UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

February 15, 2011

MEMORANDUM TO: ACRS Members

FROM: John Lai, Senior Staff Engineer ***/RA/***
Reactor Safety Branch – B
Advisory Committee on Reactor Safeguards

SUBJECT: CERTIFICATION OF THE MINUTES OF ACRS SUBCOMMITTEE ON RELIABILITY AND PRA REGARDING THE CURRENT STATE OF LICENSEE EFFORTS ON THE FIRE PROTECTION PROGRAM TRANSITION TO NFPA-805 ON NOVEMBER 16, 2010, IN ROCKVILLE, MARYLAND

The minutes for the subject meeting were certified on February 11, 2011. Along with the transcripts and presentation materials, this is the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment: As stated

cc w/o Attachment: E. Hackett
C. Santos
A. Dias
Y. Diaz

cc w/ Attachment: ACRS Members

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MEMORANDUM TO: John Lai, Senior Staff Engineer
Reactor Safety Branch – B
Advisory Committee on Reactor Safeguards

FROM: John W. Stetkar, Chairman
Subcommittee on Reliability and PRA

SUBJECT: CERTIFICATION OF THE MINUTES OF THE MEETING OF THE SUBCOMMITTEE ON RELIABILITY AND PRA REGARDING THE CURRENT STATE OF LICENSEE EFFORTS ON THE FIRE PROTECTION PROGRAM TRANSITION TO NFPA-805 ON NOVEMBER 16, 2010, IN ROCKVILLE, MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting on November 16, 2010, are an accurate record of the proceedings for that meeting.

/RA/ 2/11/2011
_____ Date_____
John W. Stetkar, Chairman
Subcommittee on Reliability and PRA

Certified By: John W. Stetkar
Certified on February 11, 2011

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MINUTES OF THE MEETING OF THE SUBCOMMITTEE ON RELIABILITY AND PRA REGARDING THE CURRENT STATE OF LICENSEE EFFORTS ON THE FIRE PROTECTION PROGRAM TRANSITION TO NFPA-805
ON NOVEMBER 16, 2010 IN ROCKVILLE, MARYLAND

INTRODUCTION

On November 16, 2010, the ACRS Subcommittee on Reliability and PRA held a meeting in Room T-2B1, 11545 Rockville Pike, Rockville, Maryland. The purpose of the meeting was for the Subcommittee to review the current state of licensee efforts on the fire protection program transition to NFPA 805. Mr. Girija Shukla was the designated federal official for this meeting. The Subcommittee received written comments from the Union of Concerned Scientists addressing concerns from external stakeholders. The Subcommittee received no request from the public to make oral statements. The Subcommittee chairman convened the meeting at 8:33 am and adjourned at 6:07pm.

ATTENDEES

ACRS Members
John Stetkar, Subcommittee Chairman
Said Abdel-Khalik, Member
William Shack, Member

ACRS Consultant
Mardy Kazarians, Kazarians & Associates

ACRS Staff
Girija Shukla, Designated Federal Official
John Lai, Cognizant Staff Engineer

NRC Staff
Mark Cunningham, NRR
Donald Harrison, NRR
Alexander Klein, NRR
Mark Salley, RES
Sunil Weerakkody, NRR
David Stroup, RES
Susan Copper, RES
Steven Laur, NRR
Samson Lee, NRR
Andrew Howe, NRR
Harry Barrett, NRR
Charles Moulton, NRR
Stephen Dinsmore, NRR
Dan Frumkin, NRR
Ray Gallucci, NRR
Margaret Stambaugh, NRR
Jeff Circle, NRR
See Meng Wong, NRR

Naeem Iqbal, NRR
Jigar Patel, NRR
Gabriel Taylor, RES

Others
Tom Basso, NEI
Biff Bradley, NEI
Ken Canavan, EPRI
Jim Chapman, SCIENTECH
Doug True, ERIN Engineering
Rick Wachowiak, EPRI
Andy Ratchford, RDS
Dennis Henneke, GEH
John Butler, NEI
Steven Mays, ERIN Engineering
Thomas Zachariah, PWROG
Vincent Sorel, UNISTAR Nuclear Energy

The presentation slides and handouts used during the meeting are attached to the transcript. The presentations to the Subcommittee are summarized below.

