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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS)

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FIRE PROTECTION SUBCOMMITTEE

+ + + + +

TUESDAY

JUNE 4, 2002

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ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B3, 11545 Rockville Pike, Rockville, Maryland, at 8:30 a.m., Stephen L. Rosen, Chairman, presiding.

COMMITTEE MEMBERS:

STEPHEN L. ROSEN, Chairman

THOMAS S. KRESS, Member

JOHN D. SIEBER, Member

ACRS STAFF PRESENT:

SAM DURAISWAMY, Technical Assistant

ROBERT B. ELLIOTT, Senior Staff Engineer

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1 SUZANNE BLACK, NRR
2 ED CONNELL, NRR
3 CHRIS GRIMES, NRR
4 JOHN HANNON, NRR
5 PAUL LAIN, NRR
6 GARETH PARRY, NRR
7 MARK HENRY SALLEY, NRR
8 ERIC WEISS, NRR
9 STEVE WEST, NRR
10 LEON WHITNEY, NRR
11 JUNE CAI, RES
12 KENDRA HILL, RES
13 J.S. HYSLYS, RES
14 JOE BIRMINGHAM, NRC/DRIP
15 PHIL QUALLS, NRC
16 KEN SULLIVAN, NRC/BNL
17 FRED EMERSON, NEI
18 JOHN BIECHMAN, NFPA
19 DOUG BRANDES, Duke Energy
20 DENNIS HENNEKE, Duke Energy
21 NANCY CHAPMAN, Bechtel
22 BOB KALANTARI, EPM, Inc.
23 ELIZABETH KLEINSORG, Kleinsorg Group
24 HARRY THORNBURG
25 SHELDON L. TRUBATCH

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C-O-N-T-E-N-T-S

Opening Remarks 4

S. Rosen, ACRS

Proposed Revision to 10 CFR 50.48 6

to permit voluntary adoption of NFPA 805

licensing basis for light water reactor

fire protection requirements

E. Weiss, NRR

Industry Perspective on Proposed Revision . . . 27

to 10 CFR 50.48

F. Emerson, NEI

Post-Fire Safe-Shutdown Circuit Analysis . . . 78

E. Weiss, NRR

NEI 00-01, "Guidance for Post-Fire 87

Safe-Shutdown Analysis"

F. Emerson, NEI

Subcommittee Comments/Discussion 138

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P-R-O-C-E-E-D-I-N-G-S

8:30 a.m.

CHAIRMAN ROSEN: The meeting will come to order. This is a meeting of the ACRS Subcommittee on Fire Protection. I'm Steve Rosen, Chairman of the Subcommittee.

ACRS members in attendance are Jack Sieber and Tom Kress.

The purpose of this meeting is to review the proposed revision to 10 CFR 50.48, to allow licensees to adopt National Fire Protection Association standards NFPA 805 as an alternative set of risk-informed performance-based fire protection requirements for light water reactors.

In addition, the Subcommittee will review the Nuclear Energy Institute Guidance Document NEI 00-01, "Guidance for Post-Fire Safe Shutdown Analysis, Draft Revision C" and the associated staff comments.

The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions as appropriate for deliberation by the full Committee.

Mr. Rob Elliott is the cognizant ACRS Staff Engineer, and Mr. Sam Duraiswamy is the Designated Federal Official for this meeting.

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1 The rules for participation in today's
2 meeting have been announced as part of a notice of
3 this meeting previously published in The Federal
4 Register on May 16, 2002. A transcript of the meeting
5 is being kept and will be made available as stated in
6 The Federal Register notice.

7 It is requested that speakers use one of the
8 microphones, identify themselves, and speak with
9 sufficient clarity and volume so that they can be
10 readily heard.

11 We have received no written comments or
12 requests for time to make oral statements from the
13 members of the public.

