underway. We have a completion date of the end of this month to provide -- to  
5 issue our acceptance reviews.

6 To ensure that licensees and the public have a clear understanding of the  
7 staff's work we are improving the infrastructure for remaining reviews and  
8 communicating it widely. I'll discuss that in slide 8.

9 In parallel with and learning from the pilot plant amendment reviews, the  
10 staff is finalizing its review infrastructure. This has several parts.

11 Technical methods, such as NUREG/CR-6850 will be updated by the Office  
12 of Research in accommodation with industry experts. I believe the goal is to have  
13 that updated by March of next year.

14 Fire PRA standards are being endorsed in a revision to Regulatory Guide  
15 1.200 that's now out for public comment. New regulatory guidance is being  
16 developed.

17 This guidance includes staff acceptance criteria for the initial acceptance  
18 reviews, a new standard review plan focused on the review of 805 applications, a  
19 template of the safety evaluation report that the staff would write, and inspection  
20 guidance for those plants once they've exited the 805 amendment review , we call  
21 that post transition inspection guidance.

22 Given both the large number and the complexity of the 805 applications, the

1 staff is using state of the art planning tools to help us do our work. We've adopted  
2 the tools now being used by the Office of New Reactors to help us plan and  
3 implement the fire protection amendment reviews.

4 In recognizing the considerable interest in nuclear power plant fire  
5 protection issues, the staff is refocusing some of its communications efforts.

6 The staff will continue, of course, to hold public meetings to share the  
7 results of the pilot plant reviews.

8 The staff will continue to use the frequently asked question process on  
9 emerging technical issues and their resolution with the principle audience there  
10 being the non-pilot 805 plants.

11 The staff has also updated the NRC's website to make it easier to find  
12 information on fire issues. This update is focusing more on the four issues that  
13 we're talking about today.

14 In fact, this update went live this morning thanks to help from the Office of  
15 Information Services and OPA. This update is a first step in a larger scale  
16 improvement to the Web site on fire issues that will provide more general  
17 background information on fire issues.

18 What we have so far is more focus to the people that are intimately involved  
19 in 805 applications, for example. And it will discuss fire issues beyond those just  
20 for operating reactors. Slide 9, please.

21 The staff is implementing its 805 closure plan by establishing an efficient,  
22 well defined process. We expect to finalize the guidance and standardize our



1 review process on the same schedule as the pilot plant reviews.

2 We'll be updating the web site and using public meetings to communicate  
3 the results and the lessons learned.

4 With this in place the staff expects to transition to what we might call a more  
5 routine licensing process, if that's possible for fire protection, but that would  
6 involve licensee submittals, staff reviews, implementation of changes by the  
7 licensees and inspections to ensure the adequacy of the changes.

8 With that, I'll turn it back to Jack.

9 MR. GROBE: Thanks, Mark. Slide 10, please. Fire protection at  
10 operating reactors has had a long, complex and sometimes contentious history.  
11 The goal of the Steering Committee is to ensure that the staff takes the proper  
12 actions to return fire protection to a stable, predictable, routine regulatory  
13 environment.

14 While some of the necessary actions will take some time to complete  
15 progress is being made and there is a clear path to closure for each of the issues.

16 Finally, our interaction with the industry and other stakeholders has been  
17 positive and constructive and we will continue to reach out for input and to assure  
18 clarity of expectations.

19 This completes the staff presentation and hopefully we've left enough time  
20 to respond to your questions.

21 CHAIRMAN KLEIN: Thank you. I guess I'll start off with Bill as EDO.  
22 Do you have a closure plan with milestones and deliverables?

1 MR. BORCHARDT: What Mark attempted to outline is that plan.  
2 There's some additional work that probably needs to be done, but I think that's the  
3 major strive that we're trying to make now is to define what success is for this  
4 program, have deliverable milestones and then get the closure.

5 CHAIRMAN KLEIN: Realizing that it's almost finished, what do you  
6 believe is a reasonable date to finally lay this to rest and address both the IG and  
7 GAO issues?