OPENING REMARKS BY CHAIRMAN STETKAR

John W. Stetkar, Chairman of the ACRS Subcommittee convened the meeting by introducing the ACRS members present. Chairman Stetkar stated that the purpose of this meeting was for the Subcommittee to review the current state of licensee efforts on the fire protection program transition to NFPA 805. The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate, for the deliberation by the full Committee. The rules for participation in the meeting were announced as part of the notice of the meeting previously published in the Federal Register. Chairman Stetkar acknowledged that the Subcommittee has received written comments from the Union of Concerned Scientists addressing concerns from external stakeholders.

Chairman Stetkar provided the background for the meeting. He stated that the effort is derived from a Staff Requirements Memorandum from the Commission dated June 25th of this year, it says "The ACRS should conduct a review and report back to the Commission on the current state of licensee efforts to transition to National Fire Protection Association Standard 805. The review should include methodological and other issues that may be impeding the transition process, lessons learned from the pilot projects and recommendations to address any issues identified. The review should determine whether the level of conservatism of the methodology is appropriate and whether any adjustment should be considered. The review should not influence the staff's actions regarding the Pilot Projects or the pending license amendment reviews."

Chairman Stetkar stated that he would like, as much as possible, to keep the discussions focused on technical issues. He also introduced Mardy Kazarians, the ACRS consultant on the project, to the meeting attendees.

The chairman said that hopefully by the end of today, although he can't promise that, the staff and industry may be able to identify a few key technical issues. If not, staff and industry will talk a little bit more about that toward the end of the meeting when the Subcommittee discusses plans for the next Subcommittee meetings, which are currently scheduled for December 13th and 14th.

In that Subcommittee meeting, the chairman stated that he would like to bring forth the technical issues, and any significant programmatic issues that may be involved. He would like to make sure that the industry and staff have a focused discussion about each of those issues, so that the Subcommittee understands the relevant concerns. The chairman hopes to identify areas where there is some agreement on what a path forward might be and try to close out those discussions at least in this open Subcommittee forum to provide the input to the Subcommittee.

The Subcommittee will write a report to the full Committee, essentially, summarizing what we have learned. The full Committee will receive the report probably sometime in January. At the February full Committee meeting, the full Committee will deliberate on this matter and write a letter report to the Commission transmitting the ACRS findings, conclusions, and recommendations.

SUMMARY OF THE MEETING

INDUSTRY PRESENTATION

Fire PRA Impacts to NFPA 805 Transitions

Biff Bradley of NEI outlined the industry presentations. Ken Canavan of EPRI provides the management perspective on NUREG/CR-6850. Doug True of ERIN Engineering and Jim Chapman of SCIENTECH will discuss the insights from selected plant fire PRAs. Doug True will also discuss the technical issues and provide the industry roadmap for improvement. Rick Wachowiak from EPRI will talk about the specific activities that industry has set up over the next couple of years to achieve improvements to fire PRA methods. Tom Basso from NEI, who is the NEI project manager for NFPA-805 implementation, is going to discuss non-PRA issues.

Biff stated that the industry is looking at what is going on with both PRA regulatory stability pilot efforts and they are holding back on making a decision as to whether they want to move forward with NFPA-805.

Biff said that the industry provided a list of the technical issues that were in need of improvement for fire PRA in January of 2008 to the NRC and entered the Frequently Asked Question (FAQ) process. There were about 15 of these FAQs relating to different areas of fire PRA. There were some incremental improvements and the industry appreciated that has occurred, but it is far from what the industry needs to ultimately have realistic fire PRAs. There were no more fire PRA-related FAQs submitted starting in late 2009.

There were over 30 PRAs that have been performed in support of NFPA 805. Biff stated that the intermediate level results do not appear to conform with operating experience when compared to the actual types and numbers of fires. Biff stated that the level of quantified fire damage frequency is overstated, as compared to operating experience.

Biff said that the plants are under an Enforcement Discretion timeline. There is a strong schedule element with NFPA 805 and the indications are that the safety evaluation (SE) for Oconee, the second pilot plant, will be issued this December. There are approximately 25 plants that would then have submittals due six months after the issuance date of the Oconee SE.

The industry proposed a different sequential type of submittal schedule, more along the lines of the license renewal process. The purpose for that wasn't really additional time to address fire PRA issues. It was rather to allow for a more efficient and structured review and better feedback from one plant to the next. The letter was sent out yesterday (11/15/2010).