14 We will now proceed with the meeting, and I
15 will call upon Mr. Eric Weiss from the NRC's Office of
16 Nuclear Reactor Regulation to begin. Mr. Weiss?

17 MR. HANNON: Yes, good morning. This is
18 John Hannon. In just a minute I will introduce Eric.
19 I would like to mention that the staff has been
20 working very diligently over the last several weeks
21 obtaining support from the rest of NRC to support this
22 rulemaking. A number of folks in the audience today,
23 including Steve West, Joe Birmingham, Leon Whitney,
24 Paul Lain, and Ed Connell, are principals that have
25 contributed to the effort.

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1 We are looking forward to a dialog with you
2 today. At this point I would turn it over to Eric,
3 who has a formal presentation.

4 MR. WEISS: Good morning. I think I am
5 going to start here, but, if necessary, I will go up
6 to the podium, if you like, because I have some backup
7 slides that are only available on the overhead.

8 During this briefing I am going to briefly
9 describe the history of the issue, outline objectives.
10 I am going to describe the background, the advantages
11 of endorsing NFPA 805, NFPA 805's structure, the
12 structure of the proposed rule, some of the major
13 issues, the status schedule of our rulemaking, and
14 what we think this all means.

15 Could I have slide three, please? What we
16 are proposing is an amendment to 5048. At present our
17 regulation, our operating regulation, 10 CFR Part 50,
18 is essentially a deterministic regulation with very
19 prescriptive requirements. We recently issued Reg.
20 Guide 1.189, which is a comprehensive collection of
21 fire protection positions. Then following that, we've
22 got a National Consensus Standard developed by the
23 National Fire Protection Association and was published
24 in February of 2001. This standard, NFPA 805, was
25 developed in accordance with the approved American

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1 National Standards Institute Procedures and Policies,
2 meaning that the Committee makeup met all of their
3 requirements.

4 Slide four, please. The rulemaking that we
5 are proposing is consistent with the National
6 Technology Transfer and Advancement Act and OMB
7 Circular A-119 in that it uses an approved national
8 standard in lieu of agency-specific-developed
9 criteria. The real advantage of NFPA 805 is that it
10 takes advantage of probabilistic risk assessment and
11 advances in fire science since Appendix R was issued
12 20 years ago.

13 I would like to point out that NFPA 805 is
14 not Appendix R in a new guise. NFPA 805 is a
15 different method of achieving fire safety in some
16 regards.

17 On slide five I have a little Venn diagram
18 which is not meant to be comprehensive, but simply to
19 illustrate the point that there are differences
20 between the two techniques and there is a lot of
21 overlap. For example, Appendix R has a provision that
22 within 72 hours that a plant be capable of achieving
23 cold shutdown through repair of the facility.
24 Appendix R has a requirement for emergency lighting
25 that doesn't appear in NFPA 805.

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1 Conversely, NFPA 805 has a requirement or a
2 safety goal to provide reasonable assurance that fire
3 during any operational mode and plant configuration
4 will not prevent the plant from achieving and
5 maintaining the fuel in a safe and stable condition.
6 So there is not a requirement in NFPA 805, for
7 example, to be able to go to cold shutdown.

8 Slide six, please. Yes, the advantages of
9 this approach, well, it allows licensees to maintain
10 safety through more flexible, efficient, and rational
11 processes. In other words, licensees can use
12 engineering, can use fire science, as opposed to
13 complying with a set of purely deterministic
14 requirements. We anticipate that this approach will
15 reduce exemption submittals and reviews, and in part
16 that is because the structure of the rule as we have
17 it now does not require that licensees, once they are
18 in the process, make individual submittals to the NRC,
19 that what they do is follow the requirements of the
20 rule rather than make submittals.

21 Now there is a license amendment process
22 that gets them into the 805 regime, but once that's
23 done, we would anticipate this would reduce the
24 exemptions. To date, I think there's been something
25 of the order of about 900 exemptions in Appendix R

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1 space.

