UNITED STATES OF AMERICA

U.S. NUCLEAR REGULATORY COMMISSION

BRIEFING ON NFPA 805 FIRE PROTECTION

DECEMBER 13, 2011

9:00 A.M.

TRANSCRIPT OF PROCEEDINGS

Public Meeting

Before the U.S. Nuclear Regulatory Commission:

Gregory B. Jaczko, Chairman

Kristine L. Svinicki, Commissioner

George Apostolakis, Commissioner

William D. Magwood, IV, Commissioner

William C. Ostendorff, Commissioner

APPEARANCES

Stakeholder Panel:

Alex Marion
Vice President - Nuclear Operations
NEI

Paula Marino
Senior Industry Fire PRA Task Force
VP – Southern Nuclear Operating Company

Jeffery Ertman
Progress Energy
NFPA 805 Transition Project Manager

Michael Carlson
Vice President for Site Support Services
DC Cook

Paul Gunter
Director, Reactor Oversight Project,
Beyond Nuclear

NRC Staff:

Marty Virgilio
Deputy Executive Director for Reactor and
Preparedness Programs

Jack Grobe
Deputy Director for Engineering and Corporate Support,
NRR

Alex Klein
Chief, NRR Fire Protection Branch

Donnie Harrison
Chief, NRR Probabilistic Risk Assessment Branch

Rebecca Nease
Chief, RII Engineering Branch I

P R O C E E D I N G S

CHAIRMAN JACZKO: Well good morning everyone. The Commission meets today to be briefed on the Lessons Learned from the experiences of two nuclear power plants that have transitioned to the risk informed performance based approach to fire protection now known NFPA 805. In 2004 the NRC took a very significant step forward towards resolving the important issue of fire protection with development of a risk informed performance based approach. Trying on these risk insights, NFPA 805 allows licensees to undertake a comprehensive evaluation of their fire safety issues and utilize a broader range of measures to address vulnerabilities and under the agency's traditional prescriptive requirements.

In my view, the NFPA 805 approach not only improves fire protection but the modifications can also improve overall reactor safety and I think that's some of hopefully what we'll hear today as we hear from some of the plants that have transitioned to the program. And additionally, the integrated perspective that the licensees have obtained at their plants can help them to better address safety issues in the future.

Licensees for 48 reactors or approximately half of the nation's 104 operating reactors have indicated they will adopt this voluntary approach. Progress on the transitions has probably been slower than I would like to see and at this point after seven years of extended enforcement discretion, only two licensees, or a total of four reactors, have completed the transition, so one of the things that, hopefully, we'll have an opportunity to discuss today is how we can continue to make progress and move forward in that area; and the experiences of these two licensees is really going to be the focus of the meeting today.

In April of this year the Commission approved a staggered approach for NFPA 805 license amendment request reviews and seven licensees committed to providing their amendment request to transition to 805 by the end of the fiscal year which ended on September 30. Of those seven, five licensees have currently submitted their requests, so I think today will be a good opportunity for us to hear from a panel of experts from the industry and advocacy groups and then we'll hear from a second staff panel -- and I did -- I did want to make one comment in regard to Jack Grobe, who is not at the table but this I believe will be Jack Grobe's last Commission meeting before he retires. Jack is currently the -- is he embarrassed yet, or not?

ANNETTE VIETTI-COOK: He's doing the retirement dance --

CHAIRMAN JACZKO: Oh yeah, we should stand up.

[laughter]

[applause]

I got to say what I'm going to say first before you applaud, but Jack's -- his current title is deputy director for engineering and corporate support, he joined the NRC in 1980 as an inspector in Region III and he subsequently held progressively more responsible positions in Region III including project engineer, senior resident inspector, director of enforcement investigation coordination, chief of the nuclear material safety and chief of fuel cycle safety.

In '96 he was appointed to the SES and served as the deputy director and then director for DRP and DRS in Region III and that's a -- if that's not an NRC -- a classic NRC career, I don't know what is. During his tenure in Region III Jack participated in several major agency tasks, including chair of the NRC oversight panel for a number of facilities in long term shutdown due to

operational safety deficiencies; and in particular, from 2002 to 2004 he served as the chair of the Davis-Besse oversight panel following the discovery of the reactor vessel head corrosion.

In 2004 he was appointed as the director of the Office of Nuclear Security, Special Projects in NRC headquarters to direct the NRC's initiatives regarding enhanced safety strategies to deal with the loss of large areas of a facility due to fire or explosion and since 2004, some of the most important safety issues have had Jack's strong leadership and involvement.

Since joining NRR, he led the agency's initiatives to implement digital I&C and to resolve longstanding fire protection issues and of course, most recently he was a member of the near term task force which was established to identify near term Lessons Learned from the Fukushima-Daiichi accident in Japan.

So certainly congratulate you on your fine career and we'll have plenty of opportunity to grill you in questioning one last time. With that I'd offer my colleagues opportunity to make comments for anything they'd like to say to him. Okay, well then we'll begin with Alex Marion.

ALEX MARION: Good morning, Alex Marion, vice president -- Good morning, I'm Alex Marion, vice president of nuclear operations at the Nuclear Energy Institute and it's a pleasure to speak with you this morning and offer industry perspectives on the transition to a risk informed performance based regulatory framework which is provided by NFPA 805. May I have the second slide please.

As I was preparing for this briefing, several questions came to mind and what I thought I would do this morning is basically provide responses to the

questions in terms of where are we now, what is success, what are the challenges to success as we see them today and then what's next going into the future. Next slide please.

Where are we now, the Chairman mentioned that 48 of the 104 units have transitioned to NFPA 805. Two pilot plants have received safety evaluations, as a matter of fact one of the pilot plants has successfully conducted the triannual -- or the NRC conducted a triannual inspection of one of the pilot plants and that was successful and there were six non-pilot license amendments that have currently been submitted to the NRC. The transition process is working well; want to make that very clear. There are a number of plants that are watching this process to make a determination in their minds whether or not the process is indeed providing a risk informed regulatory framework that's performance based and is it stable and predictable? Is it consistent? Is it going to be consistent over time, and I think the pilot effort was an excellent first step in that process to establish the consistency.

We've established a standard license amendment request form; we've had excellent interactions with the staff in working through the details with both the pilot plants and the non-pilots. As we continue with the review of the non-pilots, I'd like to recommend that we continue open communication and full engagement with the staff and I also would recommend that we have some periodic management oversight to kind of sit back and assess whether or not the process is continually being effective and efficient to the extent possible as we go forward.

I don't want to relive the past, the fire protection that's been haunting us over the last 30 years, where you've had different interpretations not

only on the part of the NRC inspectors but also interpretations of the regulations on the part of the licensees. There was no stability in the process and I think we have an opportunity to provide that stability going forward. Next slide please.

In terms of what is success, as I mentioned we've established the license amendment format and content, we have a reasonable understanding of what the expectations will be with regard to the safety evaluation. The process has been defined; we don't see any significant changes to that -- those two documents absent some new insights from fire protection research or from fire science development. We recognize that we need to deal and address with those new changes, but we feel the process is reasonably standard at this particular point in time.

With the pilot plants and the non-pilot plants who have agreed to transition to 805, we have recognized that there are safety improvements, a reduction in fire risk as a result of these assessments and that's positive. Modifications have been made at the plant to support those issues and effective implementation is currently in place.

In terms of post-transition, couple things that we need to watch out for is the change process, in terms of what's the flexibility that's going to be provided to the licensees to make changes to their fire PRA or make changes to their programs as a result of future modifications going forward and the extent to which those changes may or may not be reviewed by the NRC in advance. We need to work through that and I think monitoring the process for a few years will give us a good benchmark, if you will, going forward over the longer term.

Compensatory measures are still a necessary element of an effective fire protection program. With the transition we've been allowed to

establish more performance based compensatory measures that are commensurate with the risk that's being challenged, if you will, by the condition that had been identified. As we go forward, we will continue to stress efficiency and effectiveness in the use of resources, not only on the part of the NRC but also on the part of the utilities. Again, if it is a stable and predictable process then I think the resource question will be answered by that process as we go forward. Next slide please.

What are the challenges to success? Right now, there isn't any certainty in what the costs are associated for NRC review and approval of license amendment request in this particular area. The staff has indicated that they will need two years for review and approval of any license amendment that's been submitted. If we can get some assurance and certainty that that is indeed the timeframe and get a sense of the cost associated in terms of staff resources, I think, will have a pretty good idea of consistency in the cost aspect of this going forward; and that's important because the pilot exercise has established a certain benchmark. We would think that the process would become more efficient going forward, so we would envision that the cost would go down and primarily, I'm focusing on the NRC review and approval time frame. The Commission, I think, suggested that the staff ought to establish an objective of achieving a one year review period and we kind of agree that one year is an adequate time because you have to recognize the fact that these are not new programs. These are fire protection programs that have been in place at these licensees for 30 years or so. So you're not starting the review with a clean piece of paper, if you will.

Now, you recognize that three areas need to be addressed. One is operator manual actions, the other is circuit failures and the third is the transition

to 805. It seems to us that if the focus -- if the priority of the review would focus on those three areas and establish some level of confidence in the way those areas are addressed, and I think the rest of the program can be deferred to follow-up inspection activities instead of reviewing it all over again. Just a thought for consideration and that would lead to some consistent -- more efficiency in the process as we go forward.

We also are challenged by the application of fire PRA. Hindsight being 20/20, one of the -- you know, you ask yourself the question, “What would I do differently going forward given what we've gone through now?” We would have probably tried to do a comprehensive pilot of NUREG 6850. What we wound up doing -- we basically piloted that document through the two pilot plants but it's different when you're piloting something while you're in the midst of a licensing process than it is when you're outside of a licensing process, but it's something to think about going forward. There have been a number of improvements identified and we're looking forward to the revision of that particular document and consistency or coherence between that document and the other regulatory documents, if you will, that govern the use of fire PRA. Next slide please.

Okay, in terms of what is next, we continue to believe the staggered approach for the reviews makes sense, continued open communications will be necessary and we're looking for some time period and we'll have discussions with the staff when it's appropriate to sit back and assess how we're doing, what progress are we making as we're going through these reviews, are there any substantive changes that need to be made to the process of the associated documents going forward. From the standpoint of fire PRA, we want to make

sure that it's balanced and realistic and we have efforts underway between the staff and the Electric Power Research Institute to achieve that objective; but more importantly we suggest their management oversight is necessary because right now we're at the point of having to demonstrate that compliance is indeed going to be risk informed and performance based and not the deterministic approach for a number of these plants, and that demonstration, quite frankly, rests with the NRC going forward over the longer term. That essentially completes the comments that I have to make and thank you.

CHAIRMAN JACZKO: Well thank you Alex. Next we'll hear from Paula Marino, who is the senior industry fire PRA -- on the senior industry fire PRA task force and vice president at Southern Nuclear Operating Company, we'll talk about your experience with transition.

PAULA MARINO: Good morning. As an owner and operator of nuclear plants, our responsibility is to protect the safety and welfare of the public and nuclear safety is key to that responsibility. Two years ago, Southern Nuclear recognized that we weren't using risk insights to drive improvement nuclear safety margin. We were using risk insights in support of regulatory programs such as maintenance rule, MSPI and the significance determination process, however, risk insights weren't being used to drive our decisions. We were in a reactive mode. With that recognition we decided to significantly advance our use of risk insights and create true risk informed programs to drive our decisions and this is consistent with the NRC's move toward performance based risk informed regulatory framework.

Our vision is sustained excellence in nuclear safety through performance based risk informed decision-making. There are two key

ingredients in realizing our vision. The first is a predictable and sustainable transition from our current prescriptive programs to performance based risk informed programs and the second is a holistic approach to the transition itself. I appreciate the opportunity today to discuss both of these ingredients in the following slides in relation to NFPA 805. Next slide please.

Our strategy for achieving our vision consists of three elements. The first is to implement voluntary risk informed applications. We are the NRC pilot for four bravo, flexible allowed outage time and for 50.69 risk informed characterization of structures, systems and components. We're also the pilot for the PWR owner's group for staggered ESF testing using the five bravo owner controlled surveillance frequency program. Our strategy also includes state-of-the-art models and tools and we're working with EPRI to develop seismic PRA models and to upgrade the industry tool for equipment out of service. We also, in our strategy, have a third element around our processes and people and the infrastructure we need to support our vision. As we've implemented this strategy, we have developed a unique perspective that we want to share with you today in the context of NFPA 805. Next slide please.

The first of the key ingredients to achieving our vision is a predictable and sustainable transition. The transition from the prescriptive based Appendix R program to NFPA 805 presents its own challenges. Southern Nuclear has committed to transition its Farley plant to NFPA 805 and as we learned from others who are transitioning ahead of us, one of the major challenges we see is the unclear role of the fire PRA peer review results. Contrary to the current use of the internal events peer review results, it appears that even if the peer review process finds a fire PRA model to meet the ASME

standard requirements, it may not -- it may not be accepted by the NRC staff. Utilities may be and have been asked to justify their use of alternative methods to those in NUREG 6850. This may result in the acceptability of the applied method to be subject to an individual's preference, as opposed to relying on established protocols. When this happens, uncertainty in the cost and schedule duration of the review increases.

The longer the duration of the review, the more likely that a plant change will occur that will have to be reflected in the license amendment request. This change could result in a resubmittal of the LAR and the impact of that resubmittal on the schedule of the review is unclear. This is always a possibility with a license amendment request, however, given the number of significant issues we have facing us today as an industry, it is even more likely that a plant change of this nature would occur and should occur during the review period. How we address that's very important.

NFPA 805 will be the first time the NRC will use an inspection process with a voluntary major performance based risk informed program. The inspection program must be objective, not requiring continuous clarifications and take into account the highly plant specific analysis based nature of the NFPA 805 program. Next slide please.

The second ingredient for achieving our vision is keeping a holistic perspective during the transition. A holistic approach in this context is the comprehensive integrated set of performance based risk informed programs and tools that provide a realistic representation of the plant's capability to deal with all hazards. If the fire PRA is developed only for NFPA 805, it may not contain the same level of realism as a fire PRA model that is required for a risk informed

decision-making program that considers all hazards.

If the fire PRA model is 805 specific, when it is integrated with other hazard models such as internal events and seismic, a fire hazard could artificially mask other hazards and by biasing one hazard, the effectiveness of risk informed decision-making is reduced. Like any other scientific based approach, fire PRA methods will improve through use. We experience this with the internal events model. Fire PRA models that are not considered to be of sufficient realism will not be used and therefore will not grow and develop and mature. Next slide please.

To achieve our vision of sustained excellence in nuclear safety through performance based risk informed decision-making we have a number of challenges to overcome. Several of these the NRC Commission and staff can help us address. In the context of the NFPA 805 discussion, we need to focus on improving the predictability of the license amendment request review process, as well as the post-transition inspection process. We are encouraged by the results of the pilot inspection process at Harris. Jeff will be talking about their experiences in just a minute. We would like to build on that success to address some of the issues I have described in my presentation.

We also need to have a flexible review approach that uses a self-approving change process to deal with plant modifications considered during the review period. This would encourage beneficial plant modifications to be implemented during the review period with confidence of minimal impact on the license amendment request review duration.

In terms of fire PRA models, we need to continue our collaboration with the staff on improving realism in methods and encourage effective use and

support of the established fire PRA peer review process. Southern Nuclear and I personally believe that success for NFPA 805 as defined by Marion, is achievable within our grasp, that the challenges are manageable and I look forward to sharing the results of our holistic approach to risk informed decision-making with you in the future.

CHAIRMAN JACZKO: Thank you.

PAULA MARINO: Thank you.

CHAIRMAN JACZKO: We will now hear from Jeff Ertman who is the NFPA 805 transition project manager at Progress Energy.

JEFFERY ERTMAN: All right, well thank you for the opportunity to speak at the briefing. Just a little bit of background of my background getting into fire protection. One of my other positions is a fleet fire protection supervisor, responsible for oversight at our existing programs and our programs going forward at our Progress Energy plants. I've been participating in industry efforts and back in the '90s was on the task force that was developing options or ideas for performance based approaches, so I've been following this through for a number of years.