8 MR. BORCHARDT: Well, the final inspections that Mark alluded to, I  
9 think, were 2010 were the last of the actions related to this, although many of the  
10 activities will be done well before that.

11 CHAIRMAN KLEIN: You could hear from the previous discussion  
12 about compensatory measures. Do you believe that those are reasonable and are  
13 we putting people at risk with those compensatory measures?

14 MR. BORCHARDT: Our assessment and as Commissioner Lyons  
15 mentioned earlier the almost daily oversight of the compensatory measures at  
16 each of the 104 reactors give us confidence that the plants are being adequately  
17 protected against fire and that we're comfortable with its current operational status.

18 CHAIRMAN KLEIN: I have a few questions for Mark. Why would a  
19 plant not go to 805?

20 MR. CUNNINGHAM: The advantages of 805 from what I understand  
21 are most -- it becomes most appealing to the plants and perhaps to the oldest. If  
22 you were a licensee that owns a fairly modern plant one of the last of the plants of

1 the 104, you may already have a great deal of physical separation.

2 You may have a lot of features that make it less attractive, if you will. So,  
3 the newer designs would tend to have less -- fewer of the issues that in a sense  
4 drives somebody to an 805 type of approach.

5 CHAIRMAN KLEIN: One the numbers that we heard is 47 plants  
6 intend to go to 805. So, there's probably a shade of gray that some haven't  
7 decided and then some probably will decide not to go. Do you have a breakdown  
8 of those three groups?

9 MR. CUNNINGHAM: The 47 are the ones that have committed to us  
10 in writing that they intend to transition. We hear of at least 20 or 30 others that are  
11 doing substantial work to improve their fire PRAs.

12 And so, I think that's perhaps a leading indicator that they could be edging  
13 towards an 805 transition because it's clear that one of the big investments in 805  
14 is performing the fire PRA.

15 So, there could be -- that middle ground could be those ones that are out  
16 there actively improving their PRAs. I've heard numbers of 20 to 30.

17 CHAIRMAN KLEIN: Okay. As we move forward to the new  
18 reactors -- and this could either be a Mark or a Bill question probably -- how will  
19 they address the fire issues? Will it be 805 or will it be through another  
20 mechanism?

21 MR. BORCHARDT: I would be surprised if they're not able to meet  
22 the deterministic requirements for fire protection. If you're building a plant from the

1 beginning and you have clear regulatory requirements you can design that in.

2 Much of what we're dealing with today is the result of having plants that  
3 were already constructed and then you create fire protection regulations which are  
4 physically impossible in many circumstances to meet.

5 And so you get into compensatory measures and the need to do a more  
6 site specific detailed analysis in order to prove that there is a safe situation.

7 So, for the new reactors, I will be disappointed if they don't just meet the  
8 deterministic requirements.

9 CHAIRMAN KLEIN: I share a view similar to Commissioner Lyons  
10 having gone through several plants, looked at their plans and their programs and  
11 talked about the compensatory measures.

12 It doesn't seem to me that there's a great risk with incorporating those  
13 compensatory measures. And so the question is why isn't that a part of their fire  
14 protection plan?

15 In other words, rather than giving people exemptions to say this is your plan  
16 to do these actions. Why did we not do that?

17 MR. GROBE: I'm not completely sure I understand the question.  
18 Why did we not impose similar conditions that they're now implementing on an  
19 interim basis?

20 CHAIRMAN KLEIN: Right. Rather than calling them interim for 15  
21 years why didn't we just say, "This is your plan" and not give exemptions and say  
22 this is how we expect you to operate?

1                   MR. GROBE: The compensatory measures -- typically we do not  
2 depend in the design of the safety provisions for nuclear plants on human actions.  
3 We try to design in the safety conditions.

4                   So, we wouldn't typically specify a safety requirement that was solely  
5 dependent on a human action, similar to the automatic actuation of safety  
6 systems. I think I'm answering your question; maybe I'm not.