2 Another key provision is that it allows the
3 use of risk insights, fire modeling, and engineering.
4 Fire modeling has come a long way in the past 20
5 years, and we anticipate that this is going to result
6 in significant efficiencies for licensees. If, for
7 the sake of example, we contemplate a hypothetical
8 situation where a nuclear power plant discovers
9 someday that a fire barrier does not meet the
10 requirements of, say, being a three-hour barrier, but
11 fire modeling would show that they only need to have
12 a two-hour-and-40-minute barrier, and, indeed, the
13 material is capable of doing that, then NFPA 805 would
14 allow them to use the fire modeling to justify that
15 configuration. NFPA 805, of course, also allows a
16 deterministic approach, but we will be talking more
17 about that later.

18 NFPA 805 and the rulemaking as we've
19 constructed is consistent with NRC's outcome goals.
20 It allows licensees to focus their fire protection
21 program on the most significant safety issues.

22 Slide seven. It allows transition of the
23 existing Appendix R licensing basis, including
24 existing exemptions and Generic Letter 86-10
25 equivalencies to transfer over, allows future changes

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1 to the plant and licensing basis to be either
2 deterministic or risk-informed.

3 There's a good diagram in the NFPA standard
4 that shows these two paths. That's Diagram 2.2.
5 Okay?

6 After having gone from the top down through
7 the Chapter 3 requirements shown in this diagram, one
8 can go to the left or to the right. One can go the
9 deterministic route through the lefthand path or the
10 risk-informed, performance-based method in the
11 righthand path.

12 Another key provision of NFPA 805 is that it
13 incorporates a change control process. This is no
14 minor point. This is one of the essential elements of
15 risk-informed, performance-based method consistent
16 with the Commission's policy statement.

17 The new risk-informed, performance-based
18 methods that are not in the standard currently can be
19 approved by NRR. That is another key provision. Our
20 stakeholders have made the point that there is much in
21 805 as it exists now that is not risk-informed,
22 performance-based, and that is also something that the
23 Committee, the ACRS made in a letter to us some time
24 ago.

25 Having said that, there is not at present

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1 always a new risk-informed, performance-based method
2 available for some of these requirements. Having said
3 that, we constructed the rule in such a way that,
4 should they be developed, that the staff could approve
5 them, and they would become part of the process.

6 Slide eight. We just covered the Figure 2.2
7 that shows either the deterministic or the risk-
8 informed, performance-based method. If you remember
9 the Venn diagram that I had on an earlier slide, the
10 common area is essentially the deterministic
11 requirements; that is, they look very much like what
12 appears in Appendix R. There is a three-hour
13 requirement, one-hour with suppression and detection,
14 or 20-foot separation without intervening combustibles
15 and suppression and detection throughout the area.
16 that is a lot like what is in Appendix R, essentially
17 the same thing.

18 Slide nine. There are some fundamental fire
19 protection elements in 805 that are laid out. This
20 was the subject of some of our stakeholder discussion
21 about, what if there are new risk-informed,
22 performance-based techniques that would replace these
23 hard-and-fast requirements? That is why we built in
24 the provision in the rule that would allow NRR to
25 approve risk-informed, performance-based techniques

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1 that were new. But these fundamental requirements are
2 there, and they appear right at the top of that
3 diagram 2.2.

4 Slide 10. As currently structured, the
5 proposed rule that we have in front of the Committee
6 would allow the use of NFPA 805 after a license
7 amendment. However, use of the rule, use of the
8 technique, use of NFPA 805 is strictly volunteer; that
9 is, licensees can keep their existing licensing basis
10 and stay under their existing provisions in Appendix
11 R, and at some time that they choose to go the 805
12 route and avail themselves of risk-informed and
13 performance-based techniques, they would submit the
14 license amendment.