EPRI Perspectives on Current Fire PRA Methods

Ken Canavan of EPRI stated that the EPRI 1011989-NUREG/CR-6850 report was developed jointly between EPRI and NRC RES. It succeeded in providing a standard framework for fire PRA (FPRA), and provided consistency in many inputs which were absent in the IPEEE-era FPRAs. The pilot process included individual tasks but no fully integrated pilot study was performed. The implications from the lack of an integrated test were that the simplifications and conservatisms were not known until the NFPA-805 pilots and a few other FPRAs progressed to quantification in late 2007.

EPRI 1019250 or NUREG/CR-6850 Supplement 1 was recently published. That report contains 15 FPRA-related FAQs. Each FAQ improved the understanding of the technical issues involved in the scope of the FAQ but the process was slow and ineffective in establishing realistic FPRA methods.

Ken stated that in order to get realistic risk results and insights, additional refinements to the methods are required and EPRI is committed to supporting methods enhancement.

Insights from Industry Fire PRAs

Doug True of ERIN Engineering and Jim Chapman of SCIENTECH provided insights from industry PRAs that have been performed using EPRI 1011989 – NUREG/CR-6850.

Doug showed the skyline chart (Page 6 of the slides) and explained the fraction of fire CDF versus ignition frequency bin on the chart. It was obvious that the most important contribution is from electrical cabinet fires.

Doug gave an example of how the diesel generator ignition source frequency was calculated and compared the result to the most recent EPRI data. There was a reduction of a factor of four using the EPRI data. He went on to show that the oil fires characterized by the distribution in NUREG/CR-6850 were very different from the recent EPRI Fire Events Database (FEDB). He concluded that FAQ 08-0048 resulted in a significant decrease in ignition frequency and that the oil fire heat release rate (HRR) was not consistent with that of actual fires.

Doug and Jim showed the results of the predicted frequencies of "significant precursor" (CCDP > 1E-3) and "high CCDP" (CCDP > 1E-4) fire events from the FPRA calculations. The results indicated that a "significant precursor" fire event should be seen once every one to ten years, and a "high CCDP" event should occur one, two or three times each year. In reality, there are no "significant precursor" fires since Browns Ferry and no "high CCDP" fires from 2001-2009 based on SECY 10-0125. Thus, the FPRA predictions did not comport with actual operating experience.

Doug showed the figures presented in page 21 and 22 of the slides. The baseline CDF of configuration A is greater than that of configuration B due to both systems failed in configuration A (Zone of Influence [ZOI] A is larger than ZOI B). However, if system 2 is out of service before the fire event, then the CDFs for both configurations are the same. This illustrated that conservatism in the ZOI might under-predict the risk in certain configurations.

Doug concluded this portion of the presentation by saying that the simplifications are driving the results. The problem is compounding conservatisms –no simple fixes. Computed risks

don't comport with risk experience. Conservatisms can confound risk-informed decision making for transition to NFPA-805 and beyond.

Roadmap for Attaining Realism in Fire PRAs

Doug True presented the roadmap for attaining realism in fire PRAs. He highlighted the material presented in a report that the Industry was working on. The key objectives of the report were to identify the key problem areas, illuminate what the causes are, identify and organize a set of reasonable near term research activities, and inform and update the EPRI fire PRA Action Matrix.

Doug discussed the reasons for improvement of the fire events database, fire ignition frequencies, and transient ignition frequencies. He showed the next series of graphs which presented some inventories of different fire ignition frequency bins (Pages 7, 8, 9, 10 of the slides). Each bin accounts for an average "plant level" fire ignition frequency. That "plant level" frequency is then allocated among specific components, based on the inventory of equipment in each plant location. The comparisons showed how the resulting fire ignition frequencies vary on a "per component" basis, depending on the total number of components in each plant. The variability can be as much as a factor of 4.

Doug then discussed the implications of the database and fire frequencies on the FPRA. The current FAQ required reliance on the NUREG/CR-6850 data, which has a non-negligible frequency contribution from "indeterminate" events. All events were also treated as entering t^2 growth, but the experience did not support this. Treatment of oil fire severity is simplistic and over-predicts fire severity when compared to the events in the FEDB. Although FAQ 08-0044 adjusted the treatment for MFW pump oil fires, other components (e.g., pumps, transformers, diesel generators) also need a similar update.