7                   CHAIRMAN KLEIN: We've given exemptions for a long, long time.  
8 And so I guess my question is why didn't we--?

9                   MR. BORCHARDT: I'm looking at Steve West who might have a  
10 better historical basis. If you have something to add; if not--

11                  MR. WEST: The compensatory measures are actually part of the  
12 licensee's fire protection plan, so they're built in to be used and relied upon when  
13 there are problems identified with the fire protection features that are put in place  
14 and installed.

15                  It's true that there weren't intended to be permanent measures as Jack was  
16 explaining. Most of the exemptions don't deal with compensatory measures.  
17 They deal with situations where a licensee is unable to meet the literal compliance  
18 with the rule where it says you have to have 20 feet of separation and they may  
19 have 18 feet.

20                  So, you approve an alternative to the 20 feet. Maybe they put in an extra  
21 sprinkler system or something like that. So, there's not a real link between the  
22 comp measures and the exemptions.

1 CHAIRMAN KLEIN: I think part of the problem that we have in this  
2 arena is articulating the expectations for a long period of time.

3 MR. WEST: Right. I agree with that.

4 MR. BORCHARDT: I think the lesson learned and we've been  
5 focusing on this lately is this idea of defining what success is before you head  
6 down the path into a project. And I don't think we did that many years ago when  
7 we started down this path.

8 CHAIRMAN KLEIN: Thanks. Commissioner Jaczko?

9 COMMISSIONER JACZKO: Well, I guess I have a couple quick  
10 questions. I might follow up on the Chairman's point. I think I'll start with that. I  
11 would probably turn the question around the other way.

12 What is the purpose of our existing regulations? Maybe you could  
13 comment on that in fire protection.

14 MR. GROBE: I'll take that. The purpose of the existing regulations  
15 is to make sure that the plant is maintained in a safe condition such that it could be  
16 safely shut down.

17 It's constructed with a series of defense in depth characteristics: prevention,  
18 identification of fire suppression and the last criteria is specific protection of one  
19 safe shutdown train.

20 The specific issues that we've been dealing with where there are  
21 compensatory actions affect only a limited number of those defense in depth  
22 situations.

1           So, there's not a whole lot of safety significance associated with these  
2 deficiencies. That's why a compensatory action is sufficient in the situation for a  
3 period of time until the issue is resolved.

4           COMMISSIONER JACZKO: When we approve a compensatory  
5 measure, do we specify a time period for which that compensatory measure is  
6 acceptable?

7           MR. GROBE: No. There's, I think, two programs that we have - the  
8 security program and the fire protection program where there's compensatory  
9 measures actually built into the program.

10          If a detector is out of service for a period of time there's a compensatory  
11 measure specified, but the control of return of that detector, for example, is under  
12 the corrective action program where the corrective action, the timeliness of it is  
13 commensurate with the safety significance of the deficiency.

14          COMMISSIONER JACZKO: What is the maximum time that we  
15 currently have an interim compensatory measure that is currently being relied  
16 upon?

17          MR. GROBE: I don't know the answer to that question.

18          COMMISSIONER JACZKO: Can you provide that answer?

19          MR. GROBE: Sure. We'd be happy to.

20          COMMISSIONER JACZKO: Would you guess it's zero to five years?

21          And you can correct it if it's wrong.

22          MR. BORCHARDT: That's probably right after we established the

1 regulation – 20 some years.

2 COMMISSIONER JACZKO: The staff in the background material  
3 provided your fire protection closure plan and I just want to go through some of the  
4 milestones in here. On the electrical raceway fire barrier closure -- and this is a  
5 question probably perhaps the easiest is just to do this as a general question.

6 But if you can provide resource estimates for what it would take, for  
7 instance, to accelerate some of these milestones. I'm looking at the fire barrier  
8 issue. The last milestone is first quarter of 2010 and that's to complete the  
9 documentation of essentially all the Hemyc issues and other fire barrier issues.