15 When they make that change, the existing
16 licensing bases, the configuration and procedures
17 essentially convey to the new risk-informed,
18 performance-based environment. Licensees would
19 document and maintain records on site, and the reactor
20 oversight process would monitor future changes. In
21 other words, the inspector would go out and go into
22 the plant and the file cabinet and be able to examine
23 the techniques that were used to justify the plant
24 configuration.

25 As I have said several times already, the

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1 NRC can approve new techniques in the future. The
2 reason I keep hitting this point is that it was so
3 important to our stakeholders and for us to be
4 responsive to the ACRS that we built this provision
5 into the rule.

6 Next slide, 11. Major points: This is one
7 of NRC's first risk-informed, performance-based rules,
8 not the first, but it is precedent-setting in a way.
9 NEI endorsed this rulemaking process in September of
10 2001 with a letter to us.

11 We think that a key to the successful
12 implementation of this is the development of a
13 regulatory guide. NEI agreed to develop a guidance
14 document that we could endorse in a regulatory guide.
15 In other words, the rule is never the whole story.
16 One needs an enabling rule to permit licensees to use
17 a risk-informed, performance-based technique. Then
18 the staff needs to lay out methods acceptable to the
19 staff for complying with that rule, and the third
20 piece is that we need inspection guidance so that our
21 inspectors know how to efficiently and properly
22 inspect against this new process. Then the fourth
23 component is we need inspector training so that the
24 job is done right. But no one piece in and of itself
25 is the whole enchilada. We do need all four pieces in

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1 order to make this work properly. We have gotten
2 assistance from NEI in developing the guidance.

3 I would like to point out that NFPA 805
4 addresses the existing fleet of light water reactors.
5 There is another NFPA standard that addresses advanced
6 light water reactors. We have written the NFPA and
7 asked them to address advanced reactors in a risk-
8 informed, performance-based way.

9 Slide 12.

10 CHAIRMAN ROSEN: Hold on just a minute
11 there. Go back to the prior slide. This NEI guidance
12 that is about to be developed, will it incorporate NEI
13 00-01 or in some way be linked to it?

14 MR. WEISS: Well, I will let Fred Emerson
15 speak to that, but I believe that is their and our
16 objective, is that we will have a risk-informed,
17 performance-based method for addressing circuit
18 analysis. We will be discussing that in much greater
19 detail later today, but obviously the Committee's
20 comments and advice on this issue would have a lot to
21 do with how far we go and how fast we go.

22 MR. KRESS: How does 804 differ from 805?
23 We haven't seen 804, have we?

24 MR. SIEBER: We had that a couple of years
25 ago.

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1 CHAIRMAN ROSEN: Well, what is the answer to
2 Dr. Kress' question? How does 804 differ from 805?

3 MR. WEISS: Well, 804 deals with advanced
4 reactors. It is not a risk-informed, performance-
5 based technique.

6 MR. CONNELL: Do you want me to answer it?

7 MR. WEISS: Yes, please.

8 MR. CONNELL: Okay. This is Ed Connell from
9 the staff.

10 804 is a standard for advanced light water
11 reactors. It is strictly deterministic. It does
12 require an IPEEE PRA-type assessment, consistent with
13 the Commission's SECY papers related to advanced
14 reactors. It also has the enhanced fire protection
15 performance criteria that were in the SECY papers, the
16 93 printed SECY papers, related to you actually had to
17 burn out the entire area. You weren't allowed to have
18 but 3G2 equivalence of separation of redundant systems
19 within the same fire area. So it is parallel to that.

20 We are using 804; 804 was issued after the
21 last of the first three advanced light water reactor
22 applications came in. We are using it as part of the
23 review for the AP 1000. We will be using it for the
24 ESP/BWR, if that comes in.

25 Does that answer the question?

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1 MR. KRESS: Yes. Thank you.

2 CHAIRMAN ROSEN: But the follow-on question,
3 though, is, are there advantages in 805 that should be
4 -- that licensees who wish to build an advanced
5 reactor might want to incorporate, and if there are,
6 could they do it?