Doug then discussed the fire growth assumptions and peak release rates in fire damage assessment. He discussed the five cabinet fire tests in Figure 8 (Page 18 of the slides) and the limiting conditions (e.g., open ventilation) of these tests. Doug stated that the estimated CDF is on an order of 2-5 times higher using the growth rate models in NUREG/CR-6850.

Doug discussed the HRRs of Table G-1 in NUREG/CR-6850 (Page 27 of the slides). He pointed out that 702 KW at the 98^{th} percentile was the average result of benchboard tests with open doors and that HRR was applied to every cabinet regardless of the number of cable bundles in the cabinet (because it is impractical to check every cabinet in the plant).

Doug also discussed the peak HRR from transient ignition sources. He mentioned that electrical cabinet fire test data were applied to pumps and fans in Table G-1 of NUREG/CR-6850 in a few cases.

Doug mentioned that hot shorts remain an area that needs refinements. HRA methods are also important, and PRA model advancement is also needed to address unrealistic model simplifications.

EPRI Fire PRA Action Plan

Rick Wachowiak of EPRI discussed the EPRI fire PRA action plan. The plan was initiated in late 2009 as a means to clarify and coordinate activities of fire PRA methods. He described the hierarchies of the fire PRA industry organization and presented the schedule for resolving key issues through mid-2014.

Rick concluded that EPRI is focused on increasing the realism of the models, methods, and database. The roadmap report will be provided to ACRS before the December meeting.

Non-FPRA Issues Impacting Transition to NFPA 805

Tom Basso of NEI discussed other emerging issues with potential impact on NFPA 805 transition. He gave an example that Harris plant can maintain "safe and stable" conditions at hot standby, and NRC staff accepted that. Oconee can maintain "safe and stable" conditions for 72 hours following the fire, and staff requested that Oconee show that it can be maintained at that condition indefinitely.

Tom stated that non-pilot plants aligned with the Oconee license amendment request (LAR) will require significant changes in order to meet the June 2011 submittal date. He stated that changes in requirements through the review process create instability and might impact non-pilot transitions. Expedient resolution and alignment on the treatment of "safe and stable" conditions needs to be reached through FAQ 08-0054.

STAFF PRESENTATION

Mark Cunningham of NRR addressed the Subcommittee with his opening remarks and introduced the staff and the discussion topics in the afternoon.

Status of Transitions to NFPA 805 - Methodology and Issues Impacting the Transition

Alex Klein of NRR summarized the pilot plants transition process, NUREG/CR-6850 development and update history. Regarding the NFPA 805 inspections, the staff is currently undertaking a major effort to develop an inspection procedure.

Alex discussed the issues resolved during the pilot transition. Chuck Moulton of NRR discussed the five open FAQs.

Alex summarized lessons learned regarding the non-PRA implementation issues.

Fire PRA Related Methodological and Other Issues Impeding the Transition Process

Donnie Harrison of NRR discussed the issues that could impede the licensee transition to NFPA 805. He discussed the internal events PRA/Fire PRA carry-over issues, risk-informed applications, fire PRA peer reviews, and scope of 10CFR 50.48(c) transition.

Donnie and Harold Barrett of NRR stated that the fire risk has to be evaluated on a fire area by fire area basis and compared using CDF and LRF. The cumulative impact must also be evaluated and determined to be acceptable.

Donnie stated that the industry identified conservatisms in the morning presentations. Some of those were the first time the staff is actually hearing specific examples of conservatisms. The staff needs to address those issues and work together with the industry to come to resolution.

Fire PRA Research in Support of NFPA 805

Mark Henry Salley of RES provided a high level overview of NRC RES fire research activities and discussed how the research activities were decided. They were based on the requests for users needs from other NRC offices. The fire PRA methodology was based on EPRI 1011989 – NUREG/CR-6850, and supplement 1 was issued in September, 2010.

He described the research programs performed in fire modeling and results of the fire testing programs such as CHRISTIFIRE and DESIREE-FIRE.

He mentioned that Fire PRA trainings were performed twice this year and the material for fire modeling training is currently under development.

He presented the planned fire research projects for the next couple of years which include updating the FEDB, follow-up on incipient detection systems, close-out of low power and shutdown fire PRA, and cooperating with EPRI on electrical cabinet HRRs.