At Harris plant -- well, Harris is our first plant to transition, our entire fleet is transitioning to 805. My topics today are the pilot transition Lesson Learned, the triennial inspection Lesson Learned and then some perspectives going forward. Next slide, please.

Specifically at Harris Plant, you know, without a doubt safety has been approved at the plant as part of transition to 805. Evidence of that are the modifications that, you know, improved the plant in various ways, and we've discussed that in other venues in the past. Also, we have resolved the industry

issues with MSO's, with OMA's, operator manual actions, and the raceway wrap. For example, many of our operator actions have been reduced and the ones that are in place are Defense In-Depth, and there's other avenues for success for safe shutdown.

And then finally and relative to the pilot activities, in addition to piloting 805, we effectively, as Alex mentioned, piloted NUREG 6850. Us, and Oconee was involved with that too, and we learned a lot along the way. At Harris we also were the first plant to host a peer review. At the time, it was to the ANS standard; now it's been assumed in the ASME standard for fire PRA. So we've spent significant time piloting not just 805, but a lot of the support structure that goes with it.

As far as the transition process, as Alex mentioned -- and we feel as an organization that the process worked well. We have the two LAR's that we submitted for the pilot plants, we have the SE's returned, and at Harris we had implemented our program. Along the way there were a number of details that needed to be worked out. The industry working with the staff developed the FAQ process to work through some of those details.

A number of FAQ's were issued; for example, an area that for non-power operations which was a new area for 805. We worked through those details. Another area was counting of ignition sources for input to PRA. So along the way, you know, 30 to 40 FAQ's; now we're up to 50 as we went through the post-LAR process.

The other thing that we used the pilot process for was develop a template for the subsequent plants. And the ones that submitted this year used that template, and I believe that was quite successful. If you look, the content

and the form is very similar, same amount of information. Now we do expect over time, as we go through RAI process that the template will be adjusted as needs change. But I think that it hits the mark quite well on what needs to be in a LAR, and that's the feedback we received from the staff during the development of that template.

Another topic -- the level of detail in the SE at Harris, we think, is a good level. You know, there's always a question, you know, do you submit thousands of pages, you know, what level of detail do you submit? And we feel like that it gives us the feedback on acceptability of our program that does promote, you know, consistent use in the future and does -- will help the inspection process. As Alex mentioned, one of the questions is the efficiency of the reviews, and I think part of that is the LAR template that, you know, captures information and submits it in a consistent fashion.

Another Lessons Learned from the transition -- there's much new information at an 805 plant, as we went through the process of identifying ignition sources, looking at potential fire scenarios. We used that in our fire PRA's, but we do use that in a number of other areas, too, as we develop our programs. A couple of examples: combustible control program looks at this new information and manages that program in a different way, and I think a better way, going forward. And a second example is the fire brigade training program. We now have examples that we can use and know where to focus that program in our training going forward. So there's a number of key building blocks available for the transition plants going forward. Next slide, please.

Harris, as mentioned, was the first plant to have a triennial inspection under the new 805 procedure from the NRC inspection procedure. I

think overall, as Alex mentioned, it went very well. There -- you know, 805 by its nature has some new elements to it that had to be included in that procedure. An example: the license condition change process is now a risk-informed process, so it, you know, obtains information from the PRA insights as we're making decisions on plant changes going forward. So that's a new aspect. I mentioned earlier the non-power operations is a new piece of 805, so that was all included under the procedure, you know, as expected. We did see that the staff used that information, the new information I mentioned earlier, I think in a constructive fashion. If issues were potentially identified, you know, look at the sources, look at the fire scenarios and understand the impact on the plant. So that information is also available to the staff during the triennials.

Without a doubt, team inspections are still a considerable effort by both the staff and us, the licensee. For example, at Harris, to support the on-site weeks we estimate approximately 25 person weeks between the two on-site weeks and the information guide and trip. In contrast -- now it is more -- it was more for this inspection than our typical fire protection inspections -- in contrast at Brunswick, which just finished in November, it was more like 15 person weeks. We did have a number of individuals there for the first, you know, first ever inspection as part of a learning opportunity, and then the staff had a number of extra inspectors, too, for the same purpose. But I would expect over time, it more converged to what we see now as far as inspection support.

We did have a -- now it's a finding, not a potential finding -- that report was out last week -- relative to procedure development. However, the implementation of the 805 processes and such had very good results, and I think -- I think the procedure worked well. I think over time as we improve our

program, the inspection procedure will probably improve, too, but I think it went well, and that's the view of our organization, too, and our site management.

Relative to going forward on fire protection, definitely feel like that the FAQ process needs to be continued, and it is being continued for two reasons. One is the implemented program. For example, at Harris, we do have -- we are working internally on an FAQ to update the guidance NEI-402 for the license condition change process. There's some Lessons Learned there that we want to get into the process. And then for the other licensees that submitted LAR's this year, you know, there'll surely be some opportunities for improvement going forward as Lessons Learned from those licensees and those reviews.

And then finally, the -- as I alluded to a few times -- but there is a wealth of new information now available concerning fire protection at our plants, and we are continuing to improve, you know, use and improve that information to help us with our decision-making and improve safety. And I believe that the inspection program will probably also find some improvements or additions to help improve that process, too. Overall, that's the end of my remarks, then. Thank you.

CHAIRMAN JACZKO: Well, thank you for those -- that perspective. Next, we'll hear from Michael Carlson, who is the vice-president for Site Support Services at DC Cook.

MICHAEL CARLSON: Thank you. Good morning. I appreciate this time to meet with the group this morning. We are -- we're very proud of the work that's being done at the DC Cook plant to begin the implementation of NFPA 805. I have with me today Richard Grey, who was the project lead for that initiative, and like I said, I'd like to compliment him and the group on the work that

they did.

We were the first non-pilot plant to submit. We did submit, as expected, on July 1 of 2011. We were also somewhat unique in that we were the first plant to submit with a focus more on analysis than actual modification. And I want to make sure that they're two impressions that I don't want to give with that statement or with this presentation, because we're going to talk about the modifications that we do need to make and they are relatively minor. The impressions I don't want to give is that it was easy. There was a tremendous amount of work that went into developing the fire models, the fire PRA and such. And I also don't want to give the impression that every plant is going to be able to take this approach. Every plant, as you know, has its unique characteristics. One of, or a group of the characteristics that we had at DC Cook was that we were at a very, very good position to take the analytical approach to this and minimize, excuse me, the number of modifications that we had to do.

We did have our first post-submittal NRC audit in November of this year. Paul Lain was your lead for that audit. I'll tell you, that audit went very, very well. Based on the discussions that we had with the team, we are expecting a significantly reduced number of requests for additional information. It likely, you know, significantly less than -- certainly than the pilot plants had. And we also believe that, you know, many additional requests for additional information were eliminated, that the need for the those RAI's were eliminated through the -- through the course of that audit. We had very, very good interaction with your team, so I appreciate that and we'll continue, of course, working to answer any and all remaining questions that you may have. Next slide, please.

The transition process itself, as I said, you know, we did rely very

heavily on the safety analysis to confirm, verify and our physical configuration, our fire protection features, our VFDR's variance from deterministic requirements. We participated throughout in the NEI task force, and again, we gained tremendous benefit from the insights of both Harris and Oconee. And we attribute that to -- or we attribute the significant reduction in requests for additional information to the information gained through that task force. So that has been used, you know, very much to our advantage and appreciate NEI's efforts in that area.

As I indicated earlier, we did focus on a performance based analysis, fire modeling and risk evaluation. We did develop our fire PRA specifically to support this initiative, but we do plan to move it -- or use it going forward in many other areas to, you know, to use risk-informed applications throughout the site.

Circuit analysis -- and again, this sort of gets to -- this is where we start to get a flavor for the configuration that we have at DC Cook and how it supported the analytical approach to this. When we did our circuit analysis, we identified two items that required enforcement discretion, and both of these were short cable runs in cable spreading rooms, one on each unit that simply had to be fire-wrapped. And so we were able to respond to that very, very quickly. So as far as enforcement discretion goes, we had those two areas -- again, one set of cables in each of our cable spreading rooms, and then we had a minor procedure change that we had to make. So we did not have to leverage of take advantage of enforcement discretion to any great extent.

As we move through the transition, we will be required to make a total of 10 modifications. In reality, it's the same modification to 10 motor

operated valves, and the modification isn't even to the valve itself. It's simply a wiring change that we need to do in the MCC or in the supply breaker to include the overload protection that is a part of the MOV's capability as installed, that simply per our design wasn't being taken advantage of; so again, relatively minor modifications to support this. And again, I want to be careful not the give the impression that everybody is going to be able to get to that point with the number of modifications that they make.

We did model our NFPA 805 fire areas. This did require us to run over 900 scenarios. So again, that number we expect is higher than you'll see at most sites that, you know, may decide to do more in the way of modification and such. We did focus on the analytical side. Again, what that did drive us to was two additional modifications, and I use the term, you know, modification, you know, somewhat lightly there, because really all we need to do is we have two CO2 systems, one in the 600 volt MCC area on each unit. So it's the same CO2 system in the same room on each of our units, and that was design built with an auto-actuation function. We had taken -- literally taken the switch from auto to manual, and we're operating in a manual for personnel safety concern, so it wouldn't auto-actuate. As part of this transition, we will have to take that switch back to and operate that system in auto. But that really is the extent of the modifications that we have to do.

We did see a significant -- I'm sorry, next slide. We did see a significant reduction in operator manual actions an order of magnitude reduction. The majority of the operator actions that were eliminated were eliminated because we went from a cold shutdown plant to a stable hot shutdown plant. A number of the other modifications were eliminated through the fire modeling and

through the risk assessments. So go to the last slide.

In summary, you know, with the knowledge that we gained through the NFPA 805, we do believe that DC Cook is and will be a safer plant as a result of implementation of NFPA 805. Most importantly, I think the significant reduction in manual operator actions will be one of the key contributors to that, and I look forward to answering any questions that you may have. Thank you.

CHAIRMAN JACZKO: Thank you for that presentation. We'll now hear from Paul Gunter, who's the director of the Reactor Oversight Project at Beyond Nuclear.

PAUL GUNTER: Thank you very much for the opportunity. We really appreciate the invitation back before the Commission. I think it's important, as you do, that the public interest community have an opportunity to address its concerns. I think chiefly the Fukushima catastrophe now raises the stakes for effectively resolving now decades old fire protection violations and issues at operating reactors. However, NRC and the nuclear industry are now straddled between two protection -- fire protection compliance strategies without sure footing in either. Particularly the NRC policy of non-enforcement, otherwise known as “enforcement discretion,” and the industry's excessive use of exemptions for long-standing fire safety violations as a substitute for front line fire protection for reactor control room shut down diminishes the agency's own Defense in-Depth philosophy. These substitutes further serve to obfuscate and shield the nuclear industry from violations of long-standing orders from the agency issued to protect reliable control room power operations.

Furthermore, we believe that reactor operators have misrepresented material fact to the federal agency on compliance with fire

protection orders, specifically Thermo-Lag Confirmatory Action Orders issued in 1998. A de facto agency policy of “forgive and forget” and an inability to effectively take enforcement action to move industry beyond its own financial interests, we believe leaves the public unduly and dangerously in the lurch. In the aftermath of Fukushima, this is no longer acceptable.

In our view, NFPA 805 is now stalled on costs, terminology and definitions. In 2008, the Advisory Committee on Reactor Safeguards first identified achieving fire safety compliance could be cheaper under NFPA 805 than trying to break a stalemate over the prescriptive standard.

The other thing I wanted to note here is that while NEI has noted that there is -- they view this process as a stable transition right now; I have to note that there's been this fluctuation of numbers of the applicants. So, I mean, at one point it was 51, then it was 49 and then it was up to 50, and now it's -- now it's back down to 48, and this is puzzling, and it doesn't reflect stability on the part of this transition. But as of November 18, 2011, industry now appears to be balking on what it terms, quote “frighteningly high” unquote costs associated with risk analysis and the license amendment process.

After more than 12 years of NFPA 805 development and the wrangling with industry by five different agency chairmanships, it is more frightening that the process is stalled on terminology and definitions. Moreover, the Commission's own four to one majority vote this year for protracted enforcement discretion policy effectively shields industry stonewalling for cost-cutting agendas in an apparent effort to wear down the agency staff's safety agenda.

Moreover, we're even concerned about the majority of the plants

that are now moving for exemptions from the prescriptive law with which they remain. In this case, we see exemptions from prescriptive law now trumping agency orders. Fifty-six reactors have opted to remain under a long-troubled prescriptive fire code through large numbers of exemptions from law protecting control room electric circuits for the preferred frontline powered control shutdown. Exelon's Oyster Creek nuclear power station serves to illustrate our concern for significantly diminished Defense-in-Depth, oversight and enforcement. It further serves to illuminate what we believe to be the industry's misrepresentation of material fact for compliance with NRC fire protection orders issued in 1998.

In part, current law requires that when control room primary and backup electric circuits appear in the same fire zone, operators must physically protect one electric circuit so that no single fire knocks out the preferred control room powered operation for safe shutdown during and following fire. In 1992, NRC acknowledged that a majority of U.S. reactors were in violation of this law. In 1998, NRC had to issue orders to 26 reactor units, including Oyster Creek, to physically protect control room electric circuits from fire damage. General Public Utility Nuclear, then owner, consented to bring Oyster Creek into compliance by December 31st, 2000 for seven fire zones by removing and replacing faulty fire barrier materials and/or rerouting backup electrical circuits through a different fire zone.

On January 30th, 2001 Exelon, now new owner, represented by document to NRC that it had completed the corrective actions as per order. On January 24th, 2003, NRC inspectors discovered an unprotected fire zone designated in the order. Without notifying NRC, Exelon had abandoned corrective actions per order and substituted unapproved manual actions that

assume the safe shutdown circuitry to be destroyed by fire and instead send workers into the plant discounting smoke, fire and radiation to manually pull circuit breakers, turn valves, et cetera to shut down the reactor.

Exelon, as much as a still non-compliant nuclear industry was provided with protracted blanket enforcement discretion. NRC made no mention of the violation of the order or the apparent misrepresentation of corrective safety actions to the federal government. NRC and industry wrangled seven more years before on March 3rd, 2009 Exelon requested exemptions for dozens of fire zones from fire code and the approved use of manual action.

On March 30th, 2011, following the Fukushima catastrophe, NRC approved fire protection exemptions including six of the seven fire zones identified in the 1998 order and confirmed by Exelon as protected.

The Fukushima disaster now calls for the examination of a protracted non-enforcement policy and the abandonment of frontline control room powered operations. We are requesting an investigation and a public accounting of how many reactor operators did not complete corrective actions per order and willfully misrepresented compliance with orders, which would be considered a felony violation of NRC law. Moreover, we are sounding an alarm for a broader implication of industry compliance with future NRC orders, particularly with those with regard to the Fukushima corrective actions. And we would further request that there be some accounting publically of the -- how this policy of non-compliance and non-enforcement has affected the ability of the agency's -- ability to issue and execute its own orders. That concludes my comments.

CHAIRMAN JACZKO: Well thank you for that interesting presentation. We'll start with Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman. Mr. Marion, you mentioned that 48 units, I believe, have chosen to -- yes, 48 out of 104 to transition to NFPA 805. Why are the remaining units not doing it?

ALEX MARION: That's an excellent question. When we started this effort, a number of the utilities -- and I would encourage the utilities representatives at this table to speak up as well -- looked at the potential for regulatory exposure. We had an issue that evolved related to operator manual actions. We had an issue that was related to circuit failures, multiple spurious operation of electrical cables exposed to fire. And we also had a minor issue because -- I call it minor because it affected 10 plants in various quantities of a fire barrier material. And utilities that evaluated the current NRC expectations relative to those three issues made a determination of what risk existed relative to having some regulatory difficulties going forward. So they took advantage of the opportunity provided by the voluntary regulation to deal with these issues in a risk-informed, performance-based manner. You could deal with them on an exemption basis prior to that but now you had a rulemaking that was put in place that allowed you to apply that tool.