10 What resources would it take to accelerate that say by a year, which  
11 currently the staff is saying in 2009 we would inspect licensee Hemyc actions  
12 related to the generic letter of 2006. So, again, what would it take to accelerate  
13 that activity? What resources?

14 And I guess if you could provide those -- something like that for all of these  
15 activities, I guess, the circuit failure. I guess I would say I'd be most interested in  
16 circuit failure and the fire barrier.

17 I guess for the circuit failure we're looking at 2013 3rd quarter for  
18 completing circuit failure actions, inspections and document results. So, that's still  
19 a ways off into the future. That one in particular, what the resources would be to  
20 accelerate that one probably by a couple years. What would it take to do that?

21 The Operator manual action similarly, I think, 2010 second quarter is the  
22 last date. So, what would it take to accelerate that one by a year?



1           And I won't ask you about the NFPA 805 because that in large part  
2 depends on licensee submittal. So, I think that's one that's perhaps outside our  
3 control.

4           MR. MALLETT: I'd like to start this one. We appreciate your  
5 questions. I think they're very good questions. What we have to do now -- the  
6 Steering Committee has proposed this closure plan.

7           I believe what we have to do now is sit down and decide those very  
8 questions you're asking. Are those the right dates? What will it take? Are we  
9 sure we can deliver those items on the dates?

10          For example, on the fire barrier one you picked, we believe that the Hemyc  
11 issues as far as licensing and inspection will be done the end of this year and so  
12 the issue is how do you bring that to closure sooner? I think we can do that. I'd  
13 rather not give you an answer here.

14          COMMISSIONER JACZKO: That's fine.

15          MR. MALLETT: I think we owe the Commission an answer and I  
16 think we need to take this closure plan and put it in that forum to go back to the  
17 Commission to give you that answer.

18          COMMISSIONER JACZKO: Absolutely. Certainly, if there are ways  
19 and I'm asking this now because we are in the process of doing the 2010 budget  
20 and we'll be looking at that in the next couple of weeks.

21          So, getting that information to the Commission sooner rather than later  
22 would be beneficial for us to make adjustments if necessary in the budget for --

1 certainly for '10 and if possible for making some adjustments in '09 where we can.

2 MR. MALLET: I agree. I also want to state that we have down on  
3 one document our closure plan for the first time in these areas. I think that's a  
4 good step forward.

5 COMMISSIONER JACZKO: I certainly am pleased to see it because  
6 once we know what the milestones are, then we can figure out how to do them  
7 faster.

8 MR. BORCHARDT: That's the disadvantage.

9 COMMISSIONER JACZKO: If we have more rounds then I'll ask a  
10 couple more.

11 MR. GROBE: Just a quick observation. Some of those milestones  
12 are controlled by how quickly licensees can install modifications and sometimes  
13 that's controlled by outage schedules.

14 So, it's not just internal resources that drives some of those milestones.

15 CHAIRMAN KLEIN: Commissioner Lyons?

16 COMMISSIONER LYONS: Well, the Chairman came close to asking  
17 this question, but I just wanted to ask if after having listened to the preceding panel  
18 there were any loose ends or particular points that you want to clarify from the staff  
19 perspective?

20 And Dale, you came close to asking that, but I simply wanted to make that  
21 an offer.

22 MR. GROBE: There's one issue that Rick Muench raised and that

1 has to do with utilizing risk considerations to demonstrate compliance. He's  
2 absolutely correct. We have a Commission policy statement and a significant  
3 effort by the staff to risk inform our regulations where we can, but those are  
4 specific separate regulations.

5 And you cannot demonstrate compliance with a specific deterministic  
6 requirement by saying, "This is a less risky situation, so I'm not going to do  
7 anything."

8 You can do it through licensing action or exemption depending on the way  
9 your license is written, but you can't just do it without going through a licensing  
10 process. So, that's not an option.

11 It's not a legal option to utilize risk without some sort of licensing action  
12 unless you go to NFPA 805 and 50.48C.