7 MR. WEISS: Well, it is my understanding, as
8 Mr. Connell just explained, that 804 is not as risk-
9 informed, performance-based as 805 is. So that is the
10 reason that the NRC wrote the NFPA and asked them to
11 develop a risk-informed, performance-based standard
12 for advanced reactors. So the short answer to your
13 question is, yes, I think there are techniques in 805
14 that licensees who wish to construct advanced reactors
15 would like to take advantage of, and at present there
16 isn't an NFPA standard that would fully envelope the
17 techniques that they would like to use.

18 CHAIRMAN ROSEN: So you have already
19 communicated with NFPA asking them to somehow make an
20 805-like standard for advanced light water reactors?

21 MR. WEISS: That's right, and we went
22 further than that. We asked them not only to cover
23 the advanced light water reactors, but advanced
24 reactors, period; you know, the gas technology as
25 well.

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1 CHAIRMAN ROSEN: Have they responded to
2 that?

3 MR. WEISS: Not to my knowledge, no.

4 MR. CONNELL: They've acknowledged the
5 receipt -- what the NFPA Standards Council has decided
6 to do at their May meeting was to post a notice of
7 interest and see if there is any interest in
8 developing another standard. So I would expect to
9 hear back probably by the fall or early winter this
10 year.

11 CHAIRMAN ROSEN: This is not idle
12 speculation because there are indications that the
13 Commission will be addressing applications for
14 advanced reactors in the next few years.

15 Okay, please go on.

16 MR. WEISS: Okay. Slide 12 is schedule. We
17 are here in front of the ACRS today, and we are
18 scheduled to go to the full Committee on Friday. We
19 have a briefing of CRGR on the 11th.

20 The proposed rule is to be placed in front
21 of the Commission in July. We would then publish the
22 proposed rule in The Federal Register for comment one
23 month after we receive an SRM from the Commission. We
24 would proceed to develop the final rule 15 months
25 after close of public comments on the proposed rule.

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1 Then we would publish the final rule in The Federal
2 Register one month after the SRM for the final rule.

3 Slide 13. In summary, we believe that this
4 proposed rule endorsing NFPA 805 will move reactor
5 fire protection into the risk-informed, performance-
6 based arena. This represents an opportunity to
7 improve efficiency and effectiveness. As the cliché
8 goes, it is a win/win because we will be applying,
9 engineering will be applying fire modeling and fire
10 science to issues as opposed to a set of deterministic
11 requirements that are not necessarily in all cases
12 risk-informed.

13 Thank you.

14 CHAIRMAN ROSEN: Thank you very much.

15 Let me ask you a question about the proposed
16 rule. The staff noted that none of the methodological
17 appendices in NFPA 805 are part of the requirements of
18 the standard, and, rather, that the preamble to those
19 appendices states that they are for informational
20 purposes only. Because of that, the staff did not
21 technically review them to date.

22 In looking at them myself, I thought they
23 had done a significant amount of work on those
24 standards, on those appendices. It puzzled me as to
25 why the staff would not have expressed some view as to

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1 their validity or usefulness, as the language in the
2 material provided to the Committee was simply that the
3 staff did not technically review them because they
4 were for informational purposes only in the standard,
5 which seems to me sort of a weak justification for not
6 expressing the staff's technical view of so much
7 technical work. Can you comment on that?

8 MR. WEISS: Yes. You raise a good point.
9 This has, frankly, been a point of confusion with a
10 number of interested parties. I regret that, but let
11 me say what our original concept was and how it got
12 changed.

13 Originally, we had contemplated putting out
14 a regulation which would permit licensees to use risk-
15 informed, performance-based methods, and then we were
16 going to publish a reg. guide that would describe
17 methods acceptable to the staff for meeting that
18 regulation. It was our original concept that at this
19 stage we did not want to necessarily endorse the
20 appendices, not because there was anything
21 particularly wrong with them, but we just weren't at
22 that stage.