Other utilities are looking at the process. There are a number of utilities that have decided to undertake fire PRAs and the balance of the utilities are looking at the process to make a determination if it indeed is going to be risk-informed and performance-based and different than what the regulatory framework has been in the past. And those are the reasons as I understand them. I would ask the other members of the panel to offer their perspectives from a more utility-specific manner.

COMMISSIONER APOSTOLAKIS: Any other comments; you said

whether the process would be risk-informed? I thought it was risk-informed. Am I misunderstanding what you're saying?

ALEX MARION: The process for making the transition and implementation, the demonstration that it indeed is going to be risk-informed from the standpoint of dealing with new inspection findings or future interpretations of the regulations.

COMMISSIONER APOSTOLAKIS: So in your opinion, is 805 a good rule or not?

ALEX MARION: Yes, it is a good rule. We were successful at our plants and Progress Energy --

COMMISSIONER APOSTOLAKIS: Good in the sense that it improves safety?

ALEX MARION: It improves safety, that is correct.

COMMISSIONER APOSTOLAKIS: So then the remaining units ought to be thinking of doing it.

ALEX MARION: Well the -- in my view, and I'm not familiar with specifics of remaining units, but it does depend on the situation and the features in those units. Not all of them are built the same and laid out the same configurations, so it does depend on the plant to determine how much improvement do you get from safety -- for safety for transitioning to 805.

MICHAEL CARLSON: I think you're seeing us all hesitate a little bit in response to that question because, as we've all made the decision to move forward with 805 and it's a little bit of a challenge to speak for other utilities who have made a different decision. My understanding of the decision-making process for those utilities though is that it was, you know, a relatively straight-

forward evaluation of what changes would need to be made to be brought into compliance with the current rules versus, you know, what it would take to implement NFPA 805 and, you know, with an understanding that either approach would allow you to continue to operate your plant in a safe and reliable manner. And it really came down to a decision as to which was going to be the most predictable and most appropriate for your particular plant.

PAUL GUNTER: Commissioner Apostolakis, I think that what -- who's missing here at the hot seat are the plants that have decided to move through the exemption process. And I think that this is a very important question you've raised here because in fact the bulk of the plants are holding out and in fact, as I mentioned in my remarks, the number of applicants into NFPA 805 is not a stable number and given what we saw at the November 18th meeting I think the number is going to continue to fluctuate.

PAULA MARINO: I'd like to comment because I have -- we have three plants and we have committed for our Farley plant to transition to 805 but we have not committed at Hatch and Vogtle. And it is as Michael said, it came down to compliance with Appendix R versus compliance with NFPA 805. And there are some challenges with 805 in terms of methods and the realism of those methods and we felt like we could comply with Appendix R possibly with more stability than with the current NFPA 805 as it is today.

However, we do have intentions to transition. We just want it to grow and develop a little bit and we want to go through and live the transition with Farley to learn to take all those Lessons Learned and take and put them into the next two units. So I believe there are a lot of units sitting out there who have intentions to transition but there are a number of reasons why they're waiting and

it's not that they don't have the commitment. So, I just offer that perspective.

COMMISSIONER APOSTOLAKIS: Well the thing is I thought the industry did like performance based regulations and I was a little bit -- I just heard of Appendix R. Somebody praised Appendix R. You didn't quite praise it --

PAULA MARINO: I didn't.

COMMISSIONER APOSTOLAKIS: -- but you said it's okay, which is a significant thing to hear. Now, once you enter, of course, NFPA 805 you have to be risk-informed in all your fire activities in the future. Would -- leaving aside the problem with the methodology, I understand the original 6850 had problems and that created delays and so on, but could this rule be used as a model in other areas so slowly we will start bridging the gap between the two regulatory approaches of traditional Part 50-based rules and risk-informed rules that are voluntary. But 805 is voluntary in the sense that you may choose to enter, but after you enter it's not voluntary anymore. Could we use that as a model in other areas like emergency planning maybe or seismic -- I mean, do you think that that would be something worth pursuing or the experience with 805 is such that we should postpone such an effort?

ALEX MARION: I -- 805, if my memory serves me right, I believe the voluntary rulemaking that the NRC put forward relative to 805 was the first true risk-informed regulatory program, if you will. And we approached it as a good start and probably the first real example of how to work in a risk-informed environment and apply it to an industry program that's been deterministically evaluated and treated in the past. As I mentioned in my comments, hindsight being 20/20 we would have liked to have piloted new NUREG 6850 outside of the licensing process. But be that as it may, it has been piloted by the two pilot

plants. There have been recommendations made for changes. I think we need to monitor this process through the implementation over the longer term to make sure it's truly going to be sustained as a risk-informed, performance-based regulatory framework.

COMMISSIONER APOSTOLAKIS: Why would it --

ALEX MARION: All indications are that it will be, but my concern, and maybe it's just the fact that I've been following fire protection for so many years, if we don't watch it I think it might return to the old days of fire protection under Appendix R, et cetera, where you had individual people just interpreting what the requirements were, okay? And now with this framework we can keep that under some level of control.

COMMISSIONER APOSTOLAKIS: So are you saying then that you would not encourage the Commission to pursue a similar approach in other areas?

ALEX MARION: Oh, I think there are other areas that warrant such an approach but I think we need to learn as much as we can from what we're doing in the fire protection arena and improve on that process and then apply it elsewhere.

COMMISSIONER APOSTOLAKIS: So you're saying, though, the siren of Defense-in-Depth is always a risk? That people may revert to defense in depth arguments and forget about risk significance, is that what you're saying?

ALEX MARION: No, not at all. I think risk insights provides a key element to the decision-making process, but you can't respond to a number completely. You have to use engineering judgments, some of the Defense-in-Depth concepts, and establish a balance between the two so that whatever

decision you make is informed by those two elements. And I think that's the success in the future.

COMMISSIONER APOSTOLAKIS: And we do have the integrated decision-making --

ALEX MARION: Absolutely.

COMMISSIONER APOSTOLAKIS: -- process from the regulatory guide. One very last quick question, you keep mentioning balanced and realistic approach. What is it that makes it unrealistic? Are you getting a frequency of fires of three per year or what? What is it unrealistic about it?

ALEX MARION: Of the -- some of the actual numerical results from the fire PRA are higher than we think is reasonable. And so that is a concern and we've mentioned that in other venues that we need to work through and get a more realistic PRA. However, that said, 805 is a risk-informed rule, not a risk-based, so using defense-in-depth techniques and the insights from that PRA, we can still make decisions. But we do need to make -- have some work, you know, to get the fire PRA to the level that we think is reasonable for use in other applications to -- and that's my view on that. I don't know, Paula, if you have anything to add or…

PAULA MARINO: We have found that some of the methods -- if we had the results that they would indicate, we would have had a number of fires and precursors to fires already. So it makes us believe that some of the methods might not be realistic. And we are working with the staff to make those methods more reasonable and realistic and we believe that we will over time as we use it, we just need to use it as an industry and let it develop and grow and mature.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Magwood.

COMMISSIONER MAGWOOD: Good morning, and thank all of you for your presentations today. Let me start with Mr. Ertman. It's good to see you again. I had the opportunity to visit Harris, I guess it was last year, wasn't it? Time flies.

JEFFERY ERTMAN: Right.

COMMISSIONER MAGWOOD: And one of the elements of your project, at Harris, that impressed me was the fact that you had used by and large internal resources to do the PRA work and at the time, I know there were some of f the contractors but --

JEFFERY ERTMAN: Right.

COMMISSIONER MAGWOOD: -- the bulk of the work was done by staff from your company. And it impressed me that there was a value in and of itself of having those people go through that exercise. I wonder if you could talk about that a bit.

JEFFERY ERTMAN: We definitely agree with that. That was, you know, some of the thought process for our approach and it does ensure that we have folks on staff or at fleet or at corporate, such as where I'm at, that were involved with the development of the calculations and the, you know, the processes. And I think that internal communications definitely helps with, for example, the change process that -- as there are questions, what is the impact? What are the insights from the PRA? It does help us in that process. We did find, through subsequent plants that we do have external resources supplementing, you know, with the work but it does help with the ownership of the product when you're done.

COMMISSIONER MAGWOOD: One aspect I wonder that when you're -- because I think there was -- there's been a little bit of a theme in some of your comments that overall plant safety has been improved by going through this process. And I wonder if that's actually more the case if your internal staff is doing the analysis itself and are able to use the insights in ways beyond fire PRA. Has that -- have you had an experience in that direction that would give us any indication as to whether there's a preference to use internal staff versus contractor staff?

JEFFERY ERTMAN: I think that the -- you can be successful either way. I mean, for some of our other plants, subsequent plants, we have supplemented more than we did at Harris, but you can manage and supplement and have success. You know, there are some very good contractors out there doing this work. I do think that the, you know, the site experience and ownership does help you in your decision-making. You know, when you've worked at a site for 20 years and you understand the nuances, it does help you in your decision-making that, you know, someone coming in from the outside of that have a little bit less of an advantage. So the key is to ensure you have oversight and, you know, reviews by the internal staff for those key decisions. And you can arrange your program to do that. That, you know, the key decision-making, even on our other sites where we do have some additional contractor resources, the key decisions on mods, on operator manual actions and such, are made by our internal staff. And I would expect that to be the case at the other sites and other utilities that do use more contract resources.

COMMISSIONER MAGWOOD: Yeah, please.

PAULA MARINO: Could I comment? We are also doing the

majority of our work internally. We do have some contractors, and there're very good contractors out in the industry. What we've found is that to do it internally, it's changing our culture to be much more aware of risk. And that in itself drives nuclear safety improvements. So, yes, I believe it does help. A certain level of that inside work changes your mindset about how you make decisions and it changes our culture and we're seeing those changes now. A lot more questions about risks and the relative risks at the plant. I think it does make a difference.

COMMISSIONER MAGWOOD: I appreciate that. Mr. Carlson, any comment?

MICHAEL CARLSON: What I would say is at the Cook plant, we did actually use probably more contract -- excuse me -- support for the development of the PRA than the other sites did. But what we expect -- one, the way that we ensured that the accuracy was there, that it was reflective of the plant, really was through the involvement of our PRA group and our PRA supervisor in particular. Now the way that we will, going forward, internalize that PRA is in its use in other applications; of course we were previously using it for risk-informed ISI, in-service inspection. Going forward, we'll be looking at risk-informed surveillances, risk-informed preventive maintenance, and you know, those two in particular, surveillances and preventive maintenance, really give us the opportunity to take those risk-informed insights, those PRA insights, and integrate them into some of the key processes that the rest of the site uses.

So that's -- as far as an accuracy perspective goes and the correctness of the work that was done, I have every bit of confidence that our oversight ensured that. As far as getting it out to the organization, it will probably take that next step of applying it to other plant processes to really get the

internalization that they may have gotten through the actual development of the PRA in-house.

COMMISSIONER MAGWOOD: And do you think that's the pattern with plants that use largely contractor staff to do their PRA? Do you think it's the after the fact where you can absorb it into the culture and make those -- gain the full value of those insights -- do you think that's the pattern we're going to see?

MICHAEL CARLSON: I think it's a good model. I think it will work well for us.

COMMISSIONER MAGWOOD: Another question. I've watched all of you listen to Mr. Gunter's presentation, and I just wanted to see if you had some reaction. Maybe I should start with Mr. Marion, since you ostensibly represent the industry, so I'll give you a chance to react. Mr. Gunter and I have actually had the conversation on along these lines -- although he's a little bit more specific this time and I want to follow-up on that -- about the use of exemptions at plants. And I just want to give you a chance to react to that and hear your thoughts as to how you think exemptions are playing into the overall safety of these plants and you know, where we go from here.

ALEX MARION: I think the exemptions -- well, as a matter of fact, the exemptions are a necessary and important element of NRC's regulatory framework. They're allowed. I believe the challenge before the NRC in developing Appendix R et cetera after the fire at Browns Ferry was to develop a regulatory framework that applied across the spectrum of plants that were in various stages of construction, and to come up with prescriptive requirements for a dynamic environment was a real challenge.

And I'm not a lawyer, but I believe there was a court action that was

taken, and I think in the early 80 time frame there was a decision made that the NRC's regulatory provision for exemption request was a valid tool for the site-specific nature of some of these plants to submit an alternative to the Appendix R regulatory requirement. And that alternative is submitted to the NRC staff for review and approval, and it provides another means of meeting the intent of that regulatory requirement.

So I think an exemption is a necessary part of the process. And looking back over time, the reason you have so many exemptions on Appendix R compared to other regulations is because of the specific nature of the plants and the way they were configured at the time the regulation was issued. And that unfortunately is a reality, but I think it results in safety. The plants that are not transitioning to 805, I believe, are meeting their licensing basis and are safe, as well as the plants that are going through the transition into 805.

COMMISSIONER MAGWOOD: I don't know if anybody else needs to establish a response before I check with Mr. Gunter. I mentioned you and I have had this conversation to some degree in the past and this time you had some specifics that I thought were interesting. What do you think, in terms of exemptions -- and I recognize this is a bigger picture than just the exemptions -- what do you think the agency should do from this point forward, recognizing, you know, what happened in the past happened in the past, but here we are today. What do you think we should take -- what action do you think we should take from this point forward?

PAUL GUNTER: Thank you. Well, the plants are configured today as they were yesterday. I mean, that's not changed. The issue of relaxing the oversight of the control room powered operation is our concern. That concern

has been heightened by the station blackout at Fukushima and what we see now as the consequence. I have no problem with operator manual action. I think they should be reliable and feasible, and therefore they should be put in place, but to replace control room operation with these manual actions, in no uncertain terms, this is a relaxation and it is a step back, a step down from Defense-in-Depth. You know, let's have both. But more concern, though, is a precedent that's been set for the agency's willingness and ability to execute its own orders. And the example of fire protection is startling when you begin to dissect the history and the, you know, this tug of war that has public safety in the middle.

I think that the agency, you know, at that point, given that you've got this straddling and on, you know, without reliable footing in either side right now, in our view, that the agency should return to enforcement policy. And I think that if you -- in so doing, I think you provide the teeth to the watchdog. Otherwise, you know, we'll be barking at this for another decade or two.

COMMISSIONER MAGWOOD: You mention in your remarks that you were requesting an investigation. Have you made an official, formal request for an investigation on any of these matters, or is this the first time you've brought this to the agency?

PAUL GUNTER: It's the first -- well, you know, we've requested this -- in Commission or in staff briefings, that, you know, that where have the orders gone? Where is the -- does enforcement discretion apply to orders as well? And it was really the exemption being granted for Oyster Creek on March 30th of this year -- and believe me, we -- you understand we've been busy with, you know, the accident in Japan as well -- but you know, I think this underscored our concern that there are some serious questions about the ability of the agency

to carry out its own orders. And so, you know, we're announcing this here, but we're pursuing this further.

COMMISSIONER MAGWOOD: Fair enough. My time is more than up, and I think I'd like in the meeting record to see if we can arrange for a Commission staff briefing to go over some of the points in Mr. Gunter's presentation. There are some things there I've heard before, some things I haven't. I think it would be worthwhile for the Commission to be cognizant over all these points. And if there's something that we need to do, we should, you know, take that action, but I think that should be in the meeting record. Thank you.

CHAIRMAN JACZKO: Thank you. Commissioner Ostendorff?

COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman. Thank you all for being here this morning. I want to start off with some questions, Ms. Marino. You raised some concerns on your slides four and five. I just wanted to quickly ask you some clarification with respect to NFPA 805 challenges. You mentioned the unclear role of the fire PRA peer review. What do you see as being the solution for that issue?