13 COMMISSIONER LYONS: Any others? A question probably for  
14 Mark. I think I mentioned in some opening remarks how surprised I was that one  
15 of the first things I was hit with as I came on the Commission was the new Hemyc  
16 test data.

17 Are there any more shoes like that that are still out there to drop on other  
18 fire barrier materials? Do we have good confidence that with the other materials  
19 that are being used -- and I understand that there's quite a list in addition to the  
20 Hemyc and Mt that are used in at least some configurations.

21 MR. CUNNINGHAM: We're not aware of anything that's at the level  
22 of Thermo-Lag and even the smaller level of the Hemyc issue. No, sir, we're not

1 aware of anything else out there.

2 COMMISSIONER LYONS: And I guess similar to the question I  
3 asked the previous panel, are the test standards well agreed upon now, so that  
4 we're not going to get into -- at least I think there was some significant part of the  
5 Hemyc problem?

6 MR. CUNNINGHAM: I think the test standards themselves are a  
7 lesser concern than the number of other things. I don't think that's a particular  
8 problem.

9 COMMISSIONER LYONS: A question maybe for Jack or maybe for  
10 one of the others. You mentioned fiber optic. I happen to have spent a substantial  
11 part of my life working with fiber optics.

12 I'm a great lover of fiber optics; however, I don't view them as necessarily a  
13 panacea to fire issues either from the standpoint of the integrity of the cables or  
14 the integrity of the transducer that has to go on the end of the cable to ever do  
15 anything.

16 So, when we talked about fiber optics, on the one hand you'll find me  
17 cheering you on. But are we taking at least a skeptical look with fibers to  
18 recognize that they are not simply a complete automatic solution?

19 MR. GROBE: I didn't mean to indicate that fiber optic cables were a  
20 solution to fire protection concerns. They fail in a much more predictable way in a  
21 fire situation.

22 So, you don't have this difficult situation with a potential -- depending on

1 how the insulation is damaged, the potential for hot shorts or shorts to ground. So,  
2 that's what makes fiber optics more useful from a fire protection -- looking very  
3 narrowly from a fire protection perspective is that you can understand their  
4 behavior in fire situations much better.

5 COMMISSIONER LYONS: The transducer that has to go on the end  
6 is going to have a range of failure modes.

7 MR. GROBE: That's correct.

8 COMMISSIONER LYONS: And that is being considered in our  
9 evaluations?

10 MR. GROBE: Charlie left. I'm not that --

11 MR. ADER: I didn't leave. I just moved.

12 MR. GROBE: Oh, okay. You just moved. Charlie Ader is the  
13 Division Director responsible for the fire protection reviews for the new reactors  
14 and maybe he can be in the phone-a-friend mode right here.

15 MR. ADER: I was trying to be in a position to be right behind you.  
16 The Commission approved back in the 90's enhanced fire protection which has  
17 really the separation.

18 So, I mean, we are looking at those types of questions. Some of those will  
19 get more into the Digital I&C. And you're aware that the transducers are where  
20 the controls are.

21 Jack was referring to -- as he said -- the hot shorts, the cable runs. So, it's  
22 a question that's being looked at.

1                   COMMISSIONER LYONS: Okay. I appreciate it. If I could just ask  
2 one final question probably for Bill. You've heard various degrees of frustration  
3 from folks on this side of the table and we've heard it on that side of the table.

4                   When all this is said and done or as it gets close to being said and done,  
5 have you thought about lessons learned from fire protection, say the fire protection  
6 soap opera? It's gone on long enough that it almost is a soap opera. Have you  
7 considered what some of the lesson should be from this?

8                   MR. BORCHARDT: Well, one of them I mentioned earlier about this  
9 idea of having the end in mind as you start down a project and defining success.  
10 My personal view is that we're better served.

11                  All the stakeholders are better served by defining what a specific project  
12 activity is and what it will look like when you're at the end of that. And then if new  
13 issues come up you create a new project rather than having a 25 year-long project  
14 that meanders through a long-term resolution.