Current State of Licensee Efforts to Transition to 10 CFR50.48(c)

Sunil Weerakkody of NRR discussed the staff view on fire PRA. He believes that the methodology in NUREG/CR-6850 is adequate to support the transitions from a regulator's point of view.

ACRS CONSULTANT PRESENTATION

Mardy Kazarians stated that his main mission was to find out if the current fire PRA methodology leads to inappropriate conclusions during the transition to NFPA 805 and if there are other issues impeding the transition process.

He briefly discussed the topics which he interviewed with the stakeholders. He also discussed the progress made so far.

The final results will be presented in the December meeting.

DISCUSSION OF AGENDA ITEMS

Member Shack asked Ken Canavan what the effective process for FPRA improvement might be. Ken replied that research performed by an extremely large group and in public may not work well. He thinks that using smaller groups of really knowledgeable stakeholders to create the first iteration on the method and then to allow that method to be slowly spread through the community may work better.

Chairman Stetkar asked Doug True how the conservatisms in fire PRA differ from those applied in internal events PRA. Doug replied that the process to treat conservatisms may not be too much different but refinements of the models, thermal hydraulics analysis and specific data collections over the past 15-20 years improved the treatment of conservatisms for the internal events analysis.

Chairman Stetkar asked Doug True and Jim Chapman how different these FPRA methods are compared to those that were applied 25 years ago during the first Fire PRAs in the mid-1980s. Doug True and Jim Chapman replied that they are quite similar in concept with some new wrinkles such as spurious operations. The main things were that the methods of applying NUREG/CR-6850 to treat the fire were too discrete.

Chairman Stetkar asked Doug if he treated the uncertainty correctly on the new EPRI fire frequency data. Doug replied that it was one step forward made in the FAQ process.

Member Abdel-Khalik asked if the diesel frequency data are for individual diesel or individual plant. Doug replied that all of the frequencies in the NUREG/CR-6850 were developed on a plant-wide basis. It was the number of events divided by the number of reactor years. One allocates that frequency through the number of components of that type

in the plant.

Chairman Stetkar discussed the incipient fire detection and suppression with Doug True. In the RAI addressing incipient fire detection, the staff accepted what Harris did. Harold Barrett of NRR stated that the staff allowed Harris to use the methodology they had, but the staff wanted them to update it to the FAQ methodology because Harris used a much more simplified approach. For area wide detection, there is more work to do.

Member Abdel-Khalik asked if the goal of the exercise was to match the operating experience. Doug replied that the FPRA results were not near the operating experience right now and the base risk values did not reflect anything that existed in operating experience. One problem would be that the insights from the current FPRA may not be correct. The other problem was that the FPRA results would be used for risk-informed decisions (e.g., Tech Specs, ROP, NOED), so accurate FPRA results are important.

Chairman Stetkar asked why it is important for individual components in the systems to be counted in the database, which was not the practice for the development of the internal events database. Doug replied that risk important components were counted in the EPIX database for the Maintenance Rule program and they are factored into the generic database now.

Chairman Stetkar asked if the industry wanted to use the new database to improve the fire ignition frequencies, then why can't it be done in one pass instead of two passes? Doug replied that everybody's PRA is set up with the current method. If one can give them new improved data, it will almost certainly lower the frequency of the key bin (i.e., electrical cabinets) by a substantial amount in a timely manner. Dennis Henneke of GEH stated that the new data did not include the data of BWR plants at this point so a one pass process at this time may not reflect the variability of all plants.

Member Abdel-Khalik asked how the roving fire watches presently existing in the plants are affected by the FPRA analysis. Doug replied that there had been some disconnect between the FPRA and fire watches. With the new database structure, the fire watch events will be identified and other fields in the new database could also feed into the FPRA model.

Chairman Stetkar asked what is more important for the electrical cabinet fires. Is it the damage within the cabinet or potential damage for cables outside? Doug replied that it is the outside external cables

Chairman Stetkar asked if there are specific areas regarding the HRR and transient fires that the industry felt should be done today. Doug replied that the electrical cabinet fires and database certainly are the high priorities.

Dennis Henneke of GEH mentioned that the present HRA methods are not very usable for control room evacuation either after a functional failure or due to smoke.