PAULA MARINO: Well, the issue as we see it today is that you go through the peer review process and you get a result from them that says, “You meet ASME requirements.” And you might have some, we like to call them enhancements, to NUREG 6850, because 6850 is a generic guidance document. It tells you you have a fire, it looks like this, and what you do is you develop your fire PRA's, you make that fire meet that plant specific nature of the room that it's in, including the size and how it would propagate and all those things, and test -- those are enhancements but at times we're asked to do a sensitivity analysis.

We've seen them in the recent Larson submittals on those enhancements to NUREG 6850, where they're really just refinements of that regulation. And so we don't feel like that is one that is necessary and adds a lot of value to that process.

Also, there's not a lot of definition around the sensitivity analysis. At what point are you outside the bounds of the sensitivity analysis? That's not defined. So if we want to use that process, we need to define it so that we know how to use it. What we would suggest is that we use the peer review process that we've used for all the other risk-informed applications, other fire -- the other models that we have used such as internal events.

COMMISSIONER OSTENDORFF: Have you discussed this with our NRC staff?

PAULA MARINO: I believe there has been discussions. Personally, I have not, but we have had discussions, and they are aware and they're working with this -- working with us on this issue.

COMMISSIONER OSTENDORFF: Okay. Your next slide, real quick, talked about the disparity between the fire PRA model and operating experience, and I want to make sure I understood the comment. If I heard you correctly, and I may have misunderstood, there was a concern raised that a fire PRA approach might mask other problems or vice versa.

PAULA MARINO: Correct.

COMMISSIONER OSTENDORFF: Can you amplify upon -- can you give an example of that?

PAULA MARINO: Yes. In fact, we talked about that this morning. I knew you were going to ask. We have a situation in our plant where we have two motor driven and turbine driven aux feedwater pumps. And for the fire PRA

model, if you just look at NFPA 805, impacts are all about the turbine driven, and so you can do anything you want to the motor driven. And that works for NFPA 805. But for the internal events model, it's highly driven by all three. So you can do something with your fire PRA model that meets NFPA 805, and at the same time, create problems or situations in internal events that you don't want. So what we have to do and what we're going back to do is make sure that the fire PRA model that we have at Farley integrates with all the rest of the PRA models that we have, and that they're all relative and they work together so that we can really tell what the plant's requirements are in terms of all hazards. Does that help?

COMMISSIONER OSTENDORFF: It does. Thank you. Let me go to Mr. Ertman here. You know, based on Shearon Harris' experiences as a pilot plant, can you point to -- is there a single modification or upgrade that's had the greatest safety return?

JEFFERY ERTMAN: Yes. Without a doubt, that's the alternate seal injection system.

COMMISSIONER OSTENDORFF: I'm sorry, what?

JEFFERY ERTMAN: Alternate seal injection system.

COMMISSIONER OSTENDORFF: Okay.

JEFFERY ERTMAN: It definitely significantly improved internal events results in the PRA, but it also provided, you know, alternative diverse seal protection for many areas of the plant. So that is really our largest risk improvement.

COMMISSIONER OSTENDORFF: From what you understand, Mr. Ertman, does that -- you know, you need unique to Shearon Harris? Is that

something that might have broader applicability to other plants? Or anybody else can feel free to comment.

JEFFERY ERTMAN: It depends on the other plants. I know there's -- I've heard of one or two others that maybe haven't already had that system going forward with it, but it depends on -- it's very plant specific on the needs and the configurations. You know, we had, because of our cable routings and configuration, more of a need than I think many plants would.

PAULA MARINO: I have a comment on a --

COMMISSIONER OSTENDORFF: Okay.

PAULA MARINO: On a risk insight that we used around our shut down seals for the reactor coolant pumps. We recognize that as one of our significant contributors to core damage frequency, and so we worked with Westinghouse to develop shutdown seals that enhance our coping time. So we installed those and that is excellence, not compliance, because we weren't required to do it. But we used risk insights to reduce our core damage frequency and developed those seals and put them it. At Farley, they're already in. They're going to be installed at Vogtle, and I believe the industry's looking at it to include their coping time.

MICHAEL CARLSON: I was going to say, we really appreciate the work that you did with that, because we're installing them in our next two fueling outages.

PAULA MARINO: Great. There's also Fukushima -- they also helped Fukushima, so I have big insights in the top industry practice. We're very proud of it.

COMMISSIONER OSTENDORFF: Okay. Thank you. Okay? Mr.

Carlson, let me shift over to your slide number two. You mentioned briefly that with respect to your experience, your facility relied more upon analysis as opposed to modifications. Can you provide one example, a concrete example, where you could have used a modification but rather chose to proceed with an analysis, and something to give us the concrete context for that?

MICHAEL CARLSON: No, but I have an individual here who can probably give me a very good example.

COMMISSIONER OSTENDORFF: If it's possible, I'd like -- you know, I don't want to make real long but --

MICHAEL CARLSON: Okay.

COMMISSIONER OSTENDORFF: Use a microphone, please, over here. And it's helpful for us to hear a specific context and example we can all relate to, so thank you for coming to the podium for that.

MALE SPEAKER: No problem. All right. In our 600 volt area and the main control area for the plant, we had several power supplies that were very close to each other, so that it would appear that one fire would take out both circuits. By doing finite fire modeling, we were able to determine that one fire over here would not affect the next cabin. Otherwise, we would have had to make a very significant modification to separate those two.

COMMISSIONER OSTENDORFF: Okay. Thank you, I appreciate that. Did you want to add anything on that?

MICHAEL CARLSON: No, sir.

COMMISSIONER OSTENDORFF: And that's going to kind of lead into my next question. Thank you -- well, if you want to -- if you want to -- you may want to stay up there because I'm going to go to your Slide 5.

[laughter]

And I -- we're all creatures of our experience. I know my colleagues are patient with me when I say this, but I fought fires in submarines dealt with six-eight eight class submarine design issues and looking at firefighting on those attack submarines. And I'm just looking at your Slide 5, I'm just trying to wrestle with 900 different scenarios. And my instant reaction to that is, “Is this overly complex?” And I realize a commercial nuclear power plant is much, much larger than a United States nuclear powered attack submarine, but at the same time, this -- what appears to me to be a very complex number of scenarios, and then we get into review times and so forth -- can you comment on your gut feel from your experience. Is 900 scenarios -- is that reasonable? Is that a right number for --

MICHAEL CARLSON: Well, certainly. It -- we believe it to be reasonable. Clearly, if we didn't, we wouldn't have moved forward with that. I don't want to downplay, you know, the significance, the amount of work that went into that, but we don't feel that it makes it unduly complicated, or that it, in any way, you know, masks any potential hazards.

COMMISSIONER OSTENDORFF: Okay. Thank you. Mr. Gunter, I've got time for one question here. We've heard from two of the plants, Harris and DC Cook, in their presentations that their transition to 805 has improved safety. Now I recognize that you have some more holistic broad industry concerns on the number of plants transitioning, et cetera, but if I can just kind of ask you to focus on the presentations you've heard today and what your understanding might be of those two facilities that have transitioned. Do you think that they have improved safety by transitioning to 805?

PAUL GUNTER: Well, I'd have to say, you know, it's difficult at this point to put trust without clear verification, and I think we're still in that verification process. You know, I frankly have to say that we have more confidence in prescriptive, deterministic, demonstrated code, you know, where you've run through it like an ASME 119 fire test on the equipment or on the barrier, and it works. It's demonstrated to work. Our concern, particularly with the, you know, the finite fire modeling -- let's take an example -- is that we're not certain that you can move through an enforcement action if you're arguing over competing models, or the lack of models or the input that went into the model. So I think we're still very much in a verification mode right now.

COMMISSIONER OSTENDORFF: Well, I counted your statement that you said we're straddled between two fire protection strategies and that that's not a good thing. And I, without philosophically engaging in debate there, I think, you know, and I'd encourage you offline to meet Mr. Ertman, Mr. Carlson and their representatives. Perhaps, you know, you start with knowledge gathering and understanding at one facility that's done the plant, and I'd be interested to hear whether you agree or disagree in the context of these two plants that made the transition, are we better or worse off. Because you made a statement that you think we're worse off because of the straddling piece, and I think it's important for us to clarify that. If we've spent -- if the NRC and the licensees have spent a lot of money and time, and if we're not in a better place safety for the plants that have transitioned, I would like to hear your views on that. So maybe along with Commissioner Magwood's comment that's something we could have a follow-up discussion on.

PAUL GUNTER: Certainly.

COMMISSIONER OSTENDORFF: Okay? Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Svinicki?

COMMISSIONER SVINICKI: My thanks to each of you for presentations and being here today. My colleagues have covered a number of -- asked a number of clarifications on your presentations that I had noted. Perhaps I would just begin generally. Alex, I think you, and perhaps others, called for stability in the process, and I think you started out by saying that a number of the plants that have not made a notification of transition are watching to see how the process is going for those who are transitioning. Based on what they've seen to date, do you think that they would make a favorable decision to transition or is it too early to tell or is it very site specific?

ALEX MARION: I think it's too early to tell at this particular point in time. The first positive indication was the triannual inspection at the Harris plant and they're -- as I understand it, they're looking for examples of that to demonstrate that the inspections are going to stay within the framework of the 805 regulatory licensing submittal without various interpretations of what is expected and that's what they're watching for and it is plant specific in terms of detailed impact, but they're watching for that demonstration. As I said, the demonstration now rests with the Nuclear Regulatory Commission in assuring the reviews are going to be consistent going forward and those reviews will survive the inspection process going forward.

COMMISSIONER SVINICKI: So, your presentation and I think at least one other called for or pointed out stability in the processes as being a necessary component but on the other hand I think a number of responses to

questions have indicated that there's areas where we need to continue to further develop our knowledge and learn from those who are transitioning early so can you talk about what's the -- are there impediments to this type of stability you seek and are there areas in which, you know, we want to continue to learn? How do we strike that balance?

ALEX MARION: There aren't any significant impediments at this particular point in time because we're having very, very good dialogue with the NRC staff on all these issues. What we try to focus on at NEI or from the issues that have been identified as part of these submittals, which ones are generic, which ones do we need to address as an industry as opposed to a specific licensees'. The challenge, of course, at this particular point in time and it's not insurmountable is the fire PRA. The challenge that we all have is to apply that kind of methodology, as Commissioner Apostolakis is well aware, you need a strong, robust data set of information. Well, we don't have that from the standpoint of operating experience associated with fires. If you look at reviews that were done by the staff, I think through the early '90s, just about all the fires that were identified at nuclear power plants were extinguished within 20 minutes.

The question is, “Okay, from those fires that have been experienced, what was the cause? Was it a cabinet fire, was it a circuit failure, was it some combustible material that was brought in to the work area?” That information is being collected with -- by the Electric Power Research Institute to strengthen that database. I wish we had had that data before we decided to undertake fire PRAs.

But to give you another reference point, I've been involved in this since day one and when initially started, we anticipated 10 to 15 plants would

offer to make the transition. Well, we were wrong and we've been trying to catch up with the volume of work, both from the technical fire signs perspective, as well as the probabilistic assessment and I think the fire area -- fire protection on the fire PRA area is one that we're all focusing energy on to try to resolve but there's nothing that's been identified that's a significant barrier at this particular point in time.

COMMISSIONER SVINICKI: So, do I interpret accurately, that really it's stability and process that is a positive thing but continued, perhaps, development and evolution in the techniques and methods, so that's the distinction there between --

ALEX MARION: That's --

COMMISSIONER SVINICKI: -- stability and learning lessons.

ALEX MARION: That's a fair assessment.

COMMISSIONER SVINICKI: Okay, thank you. Mr. Ertman, you had on your Slide 5, you talked about potential finding on procedure development and that general question arose in my mind. Dr. Gunter was talking about, you know, the positives about prescriptive deterministic regulations, they're very straightforward. Do you think that in a post-transition world for a licensee, the management and the administration of their fire protection program, does that become more complex?

JEFFREY ERTMAN: I think that they're -- with -- when you add analysis and add information it does by its nature add some complexity. I do feel that we have put in place processes to handle and address that complexity? For example, the risk informed change process uses PRA insights, all of our ignition sources are cataloged at our plant, we have that data and we have processes in

place to access and manage that as part of our decision-making, but it does make it somewhat more complex but we do have to be vigilant and make sure that we, you know, implement our processes correctly.

COMMISSIONER SVINICKI: Okay, thank you and Mr. Carlson, you had indicated in your presentation that DC Cook had a lower number of RAIs, requests for additional information. Is that because you were able to kind of look at areas in the pilot plants that had generated a lot of RAIs? How did you go about harvesting the knowledge that allowed you -- that you would say allowed you to have a lower number of requests for additional information?

MICHAEL CARLSON: It really was the participation in the NEI task force. The information that was being provided by both Harris and Oconee was provided to the task force, the task force, you know, cataloged the request for additional information that those plants were getting. It gave us an opportunity to see what the questions were likely to be in advance so we could understand them and provide that information in our submittal, so our submittal was written in such a way to address many of the requests for additional information that we anticipated getting.

Now, just to be clear, at this point we have received no formal requests for additional information, we're sort of looking at the open questions that are out there, you know, in addition to the additional information that was provided in our license amendment request, the audit that we had on site gave us another opportunity to answer many of the outstanding questions and we believe that, you know, together we were successful in addressing those questions, so we're expecting somewhere in the range of 40 to 50 formal requests of additional information, you know, compared to literally, you know,

hundreds at the pilot plants.

COMMISSIONER SVINICKI: Okay and because that was based on a broad NRC industry engagement do you think that other transitioning plants will probably avail themselves of that kind of --

MICHAEL CARLSON: Oh, absolutely.

COMMISSIONER SVINICKI: Okay.

MICHAEL CARLSON: Yes.

COMMISSIONER SVINICKI: All right. Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Well this is has been an issue that -- I think has been -- I think Alex, as you said, one way or another with the agency for some time and one of the efforts that I think NFPA 805 is trying to accomplish is to provide a new framework and I surely have similar questions to Commissioner Ostendorff's about -- I mean, I personally believe NFPA 805 is the right way, I think it puts us in the right direction. I appreciate, Mr. Gunter, your reservations about it and I think there's some effort that we need to go through to demonstrate that we can do this program well.

One of the things that concerns me though, is that we seem to never be able to quite get through it the way we want and if we look at the latest schedule of plants coming in, I think if you look at the first eight that are intended to come in, two of them were several months late with their submittals. One that has submitted may possibly be considering postponing continued development of their license amendment and one other is postponed with a date to be determined. So of the first eight, four of them are in some state of flux or delay. What -- why do you think that is and what can we do about that to have a firm schedule for getting these submittals in place?

ALEX MARION: I'm not specifically aware of the details of the decision for those particular sites that you mentioned, but I think what they really need and they have it to some extent, and the question becomes one of time to integrate that into your submittal. You have the SEs on the two pilots, you have the results of the triannual inspection on Shearon-Harris, you have the first non-pilot going through the process. That information will be assimilated by the next series of utilities and that may affect the schedule based upon what comes out of that activities. I, unfortunately, am not familiar with the details of those plants that you cited in terms of the schedule.

CHAIRMAN JACZKO: Well I --

ALEX MARION: Those are the kinds of considerations that come into play that affect the schedule.

CHAIRMAN JACZKO: And I appreciate that, but you know, as I said, I watched this for some time and there always seems to be that kind of a problem, so, you know, at some point we have to be able to have a predictable program and you know, we certainly, as an agency, had some shortcomings I think, when we weren't really prepared to deal with as many applications as I think we wanted to be, but it is a challenge and I can appreciate the frustration that Mr. Gunter may have, I have some of that frustration that we continue to make commitments to move forward on these programs and we're not always getting there -- and you know, we did -- the Commission did have a meeting -- I remember, a year, year and a half ago -- and we did talk about these issues. One of the things we asked was ACRS to take a look at -- pretty much the state-of-the-art for our guidance documents and to see whether or not we had, you know, sufficient guidance.

I mean, we've heard a lot of these concerns about realism and these things and ACRS did look at that and I think it was a very important statement that they made and their statement was that the methods and guidance in NUREG 6850 -- which again, is not an NRC guidance document, it is an EPRI/industry/NRC guidance document, so it is not solely our guidance document -- supplemented by the clarifications and enhancements in 6850, supplement one provide a sound technical basis for the development of fire PRA models and analyses to support the transition to risk informed license frameworks in accordance with NFPA 805.