15                  That's one of the ones that we don't need to do a separate lessons learned  
16 on. That's just an approach for how to deal with problems.

17                  I think as we near the completion of this it would be a good idea, an  
18 interesting case study in regulatory practices to take a look at the entire history  
19 and how we got into such a long and protracted resolution to what is an intricate  
20 and sometimes complex, but in a regulatory space shouldn't have been really all  
21 that complex and confusing.

22                  So, I think it's probably a good idea for us to have a separate review as we

1 get near the end.

2 COMMISSIONER LYONS: I would add encouragement to that. I  
3 think a review of the highs and lows to the extent there are would be beneficial to  
4 the agency, and maybe to some of our international colleagues, too. Thank you,  
5 sir.

6 CHAIRMAN KLEIN: Commissioner Svinicki?

7 COMMISSIONER SVINICKI: Thank you. With all the paper in this  
8 building it's inevitable that the one thing that you want to have in front of you don't  
9 have. So, I'm going to ask this question because it comes along the lines of what  
10 Commissioner Lyons was talking about.

11 Is there anyone here at the table who is familiar with -- because if I'm the  
12 one most expert in this we should all collectively shudder in this moment. My  
13 understanding is that the Appendix R regulations were litigated, there where  
14 challenged in court. Is there anyone familiar with that?

15 I may be legitimately the person at this table who has most recently read  
16 the Court's decision, the outcome of that litigation and this is where I wish I had it  
17 in front of me, but I don't.

18 By my understanding is that the industry had alleged that the agency had  
19 promulgated Appendix R with basically the bare minimum of opportunity for the  
20 industry and others to participate and comment in it.

21 If I'm recalling the Court's opinion correctly, they said the sole reason -- and  
22 I might be overstating that -- but the principal reason that they upheld the

1 regulations was that there a robust exemption process and that was the reason  
2 why they felt that they could uphold it, but they had some misgivings about doing  
3 that, but said there's an opportunity here for industry to come in with a robust  
4 exemption process.

5 They can either make the case that other measures are sufficiently  
6 protective or they can meet these regulations and they'll have the opportunity if  
7 they can't convince the agency that other measures are sufficiently protective,  
8 then they shouldn't prevail and they should have to meet the regulation.

9 I'm getting some head nodding, but if there's someone who would like to  
10 weigh in who knows better terminology for what I just said.

11 MS. CYR: Well, I think that's an accurate description in the sense  
12 that the Court said because the plants had already been built, the fact that you  
13 permitted them to have an alternative way to show that they could meet one of  
14 these criteria, which was either the alternative safe shutdown system or something  
15 that provides you an equivalent level of protection and that that was built into it as  
16 opposed to just meeting the three criteria.

17 It gave you an alternative or being able to demonstrate that you had an  
18 alternative -- an equivalent to that alternative safe shutdown condition. And that  
19 that was an element of the rule that the Commission adopted and it provided for  
20 them to file exemptions within a very short period time, which a large number of  
21 plants did.

22 COMMISSIONER SVINICKI: The only reason I raised it is that



1 Commissioner Lyons was talking about how did we get here. You're talking about  
2 how we should figure out where we want to go from here, but it's useful to have  
3 this history.

4 I think that's a key part of the history. We've talked a lot philosophically  
5 about what does it mean to have regulations when you have all these exemptions,  
6 but this may be a unique circumstance that contributed.

7 So, I think it's part of the story of this entire process. Thank you,  
8 Mr. Chairman. That's all I have.

9 CHAIRMAN KLEIN: Thanks. More questions?

10 COMMISSIONER LYONS: I'll stop.

11 CHAIRMAN KLEIN: Well, we anxiously await for the closure and we  
12 will await Bruce's estimates on what it costs and any efficiencies that we can  
13 obtain through associated budgetary actions.

14 Again, this is a case where lessons I think can be learned and hopefully we  
15 won't go down this path in the future and we will keep ensuring public confidence  
16 and protect the public and the safety. Thanks.

17

18 (Whereupon meeting was adjourned)