Member Abdel-Khalik asked Rick Wachowiak and Ken Canavan when one will know if the model enhancement is complete. Rick and Ken said first, the predictions made with the Fire PRAs should be close to where the operating experience is and next, one has to look at the individual plant issues.

Chairman Stetkar discussed the fire data collection with Rick and Ken. Steve Mays of ERIN engineering stated that the data period for the new data base is from 1990 through 2009. There will be more discussion of this in December's meeting.

Chairman Stetkar discussed the FAQ process with Alex Klein of NRR staff. Alex stated that once the issue was closed, a memo was issued to give the licensees some certainty of the closure status. The staff included as many closed FAQs as possible into the update of the Regulatory Guide. Donnie Harrison of NRC staff gave an example of the incipient fire detection model. As part of NFPA-805 transition, there's also self-approval subsequent to the transition. So Harris plant will need to convert their incipient detection fire model to the FAQ-approved model to go forward.

Dennis Henneke of GEH stated the hot shorts (DC circuits) FAQ was submitted and did not get into the interim staff guidance, so the industry was left without a solution for three years.

Chairman Stetkar suggested that the industry and staff discuss four to five PRA-related FAQs which had uncertainties in the December meeting.

Chairman Stetkar discussed the "safe and stable" condition with the NRC staff. Alex stated that NFPA-805 did not have a definition of what “safe and stable” is; it is up to the licensee to meet the definition of what they believe “safe and stable” is. Chairman Stetkar quoted the passage from NFPA-805, 2001 edition, “The nuclear safety goal is to provide reasonable assurance that a fire during any operational mode and plant configuration will not prevent the plant from achieving and maintaining the fuel in a safe and stable condition." He said that it was vague on the timing issue.

Member Abdel-Khalik asked the staff if biased fire PRA can mask important safety components. The staff replied that relative importance can be biased and that may affect the safety significance of certain risk-informed applications.

SUBCOMMITTEE DECISIONS AND ACTIONS

Following the presentations from industry, staff and the ACRS consultant, Chairman Stetkar stated that a few important topics should be discussed in the December meeting.

The topics should include the following: electrical cabinet fires including the frequency of fire ignition as a function of cabinet type and data or models supporting the fire growth rate, the time to peak HRR, FAQ Process, HRA issues, and EPRI /NRC research programs.

Doug True of ERIN Engineering suggested that manual suppression and control of fire, and fire event database development should also be discussed.

Chairman Stetkar then adjourned the meeting by thanking everyone for attending the meeting.

BACKGROUND MATERIALS PROVIDED TO THE SUBCOMMITTEE

1. Shearon Harris Nuclear Power Plant, Unit 1 - Issuance of Amendment Regarding Adoption of National Fire Protection Association Standard 805, "Performance-Based Standard For Fire Protection For Light Water Reactor Electric Generating Plants", June 28, 2010 (ML101750602)

2. SECY-08-0171,”Plan for Stabilizing Fire Protection Regulatory Infrastructure”, November 5, 2008 (ML082840668)

3. SECY-10-0060, “Closing Fire Protection Issues—Semiannual Update”, May 14, 2010 (ML101020095)

4. Memorandum to M. Cunningham," Completion of Review of Past Regulatory Instabilities Related to Nuclear Power Plant Fire Protection —Annual Update", June 14, 2010 (ML101530627)

5. Excerpt from Transcript on June 9, 2010 ACRS meeting with the Commission, June 9, 2010, NRC External Website

6. Trip Report to ACRS Member," Trip Report – Nuclear Energy Institute Fire Protection Information Forum, September 13-16, 2010", October 19, 2010 (ML102920718)

7. Regulatory Guide 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," Rev. 1, December 2009 (ML092730314)

8. NRR Briefing to Commissioner Ostendorff, "Overview of Fire Protection at Operating Reactors", June 3, 2010 (ML101540551)

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NOTE:
Additional details of this meeting can be obtained from a transcript of this meeting available in the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, MD, (301) 415-7000, downloading or view on the Internet at http://www.nrc.gov/reading-rm/doc-collections/acrs/ or it can be purchased from Neal R. Gross and Co., 1323 Rhode Island Avenue, NW, Washington, D.C. 20005, (202) 234-4433 (voice), (202) 387-7330 (fax), nrgross@nealgross.com (e-mail).

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