So again, I mean, they, in their letter, they do indicate that there are areas where we can do further improvements, but the stuff is good enough as it is to be able to do this, so, you know, I don't know any tools that we can, with a voluntary rule, kind of get you all to do it -- and when you make commitments, in effect, it's a voluntary rule so there's no -- there's no real hook we have to make you do it at that point, other than enforcement discretion and other than going back and saying okay, well if there are deficiencies that you have under your Appendix R, other programs and you know, you need to -- you know, we'll look at those from an enforcement space and -- but it is a challenge, you know, and I don't think -- it makes me somewhat nervous that, you know, the rest of the 18 or so that we've got planned over the next year, that I worry that those will start to slip as well and I think that's not going to be a good sign for this program and for getting progress, but there's not much of a question in there --

And one of the -- you know, going back to the idea of transitions and I think Mr. Carlson, you have a very interesting case because I think, certainly Shearon-Harris had a lot of modifications to the plant that were made and I think

that's one of the reasons Harris was chosen, it was known that there were areas that were non-compliance with Appendix R and other things, so it would make sense to consider looking at 805. So I'm wondering about DC Cook, does DC Cook have a number of areas, a number of operator manual actions, were you an outlier is some area that drove you to go to NFPA 805, or what was kind of the rationale that you chose?

MICHAEL CARLSON: Well, I'll you one -- two things. We certainly did have a number of manual operator actions, but I'll tell you real candidly, it was clear to us that it was a strong preference of the Commission that plants transition to 805 and I'll tell you that was the key driver and then when we were able to do the evaluation that we discussed earlier, it made sense for us, but that was what pointed us in that direction.

CHAIRMAN JACZKO: Well, I appreciate that and it's always nice to hear things like that, but -- and I think it's very interesting that as you -- I think as you discussed why you may not have made a lot of modifications to the facility there was a -- I mean there is a cost to doing this, I mean there's a cost to developing the PRA, there's a cost to doing the modeling, that certainly does incur something and I -- as I said many times, I think in the end it's the right framework, I think it's going to be a better framework and I still hope someday we'll convince Mr. Gunter that, but he's got some valid points and I certainly would agree with Commissioner Ostendorff, it would be interesting to hear, you know, if you had more interaction with the others.

Your thoughts on Harris' transition and as we've done, the first actual inspection under the new triannual program, what your thoughts are on that and whether we are turning a corner and this program is ultimately going to

be effective in having a clear predictable regulatory program for fire protection.

As we go forward, let's have a couple more questions. To what extent is age of plants a factor is whether or not they transition? Are -- in general, is it fair to say that the younger plants are more in compliance with Appendix R and may have less of a reason to transition or is there not necessarily any correlation that you would say based on that?

ALEX MARION: Yeah, I've been involved in fire protection for the last 20 years or so and the age of the plants has never been identified as an issue in the fire protection area. The challenge has been evolving NRC staff expectations over the years. As an example, operator manual actions and circuit failures. Change in expectations, no change in the regulation, but a significant change in the expectation and that doesn't have anything to do with the age of the facility and I'm not aware of any influence from that. I don't know if any of the other utility folks have a comment --

MICHAEL CARLSON: Yeah, I'll tell you, you know, the two units at DC Cook, you know, are, you know, by no stretch of the imagination new units. They came online in '73 and '77 but we did bring ourselves into full compliance with Appendix R, you know, prior to making the transition to 805, so I don't see a connection between the vintage of the plant and the -- either compliance with Appendix R or the transition to 805.

CHAIRMAN JACZKO: Well that's interesting and I think DC Cook does seem to be a very interesting case here, because it -- there seem to be a lot of the factors that would have pointed you in a direction other than moving to NFPA 805 but you did make the transition and that, I think, is a -- hopefully will be a good sign to others.

Last question I want to ask, again, gets to this issue of enforcement discretion. We have, ever since this program began, I think as an attempt to -- originally to incite -- or not incite, to encourage people to transition to 805 provided an opportunity for enforcement discretion for those plants that were willing to do that. That was, I think, the very first time at which we transitioned -- or we provided that enforcement discretion was sometime in 2004. Very early on then, we began the process of extending the enforcement discretion. To what impact -- or to what effect -- to what extent does enforcement discretion play a role in whether or not you're going to transition? I mean, has that been a motivating factor for anybody, has it accomplished anything to get us faster into this process or you know, for those of you that have transitioned, or maybe Alex if you want to comment.

ALEX MARION: As a practical matter, the industry is not that positive, if you will, about enforcement discretion as a concept because to external stakeholders it looks like -- or it gives the impression that we're not in compliance, all right -- and again, as I mentioned with operator manual actions and circuits, we were in compliance with the regulation interpretations at the time, until the new guidance and expectations were developed; so you issue enforcement discretion on those cases gives the percentage -- the perception to the stakeholders such as Mr. Gunter that we're not in compliance. I think we need to keep that in mind as we move to the future.

Just an observation from the standpoint of enforcement discretion time period on the 805 transition. We encouraged utilities not to be bound by the enforcement discretion time period that was provided by the NRC and the reason for that was the utilities had to determine what their project schedules were

based upon the resources available to do what needed to be done to meet their scheduled date and if it fell within the enforcement discretion time period, great. If it did not, don't be afraid to contact the staff and say, hey, I can't do it within two years, I need two a half or three or whatever the case may be, and make your case, but not be bound by that. So there's another unintended consequence, if you will, with enforcement discretion and how it's used and I would just offer those as two observations from a generic industry-wide point of view.

CHAIRMAN JACZKO: Well I appreciate that and I am very interested to hear that because I've not been a fan of enforcement discretion for a lot of the same reasons and I think, you know, Mr. Gunter expressed that in his statement and, you know, I think as we go forward, in particular with some of these plants that are not going to be able to meet their commitments, I do think we need to seriously consider no additional extensions for enforcement discretion and put these into process and if there are deficiencies identified and that will go through the normal process of review, so I appreciate that, your thoughts on that. And I would also support, I think, Commissioner Magwood's comments and suggestions on looking at some issues going forward in these areas and Commissioner Apostolakis, you had another question?

COMMISSIONER APOSTOLAKIS: Yeah, thank you Mr. Chairman. I was intrigued by the description by the gentleman from DC Cook about the two batteries that one would think that they would be vulnerable to fire but then using analysis you demonstrated that they cannot be. Now, if I were a peer reviewer, I would scrutinize that analysis to death and then I would have Ms. Marino tell me I'm pushing the boundaries of a reasonable peer review? Would you do that? I mean, that's something, that for a regulator, is a red flag. I mean, we look at it

and we say, "Well gee, there may be a problem here and then analysis says there is no problem." Clearly that analysis has to be scrutinized.

MICHAEL CARLSON: Well, to answer that, we had a number of analysis areas where we did one screening, so to speak, and that was the end of it. We complied with the CDF LERF values, we had feasible actions if any were required. However, in other areas, the one I mentioned, this is a conflagration of all kinds of controls. Seems like everything in the plant goes through this area and so there's a lot of overhead, there's the cabinets that are close to each other. And by pinpointing the ignition sources and the targets, we were able to determine that there wasn't a single fire that would wipe out both redundant trains. Had we not done that, we would still be where we are in Appendix R, assuming that the whole room went up in flames.

COMMISSIONER APOSTOLAKIS: But that's what you did. What did the reviewers do?

MICHAEL CARLSON: I'm sorry?

COMMISSIONER APOSTOLAKIS: What did the reviewers do? Did they review this situation, the NRC staff?

MALE SPEAKER: You talking about the PRA review?

COMMISSIONER APOSTOLAKIS: No, this analysis that you did. It was not reviewed by somebody?

MALE SPEAKER: Yeah.

COMMISSIONER APOSTOLAKIS: And how long did that take?

MICHAEL CARLSON: How long did it take?

COMMISSIONER APOSTOLAKIS: Was that the detailed review? Do you think it was a reasonable review?

MICHAEL CARLSON: For the application, yes, because it was a complex area. Like I said, and some of them, it was, you know, an hour's worth of work and you were done. But this one took several weeks.

COMMISSIONER APOSTOLAKIS: So it's not a matter of just complying with ASME standards, right? Okay, thank you. Oh, I'm sorry.

PAULA MARINO: I agree. There's plant-specific applications that we need to scrutinize ourselves to make sure we're comfortable with it. We do have the nuclear safety margin we need. Our comments were more in general about room heat up times and some generic -- the amount of data that we have. So it was more generic, it was not about any specific --

COMMISSIONER APOSTOLAKIS: Thank you, thank you.

PAULA MARINO: -- section or specific issue.

JEFFERY ERTMAN: I would like to add just a comment on that.

[laughter]

JEFFERY ERTMAN: You know the 805 process, it uses the PRA insights but we still look very closely at defense and depth and other aspects of that area. So that is just one piece of the decision-making, as you well know.

COMMISSIONER APOSTOLAKIS: Sure.

JEFFERY ERTMAN: So, just wanted to get that for the record. Thank you.

CHAIRMAN JACZKO: Thank you. Any other questions? Okay, thank you very much. We'll take a quick break and we'll get some snack food.

[break]

CHAIRMAN JACZKO: Okay. Marty, do you want to start the staff presentation?

MARTY VIRGILIO: Well good morning, Chairman, Commissioners. We're here today to report on the progress that we've made in stabilizing the fire protection regulatory framework and also the progress we've made in enhancing safety through risk-informed, performance-based regulation. The last time we met with the Commission was 2009 and since that time we've made a considerable amount of progress. We have completed the action plan we had for stabilizing the fire protection infrastructure, we've sunset the steering committee that we had established to guide that work, we've completed two pilot assessments for the transition to NFPA 805, Harris and Oconee, and we've completed the first post-transition fire protection inspection at Harris.

I'd like to introduce the staff that'll be speaking today. On my immediate left is Jack Grobe, our deputy director of NRR, responsible for engineering, and to his left Rebecca Nease, who is our engineering branch chief from Region II, and on my right is Donnie Harrison, our PRA branch chief, and to his right is Alex Klein, our fire protection branch chief. They'll all be speaking this morning. Let me turn it over to Jack.

JACK GROBE: Thank you, Marty. Good morning. Whoops. Thank you, Marty. Good morning, Mr. Chairman and Commissioners. Today we're going to hear from the staff in NRR and Region II, Region II representing all the regions, on activities associated with the implementation of 10 CFR 50.48(C) and NFPA 805. The staff will discuss with you actions to incorporate the Lessons Learned from completing the NFPA 805 licensing actions at the two pilot sites. The safety enhancements that were made at the two pilot plants as a result of the risk-informed fire protection focus, the staff efforts to ensure a lasting, predictable and coherent fire protection regulatory infrastructure, the

efforts to enhance licensing and inspection efficiency and effectiveness and the Lessons Learned from the most recent inspection at the Harris plant.

We realized that a licensee's commitment to transition to 805 involves considerable human and financial resources. That investment has resulted in considerable safety enhancements and establishment of a clear and coherent licensing basis at the two pilot facilities. We have every reason to believe that similar results will be achieved at other facilities transitioning to NFPA 805. I would now like to ask Alex to speak to the licensing process issues, then Donnie will address the fire PRA enhancements and Rebecca will discuss the post-805 transition inspection activities just completed at Harris. Alex?

ALEX KLEIN: Thank you, Jack. Good morning, Chairman, Commissioners. Could I have slide three please? What I'd like to do on this slide here is just to go over at a very high level some of the Lessons Learned from the staff with respect to the transition of the NFPA 805 pilot plants.

As you're very well aware, this was a multi-year effort on the part of the industry and the staff for transitioning these pilot plants. It started in 2004 with the issue of the rule, extended into 2005 when the two pilot plants came forth with a letter of intent to transition to NFPA 805 and it eventually culminated in the two license amendments being issued in 2010. During that multi-year effort, we shared information with the industry, we gained insights as you'll hear a little bit more of by other presenters here and we're able to step through that process, I think, in a very effective manner.

Part of that communications, that frequent communications that we had with the industry resulted in the templates you heard from the industry with respect to the license amendment request template. The staff also developed

their safety evaluation template. We had clarifications with respect to guidance. You heard about NUREG 6850 and so forth. And all of that ultimately, I think, resulted in tools that would provide a consistent and predictable regulatory framework for the staff in the industry to move forward.

The other observation that the staff had is that the licensees in their transition to NFPA 805 in the two pilot plants, put in place plant modifications that you heard today, and Donnie will go into that a little bit more with some details. But we believe that that process and those -- implementation of those modifications and enhancements had a positive impact on nuclear safety.

One process that we put in place about a year or so into the transition for the pilot plants was a frequently asked question process, and I think you heard about that from some of the industry members here today. I think that's been a very successful program, both for the staff and for the industry. And it continues today. It's a very transparent tool. We're able to identify and resolve many technical issues with the industry on this, it provided ultimately, we believe, clarity and consistency in the entire regulatory process. As a matter of fact, we were able to resolve 40 technical issues with the industry over the time span. And as I indicated, these monthly public meetings with the industry continue today.

The other recognition that we had, and Jack alluded to it, is that the transition to NFPA 805 by the pilot plants and on the staff's part was very resource intensive. There were many multiple disciplines that needed to get involved in this. We had fire PRA analysts and experts, fire modeling experts; we had fire protection engineers, circuits analysis experts and safe shutdown experts all working together in an integrated manner. Next slide please. Slide 4.

As you're aware, earlier this year the staff proposed and the Commission approved a staggered schedule approach for the submittal of the license amendment requests. So that over the next several years the staff would receive groups of license amendment requests. Our initial assessment of that staggered approach that we've seen with the first set of submittals is that it certainly helped the staff with our workload. We believe that it's allowed the staff the ability to make effective use of our resources moving forward. We also believe it's been a benefit to the industry. They've been able now, we believe, to manage their peer review scheduling and it also gives them an opportunity to submit what we believe our high quality license amendment request to the staff.

I mentioned some of the tools previously on my other slide, with respect to the templates. We're taking advantage of that and I believe that the industry is also. These templates, the training that the staff has put in place and Donnie will talk a little bit about the training, we believe will put us into a place where the work that we're doing with these NFPA 805 license amendment requests become routine for the staff, and that's where we want to be with this.

Even though we have what we believe put in place a lot of the effective and efficient tools, we will always seek improvements. So as we step through the additional license amendment requests, we'll seek improvements. We've initiated discussions with the industry to share information with them on how perhaps they can improve their license amendment request template moving forward. Slide 5 please.

With respect to the acceptance reviews, we currently have in house seven license amendment requests submitted to the staff. Three of those have been formally accepted through our process where we go through an acceptance

review process that determine whether or not there's sufficient information for the staff to start their review. Four are still under that acceptance review process.

After we formally notify a licensee that we formally accepted their license amendment request for review, in other words we're done with our acceptance review process, the staff goes out and performs a site audit. And you heard about that from one of the speakers earlier this morning. It's a tool for the staff to be able to gain additional knowledge of the license amendment request that the licensee submitted. It allows the staff to actually see the plant, see details in the plant, see documentation and be able to develop requests for additional information as we come back here, back at headquarters. The site audits are done for approximately one week at a time. We completed one already, as you heard, and as we speak here today, we've got staff and contractors at a second site performing a site audit.

With respect to the industry license amendment requests, our observation thus far is that the industry has embraced the license amendment request. What we're seeing is that the information that licensee's have submitted as part of the license amendment request appear to be in similar sections throughout each of these license amendment requests. That gives the staff a very efficient way to start their review. That's not to say, however, that all of the information that the staff is looking for are contained in these license amendment requests.

We had a meeting with the industry -- a public meeting with the industry on November 18th where we're able to describe to the industry some additional items that we believe are necessary for these license amendment requests. And as an example, what we did is through the first set of license

amendment requests that we accepted, the three, we're able to give the licensees an opportunity through our acceptance review process to supplement their license amendment requests. So we thought that was a very positive opportunity for licensees to provide that information. So rather than doing it through the RAI process, we -- the staff did it through the acceptance review process.

Our initial view also is that, I think you heard this from the other industry members, is that we're seeing a spectrum of modifications with respect to what licensees are doing at their sites. Again, we believe it's because of the unique conditions at the plants and their operating conditions. However, we continue with our reviews and we'll make a final determination as to whether or not we believe that, you know, the modifications are appropriate for the transition to NFPA 805. Slide six, please.

When licensees transition to NFPA 805, they do a complete reevaluation of their fire protection program. They trace cables, they analyze the location of those cables, they do the circuits analysis and items like that. During that process, they identify issues that needs resolution. Whether they do this for resolution of 805, through plant modifications or procedural changes, or through evaluations, that's something that they describe in their license amendment requests to us.

We believe that what they're doing right now and what we're seeing, these modifications are enhancements with the appropriate focus on safety -- I do want to say that some of the licensees that have submitted license amendment requests have a forward focus in terms of completing modifications ahead of their submittal of NFPA 805 to the staff. We think that's a positive.

When the rule was issued, as we talked about earlier this morning, enforcement discretion was offered to the licensees. There were conditions attached to the enforcement discretion, one of which was that licensees, as they identified those issues when they transitioned to 805, put in place adequate compensatory measures. Those compensatory measures could be things such a fire watches, it could be enhanced procedural controls with respect to combustibles or hot work activities, items like that or a combination of any of those.

The establishment of those compensatory measures gives the staff the confidence that the licensees, while they're transitioning to 805, can safely shut down their plant. And we believe that the Commission in approving this enforcement discretion policy has adequately addressed safety with respect to having those conditions in place such as compensatory measures. It also provides the licensees with a stable regulatory environment for their transition to NFPA 805.

With respect to inspections, all I want to say here is that our normal schedule and processes continue with licensees, all licensees, for that matter, whether they’re transitioning to NFPA 805 or not -- and Rebecca Nease with go into a little bit more detail. That concludes my portion of the presentation and now I hand it over to Donnie Harrison.

DONNIE HARRISON: Thank you, Alex. We're now on Slide 7. As part of the pilots and the interactions with the ACRS as well as through the frequently asked question process that Alex mentioned, a number of insights were gained during the pilot process that resulted in an enhancement to the regulatory guide 1.205. Also, the staff requirement -- the SRP was updated as

well to reflect those lessons. Those were issued, and there were also PRA related facts that were processed through the pilots. Those were then collected and incorporated into a supplement to NUREG CR 6850. Again, as the Chairman identified a joint document between EPRI as well as the Office of Research. That supplement incorporated all those refined methods at that time. During those two efforts, the licensees gained the guidance they needed to be able to do the application and have the latest information on the methods and would support the staff in doing an efficient and consistent review of the application for 805.

To prepare the staff for these reviews, we also developed NFPA 805 reviewer training. That was done over the summer and given to all the staff and their support contractors that would be involved in the reviews. We also had a number of staff attend the fire PRA training courses that are, again, jointly taught by EPRI and the NRC.

We've also established a quality group, is what I call it. It's basically an oversight group that involves the senior staff that were involved in the pilot reviews to ensure as we go through individual NFPA 805 application reviews that the reviews are consistent. So there's an oversight group that has that experience that will be engaged on all the applications to make sure there's consistency in the review.

Going forward, we recognize that there's going to be new Lessons Learned. As you heard from DC Cook, they're relying more on fire analysis, fire modeling; that will become a focus of our review to gain those lessons. There's also licensees that are using new or refined fire PRA methods. As that comes through and we identify them, we'll look at those. The industry has set up a fire

PRA task force to address new methods so that there's a consistent industry approach. We're staying engaged with that task force to ensure that the methods are acceptable as well as to gain efficiency in our reviews, so we don't see a method for the first time in the midst of a review. Next slide.

I want to shift over to discussing safety enhancements. I think as you heard from the prior panel, all the licensees going to NFPA 805 are improving procedures, they're making modifications -- and again, there's a wide spectrum of the scope of those modifications -- but there are some modifications being done at all plants to improve fire safety. There's a couple examples here. Installing incipient detectors provides a very early warning of a potential for a fire and gives the licensee the opportunity to have a very early response, prior to even seeing a flame. That's a modification that the Harris plant implemented and a number of our other plants are proposing.

Also at Harris they moved a number of cables to remove a target, if you will, from a fire so that it would ensure that you'd have a train or a component free from fire damage. That was another approach that was used, and I would expect that there's going to be a number of licensees that do that as part of their move to NFPA 805.

Those are fire related modifications. I think you also heard from the panel through questioning that there's modifications they've implemented that go beyond fire safety. And again, a couple of examples here are the reactor coolant pump shut down seals, licensees are proposing those. There's the alternate seal injection that Harris implemented. The Oconee plant proposed the protected service water. Again, on the alternate seal injection and the reactor coolant pump shut down seals, those greatly reduced the impact of reactor coolant pump

loss of coolant accidents, which is a significant contributor to risk at pressurized water reactors. So that's a significant enhancement for those plants beyond fire.

The protected service water that Oconee has proposed addresses tornado mitigation, high energy line breaks, and a number of other applications that go, again, beyond the fire protection part of that.

And then I want to also talk about the safety perspective and permits. When you go through and you collect the cable routing information, and then you do your fire analysis and then you establish an approach that you want to implement for NFPA 805, the licensees learn a lot about their plant. They gain an enhanced knowledge of their plant. That shapes their strategy. It also enables them in going forward, and in that particular thing, when they go into an outage or they go into a maintenance activity, they now have more information that they can rely on to -- making sure that they're making safe decisions. They have new information that will help them in that.

It also enables them and prepares them for other types of risk-informed applications. You heard a couple of those form the Vogtle plant dealing with risk managed tech specs, the tech spec initiative 4B, which will need to have a fire PRA. There's the risk-informed cauterization process that's part of the special treatment requirements under 10 CFR of 50.69, which will be enhanced with a fire PRA. So those applications are enhanced through this process.

The staff gains also insights into the fire risk at the plant. We have a better understanding in going through these applications of the significant areas of fire risk and where there's things that we need to focus on in our review and also going forward. It also helps us in our inspection space and prioritizing the inspection as well as making sure the inspection is efficient. And with that, I'll

turn it over to Rebecca Nease to discuss the inspection aspects.

REBECCA NEASE: Thank you, Donnie. May I have Slide 9, please? As Marty mentioned, I'm an engineering branch chief in Region II, and my staff conducted the first NFPA 805 post-transition triennial fire protection inspection this year at the Shearon Harris nuclear plant. Using the next two slides, I'm going to talk about the NRC's fire protection inspection program, the Harris triennial fire protection inspection, Lessons Learned from that inspection and what's next.

The NRC's fire protection inspection program consists of several inspections in a tiered type approach. We conduct quarterly, annual, and triennial inspections. The resident inspectors conduct the quarterly and annual inspections, and they're inspecting fire protection barriers, looking for fire hazards and observing fire brigade drills. The triennial fire protection inspection is conducted by region-based inspectors, and this is a very detailed engineering and operations review of the licensee's fire protection program. It's second only to the component and design basis inspection in scope and depth. This inspection consists of four inspectors on-site for two weeks. The team is made up of inspectors with expertise in fire protection, circuit analysis and operations.

We have two procedures we can use to perform triennial fire protection inspections. One procedure we use at plants that are not going to transition to NFPA 805 or at plants that are still in the transition process. The other procedure is NFPA 805 triennial fire protection inspection procedure, and it's specifically developed for us to inspect plants where the fire protection licensing basis has changed and is now NFPA 805. To ensure consistency and predictability, this inspection procedure was developed with input from all four

regions and industry. Region II played a significant role in the development of this inspection. We participated in NRR's on-site audits, at both Harris and Oconee; we reviewed and commented on the draft inspection procedure, we provided feedback during NRR's tabletop review of the draft inspection procedure that they performed in our offices and which were attended by all four regions.

Region II has successfully completed this first of a kind triennial inspection at the Harris plant using the new procedure. Being the first time exercising this inspection procedure, we were proactive in our planning and preparation. As I mentioned before, we participated in NRR audits on site at Harris and Oconee, and this increased our understanding of the NFPA 805 licensing basis. Our inspectors attend NRC's internal fire significance determination training and at least one of the EPRI/NRC fire PR training modules. The team leader and a Region II senior reactor inspector conducted an additional pre-inspection visit to the licensee's facilities to see what type of documents would be available to the team. We chose the inspectors very carefully for this team. The team was mostly made up of very experienced fire protection inspectors. We also included a Region IV inspector for knowledge management and knowledge transfer for consistency, and we invited observers from the other regions.

We also arranged for a Region II senior reactor analyst and an NFPA 805 fire protection expert from NRR to be on-site with the team during the inspection. As I mentioned earlier, prior to the team -- prior to the inspection, NRR conducted a tabletop review of the draft inspection procedure and provided extra training on NFPA 805 licensing basis to the team, and again, this was attended by inspectors from the other regions. Next slide, please.

Looking back for Lessons Learned from the Harris inspection, we found that the guidance in this inspection procedure was sufficient for us to use to conduct this inspection, and we did not identify any changes that need to be made to the procedure at this time. The inspection was appropriately focused on fire risk, which reflects the NFPA 805 licensing basis. The NFPA 805 licensing basis provides more regulatory clarity and consistency, particularly in documenting the licensee's amendment request and the safety evaluation using the templates. We also learned that experience and expertise in fire risk evaluations and the extra fire training our team received was beneficial to our effectively performing this inspection. We were able to conduct this inspection within the constraints of the inspection procedure, in part because the licensee was ready for us. By that I mean they had the right staff on site, they had their fire PRA experts, fire protection experts and operators that were familiar with their fire protection program, and they were on-site and available to answer our questions. Furthermore, Progress Energy had walked down the draft inspection procedure, so they were prepared for our information requests.

Our next step will be to construct this post-transition triennial fire protection inspection at Oconee. After that, we'll get with NRR and look back to see if there are any changes or enhancements that can be made to the inspection procedure. However, we expect that any changes can be handled through our routine feedback process. And finally, as we always do, we will continue to look for opportunities to perform this inspection in a more effective and efficient manner, and will pass on these lessons to the regions and to NRR. This concludes my presentation and now I'll turn it back over to Jack.

JACK GROBE: Thank you, Rebecca. I was just sitting here

reviewing my notes and realized they kind of make me sound old. But similar to Renaldo, who's sitting over here, who led the team inspection at Harris, roughly three decades ago I led the first Appendix R team inspection, and it was at DC Cook plant, interestingly enough.

It's been over 35 years since the Browns Ferry fire, and that fire precipitated a fundamental change in how we regulate fire protection at nuclear plants in the United States. Following Browns Ferry, the staff issued branch technical position 9.5-1 and developed 10 CFR 50.48 A and B, and Appendix R to 10 CFR 50. The implementation of that branch technical position and new regulation resulted in significant enhancement in the fire safety of our plants across the fleet in the United States.

Through the years, the staff and industry have struggled with a number of the new regulatory concepts that were contained in that regulation and that has been a challenge which the industry has brought forward at the table today.

In the early 2000's, the NRC in conjunction or cooperation with the industry completed the development of the first ever methodology and guideline for doing fire PRA analyses at nuclear plants. And we issued -- the Commission issued 10 CFR 50.48(C), which implemented the consensus -- the industry consensus standard that the NRC participated in developing NFPA 805.

In July, 2008 the executive director recognized that we needed to bring focus on final resolution and consistency and clarity on fire protection issues across the fleet and formed the NRC Fire Protection Steering Committee. The industry established a counterpart executive group that worked with the Fire Protection Steering Committee in addressing issues. The Steering Committee

developed and issued the Fire Protection Stabilization Plan, which contained all of the outstanding regulatory questions and issues that were causing trouble both at the Appendix R plants as well as the 805 plants, in addition to some internal issues associated with knowledge management and knowledge transfer.

Over the succeeding four years, the Steering Committee and staff worked closely with our external stakeholders and addressed the remaining issues standing in the way of a predictable and coherent fire protection regulatory infrastructure for the U.S. plants. With respect to the 805 transition, the Advisory Committee on Reactor Safeguards as charged by the Commission reported to you in February, 2011 that the NRC in collaboration with the industry had provided, and I quote, "A sound technical basis for the development of fire PRA models and analyses to support the transition to a risk-informed licensing framework." The stabilization work was completed in May of this year and reported to you and the Steering Committee was sunsetted. It's interesting that as I prepared for this Commission meeting and reviewed that Commission paper that it referred to the Fire Protection Steering Committee as being retired. That was clairvoyant, I believe.

As described further in the letter from the ACRS, and as you have heard today from our external stakeholders, there are additional areas for further research, knowledge development and refinement of methods and models. These issues are being worked in a collaborative fashion between the staff and industry and the staff this morning has highlighted some of those activities under memoranda of agreement, as well as regular management interactions. Our current plans for conducting NFPA 805 licensing reviews anticipate achieving considerable efficiencies in the review of the next seven ongoing license

applications that we've received, as compared to the pilots. The staff reports to the Commission, semi-annually, and we will continue to report to the Commission semi-annually on the implementation of the 805 program and we plan in December, 2013, which would be three reports from now, to include in that report another Lessons Learned. And we should have these seven, as well as substantial work on additional licensing activities, NFPA 805 licensing activities, ongoing at that time and it would be an appropriate period of time to do a Lessons Learned again and report back to the Commission on enhancements that we have achieved in the fire PRA area as well as efficiencies that we've achieved in the licensing area.

The frequently asked questions process will continue with monthly public meetings and will be the focus to resolve any remaining or emerging issues. Recognizing the differences in design of the plants across our fleet in the United States, I anticipate that we'll probably learn something in the 48th review. And hopefully at that point we'll have 56 more that are scheduled to come in.

The frequently asked questions meetings will occur monthly. Once a quarter, preceding that meeting will be an executive level meeting to discuss issues that need to be addressed at that level.

As we have for the past several years, we will continue to monitor three key fire protection performance indicators that give us insight as to the fire safety of the plants in the United States, as well as the regulatory stability of fire protection framework. With these final remarks, this completes the staff presentation and we're now ready to answer your questions.

CHAIRMAN JACZKO: Thank you. We'll start with Commissioner Apostolakis.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman. I will start with a comment. Jack, you said that in the early 2000s a methodology was put together for a fire PRA by NRC and EPRI. There was a methodology developed 20 years earlier for the Zion and Indian Point PRAs, right? Which would in fact demonstrate for the first time that fires were significant contributor to risk, along with earthquakes. I have a more general question. We heard earlier, and I think from you too, that while doing the fire PRA, the licensees identified plant modifications that were not really related to fire or they improved the core damage frequency from internal events. Now, if you have a situation where a licensee wants to make a change in the plant using, say, traditional methods, but then that change affects the fire potential and that licensee is under 805, does that mean then that the whole thing has to be risk-informed? They cannot come in here with a part 50-based LAR because the fire part has to be risk-informed. What's the situation there? Has it not been clarified?

DONNIE HARRISON: I'll start. And Alex, if you want to add some to that, that would be fine. Under NFPA 805, there's a change control process that's built into --

COMMISSIONER APOSTOLAKIS: That's risk-informed?

DONNIE HARRISON: That's risk-informed. So when you make a fire change at the plant after you've transitioned, you have to evaluate the risk of that situation, that condition that you're proposing to change and evaluate it both from a risk acceptance as well as a Defense-In-Depth and safety margins to be consistent with the 805. If you -- within our regulatory guidance, we've established that if the risk is small enough, a licensee can do that on their own without making a submittal to the NRC. If it crosses the threshold --

COMMISSIONER APOSTOLAKIS: Yeah, yeah. I know, I know.

[talking simultaneously]

COMMISSIONER APOSTOLAKIS: I'm planning to make a change in the plant somewhere else and I don't like Regulatory Guide 1174. I want to do it with a traditional way. And then somebody points out to me that, "Boy, if you make that change, you may affect the fire potential someplace, and because you are an 805 plant then the whole thing must be risk-informed." Is that correct?

DONNIE HARRISON: You would have to evaluate the risk of that change.

COMMISSIONER APOSTOLAKIS: This would be under 1174 and 805, is that correct?

DONNIE HARRISON: Right, but if it's of low enough risk you wouldn't make a submittal to the staff.

COMMISSIONER APOSTOLAKIS: There are many ifs. The point is you have to do it in a risk-informed way.

DONNIE HARRISON: Yes.

COMMISSIONER APOSTOLAKIS: Correct?

DONNIE HARRISON: Yes.

COMMISSIONER APOSTOLAKIS: Okay. Now on enforcement discretion, I must say I'm a little confused about all that. I understand two licensees lost enforcement discretion because they were late, is that correct?

ALEX KLEIN: Yes, that's correct.

COMMISSIONER APOSTOLAKIS: And they have since they lost it submitted a new version of their LAR, which the staff is reviewing now.

ALEX KLEIN: The two licensees have lost enforcement discretion

because they were late with their license amendment request --

COMMISSIONER APOSTOLAKIS: Right.

ALEX KLEIN: -- to the staff. We received these license amendment requests approximately about a month and half or so after the committed date, in accordance with the Enforcement Policy and the staff is conducting their acceptance review right now of those license amendment requests. Once the staff has determined that the licensee has submitted to us an acceptable license amendment, then the staff has the option to go back and reinstate enforcement discretion for those two licensees.

COMMISSIONER APOSTOLAKIS: And are there any guidelines when you will decide to reinstate enforcement discretion or not, or is it entirely up to the judgment of the staff?

ALEX KLEIN: Well I think the --

COMMISSIONER APOSTOLAKIS: I mean, if you just reinstate it because they had submitted something acceptable later, there is something wrong with that. Why was it removed? So there must be something there in the regulations that put some penalty on the licensee for being late to begin with.

ALEX KLEIN: Well the penalty is the loss of enforcement discretion.

COMMISSIONER APOSTOLAKIS: But then you say it's reinstated. I'm lost.

JACK GROBE: The Commission's policy as provided to us allows for the reinstatement of enforcement discretion if an acceptable application is submitted. In the case of the two applications we're talking about, the delay was so slight, it was just on the order of 90 days, that there wasn't any substantial

negative ramifications associated with the loss of enforcement discretion for that period of time. The application was submitted, we complete our acceptance review, there is guidelines in our internal procedures in NRR on how to do an acceptance review. If it's acceptable, the policy provided to us indicates that enforcement discretion would be reinstated at that time. If the application is not acceptable then enforcement discretion would not be reinstated. So if the licensee submitted an application that was substantially incomplete or unacceptable in the scope and nature of the information provided, enforcement discretion would not be reinstated.

We had a meeting with a licensee last week who indicates that they may be as much as a year late with their application. This caused us significant concern because we have these three in such a short period of time, so our division of operating reactor licensing went out and contacted each licensee that was going to submit an application for 805 and there are no other known licensees who are anticipating being late. Right now, we're examining, with our Office of Enforcement, how we should proceed with that additional licensee who may be as much as a year late, what sort of consequences might be attached to that.

COMMISSIONER APOSTOLAKIS: Okay. On slide seven, Donnie you said that there are new/refined fire PRA methods. New with respect to 6850, I suppose, they are not in 6850, is that what you mean by --

DONNIE HARRISON: Correct.

COMMISSIONER APOSTOLAKIS: Can you give me an example or two of where the licensees felt they had to develop new methods?

DONNIE HARRISON: One --

COMMISSIONER APOSTOLAKIS: And were they new because the old ones were unacceptable or because nobody had ever done this before, in this particular case?

DONNIE HARRISON: Okay. One example would be in relation to oil fire -- pump oil fires. During the pilot process, it was recognized that a method was developed and derived for main feed water oil fires and that was done under the FAQ process. The application of that to other types of pumps in the plant was a question and the industry was -- a vendor had proposed a method to do that, so it was similar but different than what had -- was in NUREG CR-6850 and it was different than what was in the actual FAQ that was proposed for main feed water pump, which is -- has a large oil reserve, so when you get to a smaller pump that might only have, you know, five to 50 gallons of oil in it, there was a concern that the model that was developed or the method that was developed for it would need to be reviewed and accepted.

The industry actually took that on in their fire PRA methods task force and during that process they recommended some changes to the method that had been proposed. So, that's one example where you scale down.

There was also some -- what I would call more like refinements in the transient and hot work types of fires, so transient combustible fires and hot work fires, another vendor had proposed some changes in those methods. Some of which gets to how do you allocate split fractions, if you will, for where fires and what's their contribution, so allocation factors I think is what it's referred to.

COMMISSIONER APOSTOLAKIS: But it's still judgment, I mean.

DONNIE HARRISON: And it's different than the method, so it

deserves a review --

COMMISSIONER APOSTOLAKIS: Sure.

DONNIE HARRISON: And again, the industry has established a task force to review those types of methods as they identify them and we're staying engaged with those panels.

COMMISSIONER APOSTOLAKIS: So the -- I'm sorry.

JACK GROBE: I was just going to say, the Commission asked a number of questions to the industry panel, which are directly related to this topic and it might be appropriate to expand on this just a little bit. Alex talked about the fact that -- not good Alex, the other Alex -- talked about the fact that this went very rapidly and it would have been better if we could have peer reviewed 6850 ahead of time, outside of the licensing process. That may be true, we had a number of licensees who were attempting to implement this and peer review it through the industry peer review process, but the other side of the coin is it would have taken a lot longer. We got this done and whenever you're doing something on the cutting edge, there is some blood that's going to be spilled and this was difficult to get through all this.

The peer reviewers, the industry peer reviewers approved some methodologies that even the industry -- other members of the industry found were not really consistent with where they wanted to be. 6850 was developed through a very methodical process and a collaboration between experts and the industry and the NRC, and when these other methods were utilized, some of them were approved in the field by industry peer reviewers.

The staff would never abdicate its responsibility for making safety decisions to an industry peer review committee and the industry put together this

group that Donnie was talking about and we have one member that attends those meetings to evaluate evolutionary methods that are not currently contained in 6850. All of that will make our licensing processes more efficient because we can depend on a significant amount of that activity, conducted by the industry peer reviews to allow us to focus our attention on the more interesting aspects of the licensee's peer review, but I don't think the role of the peer reviewers in question, it's always been as a supplement to the -- and a higher level assurance of the quality of the PRA to the review that our staff does. It's just that this happened so rapidly at so many sites simultaneously, that there was some blood spilled and we're --

COMMISSIONER APOSTOLAKIS: As a result of these new methods, are there plans for updating 6850, or supplementing it?

DONNIE HARRISON: There was a supplement one that was done last year, I think as new methods are derived again with EPRI under the memorandum of understanding with Research, there will be plans to supplement in the future and at some point possibly do a revision to the entire NUREG to bring it all into one piece, but, again, I don't think that's been laid out or there's any specific schedule for when that would be done, it's more of -- I think that when they feel that it's the right time they'll make that change.

COMMISSIONER APOSTOLAKIS: Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Commissioner Magwood?

COMMISSIONER MAGWOOD: I wanted to very quickly follow up on one item that Commissioner Apostolakis raised and that was regarding the licensees that, I think you mentioned, might be as much as a year behind schedule. What are -- I recognize this is something still being discussed with OE,

but what are the options, what are you looking at?

JACK GROBE: I think it's -- we haven't even met with Eric yet, he was out of town for several weeks doing international work and I think it would be premature to actually put anything on the table at this time, but we're working closely with OGC and OE and the technical staff in the regions and we're going to present something to Eric later this week and maybe then it would be appropriate to bring some thoughts forward.

COMMISSIONER MAGWOOD: Okay, I look forward to getting that as soon as -- as soon as we're able to flesh that out because it's -- I think it's something we're going to face more than once and it would be nice to figure out up front rather than make it up as we go. I wanted to ask a question about the inspection process, I appreciate your explanation, I thought that was actually quite thorough, but I did want to give you a chance to react a bit to what some of the folks from the industry panels said about their concerns about how the inspection results may or may not be risk informed and the concerns they have about assuring that the agency has management in place to make sure that that's going on and sounds like your bailiwick, so...

REBECCA NEASE: Yes, the inspection is risk informed, risk informed performance based inspection. There are some areas that the licensees will -- that the licensees -- their licensing basis is Appendix R and that'll be a deterministic area but for the most part our inspection is risk informed performance based. We select one deterministic area and we'll select one or two or three risk informed performance based fire areas.

COMMISSIONER MAGWOOD: Anybody? Any other comments on that? No. One last question in this area. There was also a comment from

the industry panel about the realism of the models. What are we -- and I understand that they were engaging with the staff to talk about this further, can you give us some insights as to what we're doing in that area?

DONNIE HARRISON: I'll try to address this and maybe Jack you might want to step in if I don't cover everything. I appreciate hearing from the prior panel, because a lot of the issues on realism versus conservatism comes back to the data and the interpretation of the data, especially the data is back in the '60s and '70s and '80s. We have, as an example, a number of half events in the database, where you couldn't tell the significance of the fire, you didn't know exactly what happened, you knew a fire happened but there was a split opinion within the industry and the NRC on what did that data actually mean? So they created half events for those types of things. There is an effort by EPRI and again, under the MOU with Research that they're, if you will, harvesting the data. They're going back and looking and they're also developing better data going forward to improve the events database. That will address some of the concerns, I think, of is it conservative or not conservative. A lot of times that argument is kind of "in the eye of the beholder" of how you see the data and how you see how it's applied.

To use that, the concern with masking results is a concern when you get in to relative risk importance measures. The application that would be most affected probably by that in the near term would be the 10 CFR 50.69 type of application, where you're doing risk informed categorization. The way we address that within our guidance document, the Reg Guide was to not say just look at the overall relative risk ranking of the components, but rather to do a both/and approach. Look at the individual hazards and operating modes you're

looking at, see what's important in those so if there's something that's important for fires, it would come out even if there is conservatism in the fire approach. If there's something that's important for seismic, look at the seismic risk and get the importance for seismic. Then step back and do the holistic overall integrated approach and see if there's anything coming out form that where you start to see the combination of seismic, fire, internal events and let that come through and use all that information, don't just use the overall results.

So that was a way to approach that -- mitigate the effects of potentially having conservatism or it's really not conservatism, as much as more uncertainty when you're dealing with natural phenomena like earthquakes, tornadoes, fires as opposed to what you have with the internal events modeling.

JACK GROBE: Thanks Donnie, I'd just like to add I view this as really a good indicator. With any model, with the internal events model, you can drill down and find some quirky little things that don't affect the overall outcome of the model but when you look at that, you know, you drill way down into it, you look at that, you say “Geez, that's not quite right.” Is it worth spending some money to develop some additional data through research to clarify that or not -- and at some point in time you make those judgments. What's interesting now is that we have to be careful, because when you drill down into the fire protection PRA modeling, you'll find the same thing.

You'll find some little quirky things that cause you to pause and it's the interaction of those, when you're trying to make a holistic risk informed decision, it's the interaction of those quirks in the models and we have to be very careful when we do that and I think Paula just brought forward a really excellent example, having to do with motor driven and turbine driven auxiliary feedwater

pumps and how the fire PRA treats those and the value those contribute to the core damage frequency and the internal events models.

So whenever we start making these more holistic determinations, we have to be careful that there's not anomalies in the model -- buried in the model -- that cause you to make incorrect decisions and it may drive you to spend some money on research and do some more developmental work -- but this is a very good thing, because we're getting to a higher level of sophistication of understanding the plant and how it behaves.

COMMISSIONER MAGWOOD: I appreciate that, it actually clarifies it a bit but is this -- just being careful, is that going to be the mantra going forward or is there something more structured that we should be thinking about to capture those quirks going forward?

JACK GROBE: I think we're -- the internal events PRA, the developmental work on that has slowed, but it continues. The developmental work on the fire PRA is starting to slow but it will continue and that developmental work will be factored back in across the industry through Lessons Learned as well as guidance revisions and supplements, so it's part of our standard process and it's an ongoing thing on a continuous basis.

COMMISSIONER MAGWOOD: Okay. Jack, let me also give you a chance to talk a little bit about the discussion we had a little earlier this morning on exemptions. One aspect of exemptions which I do think is one that's worthy of further conversation here is how the exemptions that are out there interact and with other actions that we're taking and are we sure that we're keeping track of everything, that every aspect, every plant so that when there's a change made to plant we're taking account of that. Can you talk a little bit about how we do that

and how we make sure that we're keeping track of all this, because one of the things that I think Mr. Gunter's point is but others have pointed out as well, is that, you know, you can't exactly go on the website and find a list of all the exemptions for all the plants.

JACK GROBE: You actually can now. That was one of the items in the stabilization plan. There wasn't a single point of focus where you could go and search a database on all the exemptions, there is now.

COMMISSIONER MAGWOOD: There is now.

JACK GROBE: And it's something that we maintain. It was one of the eight items in the stabilization plan is to have that in a more cohesive, holistic database that's available, not only to the staff but to the public.

COMMISSIONER MAGWOOD: I'll have to go play with that.

JACK GROBE: The exemptions were essential. We wrote regulations after a significant number of the plants were built or nearly completed in the late '70s and early '80s and whenever you write very prescriptive, deterministic requirements, you're going to have, you know, a variety of -- we're not like France, where you have some standardization across the fleet, we have 104 interesting plants out there and the exemption process was essential in that and was recognized by our General Counsel as well as the courts as being important to the implementation of this new kind of regulation that was very prescriptive. There are a lot of exemptions out there and those are now clearly available, they were available in our public records but they're now clearly available in a single database that will guide you to the various exemptions.

STEPHEN BURNS: Commissioner, one thing I would say, with respect to the exemptions, is actually the exemption process is what saved this

rule. The rule was challenged by the industry when it was adopted and the court of appeals in a fairly sharp comment at the end of its opinion essentially indicated that without the exemption process, it would have struck down the -- or sent the rule back to the agency. Now that isn't -- I don't say that as a -- sort of as a justification or a rationalization for exemptions. In effect, it suggests it was a rule imperfectly realized, but in the context of it, sort of along -- in terms of what Jack is saying, that the historical context for the rule was such that the notion that there may be exemptions or an exemption process with Appendix R was in a sense, critical to the rule's approval by the court of appeals when it was challenged.

JACK GROBE: And some people characterize exemptions as being safety concerns and that couldn't be further from the truth. An exemption is not granted unless it provides an appropriate level of safety and it's just something unique about that design of the plant where the very prescriptive regulation is not appropriate and a different way of doing it is more appropriate and that's submitted to us, reviewed and approved and it goes through a public process. So a situation where a plant has an exemption is equivalently safe to another plant that was designed differently that doesn't have an exemption.

COMMISSIONER MAGWOOD: Appreciate that -- and before I let you go Jack, I knew you were in trouble when I got into the elevator and you were there -- actually you came on the elevator and Jack came on he was wearing a smile and no tie and I knew we were in trouble and he told me he was going to retire so I -- it's a little -- I haven't been here as long as a lot of people, obviously, but it's interesting that actually Commissioner Ostendorff and I had our first -- very first technical briefing on the subject with you and your staff on GSI

191, which for me, at the time, was kind of a revelation of what I'd gotten myself into when I came to this agency. We kind of have sumps really, you know, how hard can that be, right -- but you explained how hard that was and I appreciate, you know, all the expertise you've provided on a variety of very complicated issues since I've come to this Commission and you're going to be missed. You're one of those people who'll be very, very difficult to replace, I know one of the things the agency does very well is have people waiting in the wings to fill in but you know, the expertise and the experience that you've had, that doesn't come easy, so thank you for your service.

JACK GROBE: Thank you very much and he's sitting right there, Dan Dorman.

[laughter]

COMMISSIONER MAGWOOD: Tough to fill. Thank you.

CHAIRMAN JACZKO: Commissioner Ostendorff.

COMMISSIONER OSTENDORFF: Thank you, Mr. Chairman. I want to start out by associating myself with Commissioner Magwood and the Chairman's comments earlier, Jack, to thank you for your service to the NRC and the country. Really appreciate it. Thank you all for your presentations. This morning, I going to start out with a question for Donnie and Rebecca if I can.

I've written down a question in the beginning before you went through your presentation and I said, "Are there any concerns in lack of harmonization of approaches?" And then you proceeded, Donnie, to talk about reviewer training and fire PRA training course offered by EPRI and NRC and the quality group to ensure consistency of reviews, and I was very pleased to hear that. This question is for you and Rebecca, recognizing that there 104 different

plants out there and we don't have the standardization of designs, just as a matter of fact. Are there any areas that you've seen to date that would pose concerns for consistency purposes or coherency?

DONNIE HARRISON: I'll take it from the application and you can take it from the inspection. From the PRA side, the answer would be no. I think we're doing what we can with the staff to equip them and then provide the training and the oversight. I'll add -- one of the other things we've done is for each of these applications we're doing audits early on in the application review, which you heard about from D.C. Cook, where we went in mid-November. We got a team currently at a licensee this week and I'm going to join them tomorrow. And the expectation with those audits is we're adding additional staff on those audits, not as part of the review but to see the audits and to train them on that as well. Because, again, the concern there was there are a lot of applications. They are going to use a lot of our staff and support contractors, and we want to make sure everyone had seen an audit from auditing the audit, if you will, prior to actually leading an audit or doing it on their own. And so we've added that to it, as well. So the concern in being able to prepare the staff for the PRA reviews, for the audits that will occur, all of those things were -- I think have been established so that the staff is well prepared for the PRA portion of the application. So, okay. On inspection I'll turn it to Rebecca.

REBECCA NEASE: From the inspector standpoint, right now it may be a little too early to tell because we've only performed one of these inspections. But from our standpoint we don't actually review the fire PRA, we're just looking to make sure that the inputs into the analysis are proper and appropriate and we walk down the plant. I don't really anticipate we're going to

have any problems in the future; however I do want to put another plug in for training and fire risk training fire inspectors so that we will be able to navigate through the licensing basis documents more easily. Another thing is I want to put a plug in for the LAR and the SE templates. As long as the licensees and the staff continue to use those templates, we'll be able to get to where we want to go and look at what we need to look during the inspection, so I guess the answer is too early to tell, but we don't expect to have any problems.

JACK GROBE: You notice how she tried to get more money out of us for more training is clever at the table, I tell you. But one of the things that Alex Marion points out and is appropriate is that we did a poor job 30 years ago with the transition to Appendix R. And this agency wasn't real good at change management at that time, and we had some challenges with consistency and the application of the branch technical position because we had different teams of people doing the work simultaneously at different plants, and consistency with the inspection. And we've learned that lesson. We've learned it multiple times over the years and we do it fairly well know, I think. But it's up to us to demonstrate it with consistent licensing work going forward and consistent inspection work. But I think these ladies and gentlemen have put in place a very good set of training and oversight and tools to ensure consistency and it's up to us to demonstrate that.

COMMISSIONER OSTENDORFF: Okay. I'm going to ask this question of Alex, but I think it may also be appropriate for Jack to weigh in as you desire. This question might surprise you. We've discussed this before about the length of the staff reviews. We've talked about this in some detail and the Commission provided direction in SECY-11-0033 to try to improve upon the

standard projection of two years per license amendment request. Can you talk a little bit about how that's looking at this stage and are there any steps or anything that you've learned so far? I realize it's very early but any thoughts that the staff has had about how to, you know, reduce the time to review these LARs?

ALEX KLEIN: Yes, I think -- excuse me. We mentioned the site audits gave the staff an opportunity to look up close at each of these license amendment requests. We think that spending one week on site with a licensee and their contractors and our staff I think gives us a leg up in terms of, you know, what exactly are in these license amendment requests? What does the plant look like? Where are some of the questions that we need to focus or where should we focus our reviews with these license amendment requests? So, yes, I think the side audits are a help. I think the fact that we have templates in place for license amendment requests submittals helps the staff also in terms of finding information. They know if they're looking for a specific item in a license amendment request, it's likely that they can go to a certain section in the license amendment request and find it there.

So, as Donnie mentioned, I think the training is very, very helpful. He mentioned the two-and-a-half days of training. Again, I think it helps focus the staff on what it is that we need to do to make these reviews as efficient and effective as possible. So, we're what -- we're about four months in or so. Five months in. I guess six months, it's December already, into the DC Cook review. So we're getting our feet wet with respect to the other license amendment requests. So, yeah, time will tell also. And as Jack indicated, in 2013 we'll plan to submit a kind of a Lessons Learned and let you know where exactly we stand with these first group of license amendment requests and any efficiencies

gained.

COMMISSIONER OSTENDORFF: Okay. Anything to add there?

JACK GROBE: Just that we already anticipate being able to shave roughly two FTE of effort off of the pilots in these next seven, and we're going to have to work through this because we learned a lot through the pilots and there's no question that we're going to be able to shave more resources off of these as we become smarter. It's just difficult until we get into it and get some reviews done to be able to provide any clarity. So it's important to give the staff some time to get a couple more reviews under its belt and then go back and again take a look at it.

COMMISSIONER OSTENDORFF: Marty did you give me a head fake there? Do you want to say anything? Okay, all right. All right, Alex I'm going to go back to you for a minute just to shift gears. Self-induced station blackout. Would you anticipate that those plants transitioning to 805 would be less likely to use self-induced station blackout as a fire response strategy?

ALEX KLEIN: What we're seeing so far, Commissioner, is that yes there's a -- there's less reliance on self-induced station blackouts. As a matter of fact, we did have a public meeting with Browns Ferry last week and it's public knowledge that they're making every effort that they can to reduce their reliance -- or basically eliminate as much as they can their reliance on self-induced station blackout. And we're seeing the same thing with other licensees. We had pre-application meetings with some licensees earlier this year where their slides indicated that they're doing the very same thing. So, yes.

Commissioner Ostendorff: Okay.

ALEX KLEIN: Bottom line answer.

COMMISSIONER OSTENDORFF: Okay. Thank you all. I think, Commissioner Svinicki.

COMMISSIONER SVINICKI: I guess Chairman Jaczko had to step out of the room briefly, so he asked me to conduct my round. Thank you all for your presentations. Really appreciate. Very informative and my colleagues have asked you a number of really good questions as well.

Rebecca, I was going to ask a clarification. I took from your discussion about the conduct of the triennial inspection now with the procedure that encompasses a plant having transitioned to NFPA 805, that that particular team had the luxury or benefit of being populated by some very experienced people and often the first time we go through something we have folks, you know, available and very desirous of serving on something so that they can have that experience, and you said coming out of that that there weren't any immediately identified changes necessary to the inspection procedure. Do you think that if we had maybe folks of a little less experience on the team or a little bit more diverse that it may be -- often it's people less experienced with something that identify, "Hey, the procedure needs to be" -- "have more detail in this area." Experienced individuals often can project a lot of meaning into the words on the page and so do you think that that influenced any of the conclusions about the completeness of the inspection procedure?

REBECCA NEASE: No. We did have a very young fire protection inspector on the team and we had a kind of middle aged type person on the team, with some experience but not as much experience as a couple of the other folks. So we had probably three inspectors that had probably 30 years experience each. And we had another inspector that had two-plus experience --

two-plus years of experience and then another with maybe 10 or 12. I don't think -- well, again, it's maybe a little too early to tell and that's why we're going to go back and take a hard look at the procedure after the Oconee triennial fire protection inspection, and of course we'll have different team members and then we'll incorporate any kind of changes through the feedback process we need to make.

COMMISSIONER SVINICKI: Okay, I appreciate that. I hadn't taken from your description that you had some diversity of experience levels. I think that really helps in testing the robustness of the inspection procedure, but as you indicated, you'll continue to look at that and take feedback on how clear and appropriate that procedure is for its use.

I think that Commissioner Ostendorff touched on this question but Jack you had talked about the fact that going forward, the staff's planning really relies -- these were your words, "Relies upon considerable efficiencies being gained in the review of the batch of seven license amendment requests," and so you've given a very thorough answer to that already, but when I first heard you say that I wondered if your decision to retire telegraphed anything to us about your optimism about gaining these efficiencies, but you've already given I think a more specific answer to that, so I appreciate -- all kidding aside. I do agree with my colleagues who've commended you on your service and all the contributions you've made here at NRC and retirements are a sad thing but also, you know, really a happy and fortunate thing for those who are retiring and it doesn't seem like people retire as much anymore. I know we've had managers here that have gone on to, you know, do old home refurbishments and things like that. There's people have very diversified talents, they tend just to move to the next phase of

life but continue to be just as active and making as many contributions as ever they were. So, again, thank you for not just your service here but all of your service to the country.

I really very much appreciate it and my last question is going to be for Marty, although he might task you, Jeff, with answering it because that's the way things work. In terms of this looking forward and the resources we have on NFPA 805 license amendment request reviews, do we now -- I'll use the term "staffed up" even though it's imprecise -- do we have the individuals identified? Are they at what you would call kind of their full qualification and training to conduct reviews? Are there some people still in a bit of a kind of a mentorship under more experience reviewers? How would you characterize where we are?

MARTY VIRGILIO: Well first let me give you a little context, and I want to make Jack feel just a little bit younger because I came to the agency right after the Browns Ferry fire and I was doing the audits of nuclear power plants and their fire protection capabilities immediately following Browns Ferry, so hopefully that helps Jack.

We have put a lot of focus on making sure we've got the right skill sets and the right numbers of people to do the 805 reviews. As a matter of fact, one of the things is we looked at Fukushima and what are we going to do in order to ensure that we can meet our deadlines on Fukushima? We looked at possibly -- we looked at actually preserving and ensuring we preserve what the resources that we had dedicated to fire protection. I think there are some thin areas, I think, when you look at fire protection PRA area as an example of where we recognize that we don't have as much as we would like to have, but I think we have as much as we need to meet the schedules that we've established.

COMMISSIONER SVINICKI: And do we still have people in a training pipeline or is that -- they're pretty much kind of up to speed now?

DONNIE HARRISON: The short answer's yes. There's some -- we have some junior staff, and again that's part of the effort we're doing. We also are thinking slightly out of the box of how to bring some junior staff in and bring them up to speed as fast as possible through a specific training program, to some degree on at least fire PRA and PRA in general is to leverage the level 3 PRA effort that Research is doing. We've been talking to them about some approaches to enhance our abilities using that program as a way to internally train and build up a resource.

COMMISSIONER SVINICKI: Okay, thank you. Thank you, Mr. Chairman.

CHAIRMAN JACZKO: Well I just had two questions. One, and Steve this may be a question more for you and it follows up, I think, on a point that Mr. Gunter made an interesting comment about enforcement discretion. If we have a regulation and then we issue an order to ensure compliance with that regulation, and then we issue a period of enforcement discretion, does that enter into some type of enforcement discretion? Does that trump the order or is it something we've thought about or looked at?

STEPHEN BURNS: I can probably answer -- try to answer in perhaps general terms. The question -- enforcement discretion itself is something separate from the regulatory tool that's used to set requirements. Generally those are either regulations or orders. They can compliment it -- compliment each other as appropriate. But the notion of discretion is inherent to agencies that in carrying out a regulatory program at agencies inherently have

discretion to take enforcement action as it sees fit. So what you're really looking toward is doing that in a rational manner if you are providing incentives for compliance. That's built into the enforcement policy. For example, you know, when there are violations you often give credit for good corrective action or going beyond sort of the minimum in corrective action. So it's not something so much that I think trumps the requirements as that it's intended to be built into -- and in particularly something like this, it's for whatever -- you know, for a number of historical reasons, has become enormously complex to provide incentive. Generally, it's an incentivizing tool, I think. But in itself, it is not something that it effectively withdraws the requirements that are otherwise on the books. I hope that's helpful.

CHAIRMAN JACZKO: Thanks, no it is. I mean, it's probably -- it is -- I mean, this is a complicated area, I think that's clear. The last question I have, and this is maybe a little bit off the direct topic, but I think one of the benefits that I see of NFPA 805 is it ultimately is new requirements or new issues or identified -- this will I think provide a better framework for plants to address new issues that develop and I notice Mark Salley is in the background there so we couldn't let him get away without any comments and we are doing a number of -- or have a number of areas of active research in fire safety right now and maybe Mark, I don't know if you want to comment or Donnie or Alex -- do you -- I mean, where do we see that going. Are there areas that are likely to further help shape and refine our understanding of the important issues for safety? Could those lead to regulatory changes? Do we have a sense right now of where we might be headed?

ALEX KLEIN: I'll take a crack at it and maybe Mark can elaborate.

I know that we have a user need with our Office of Research where we request the Office of Research to provide us with additional support. And some of that support is research in areas such as multiple spurious operations. And I know that Mark Salley and his branch, through an industry working group or whatever that's called -- it's a PIRT panel, and Mark can elaborate on what that is -- gets together and talks about some of the fire testing results for multiple spurious operations and makes a determination as to what further research might be applicable. And then from that comes forward additional information and if necessary we may have to apply some sort of regulatory footprint or process to that. He's still in the middle of that work but I agree with you, Chairman, that that gives licensees who are in NFPA 805 flexibility in terms of how to address any of these issues that might come forward with additional research as we learn more. Thanks. Mark, I don't know if you've got anything to elaborate.

MARK SALLEY: Yeah. Mark Salley, Office of Research, Fire Research Branch. Well, I'd like to say, and it is exactly correct, you know, the things we've been hearing on 6850, remember that was a joint document. That's been said numerous times. When we wrote that, the goal was, if you remember the SDP and fire requantification that has evolved into the 805. You know, we asked for plants to do it from start to finish and we couldn't so we had to do the best we could, which was to do it in parts. You're going to see evolution. I mean, every time we go to a meeting and we talk to someone, they want realism and take out the conservatism and you hear the same argument over and over. And that comes with maturity. We have a lot of maturity but we're going to get more. The PIRT is an excellent example. We've got a group phenomenon identification and ranking table, is what a PIRT is. It's a very structured expert elicitation that

the NRC uses. It's half made up of industry experts, four industry experts, four NRC experts. You know, use international labs. We have regional inspectors, we have guys from NRR. You're going to see the numbers in 6850 for circuit analysis for the failures evolve and we'll do more tests. So you're going to see a continued evolution and I think that's healthy. So that's the goal and that's where we're continuing to go with it. Another area that Dr. Sheron is proposing, just to say the next level, is the high energy arcing faults. Okay, we've seen that happen at SONGS, we saw it a year or so ago at Robinson. When we go to international meetings, we see the same thing in France, Germany, Belgium, Japan. We're trying now on an international level to say, "Hey, we need more research to understand the high energy arcing faults and to understand how they factor into the PRAs and what damage they do." So Dr. Sharon is proposing one on the international level where we would work with EPRI in this country international. So there's a lot going on in Research that's going to affect the landscape here.

CHAIRMAN JACZKO: Well thank you, and I -- you know, as I said, I think hopefully that, if there aren't enough incentives already, that may be another incentive to get the extra 56 that are not yet out there. But I think bottom line what is going to be the most important is how we go through this process and I think we've done a lot in the last couple years to get us ready and I think we're in a good place to do it and I've just really been impressed with your presentations, of all the work and particularly even getting to the point of starting to do inspections. So, still a lot of work to do but hopefully a lot of the hard work is behind us and now we're into the more routine things of getting submittals, doing those reviews and we'll hopefully get to a place where, I think as the

Commission has indicated, we can get that to a year or so process and have some good certainty and in the end have a program that will convince hopefully everyone that it's the right way to ensure safety in this area.

So, I don't know if there are any other comments from my colleagues? Okay, thank you for the briefing. We're concluded.

[Whereupon, the proceedings were concluded]