23 So if you had looked on the NRC's website
24 earlier in the year in one of the first versions of
25 the rule, it said something to the effect that we are

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1 not endorsing the appendices, not because we thought
2 anything was wrong with them. As a matter of fact,
3 when the NRC cast its ballot on NFPA 805, we did not
4 cast a negative ballot on any provisions in the
5 appendices. Our representative and the representative
6 from the Office of Research were consulted prior to
7 casting our ballots, and we did not cast any negative
8 ballots.

9 Now, subsequent to that, our Office of
10 General Counsel advised us that there could be a
11 problem, that the language that we had in that much
12 earlier version of the rule could be misinterpreted
13 and could create a legal problem. If we said in a
14 rule that we were not endorsing an appendix, and then
15 came out with a reg. guide that said we are endorsing
16 an appendix, rules trump reg. guides. So we were
17 creating an unnecessary legal complication.

18 The regulatory intent always was to describe
19 methods acceptable to the staff in a reg. guide. It
20 wasn't as though we were deciding against the
21 appendices with prejudice. It was just that we
22 thought we weren't at that particular stage yet. We
23 were at the rulemaking stage, and we would get around
24 to the guidance at a later point.

25 So in the version of the rule that has gone

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1 out for division and office-level concurrence, and we
2 have the support of all offices on it's silent on the
3 issue of the appendices, and the appendices stand as
4 they are as informational appendices, just as it says
5 in the standard. I know this has been somewhat
6 confusing, but I hope that clears it up.

7 We did not mean to cast any aspersions on
8 the appendices. We just thought that the appropriate
9 place to endorse them was in a reg. guide, and we were
10 subsequently advised that an earlier set of language
11 we had in a rule could create legal problems. So if
12 you look at the current version of the rule, it is
13 silent on the issue.

14 MR. HANNON: Yes, let me augment what Eric
15 just said. I am looking at our current statements of
16 considerations indicating that the most recent version
17 of this thing says that, although each of the three
18 appendices begins with a disclaimer, it is not part of
19 the requirements of the NFPA document, but it is
20 included for informational purposes only. "The
21 methodologies contained therein are, nevertheless,
22 considered by the NRC to be specified in NFPA 805
23 within the meaning of Section C(4) of the proposed
24 rule language, and, therefore, their use by licensees
25 need not be preceded by NRC approval of a license

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1 amendment request."

2 CHAIRMAN ROSEN: Help me with that. "Their
3 use by licensees need not be preceded by a license
4 request."? You mean the licensee can change its
5 program without a license amendment?

6 MR. HANNON: No. These appendices
7 considered risk-informed, performance-based methods
8 that, by this rulemaking, would effectively be
9 endorsed by the NRC to enable the licensees to use
10 them, without having getting prior NRC approval.

11 MS. BLACK: Steve, this is Susie Black.
12 Perhaps I can explain the legal nuances.

13 Originally, they were always going to have
14 a permissive to use any risk-informed, performance-
15 based method that the staff approved, but we were
16 going to approve those through a regulatory guide. We
17 were told that that is not legal, that the approval
18 has been given through rulemaking. So this would be
19 one of several means of meeting the rule. As we
20 approved different means of meeting the rule, we would
21 either have to do it by license amendment or a future
22 rulemaking, if new techniques came up.

23 CHAIRMAN ROSEN: Thank you, Susie.

24 Let me role play a bit here. If I am a
25 utility person and want to use, after the rule has

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1 been published in the form it is in now, I want to
2 take advantage of it, is it correct to say that all I
3 need to do is do the analysis that is required,
4 document it, put the documentation in the file, and
5 proceed to go ahead with making whatever changes I
6 want to make? Because the rule -- I am assuming in my
7 hypothesis that the rule has been published and
8 codified, and that no license amendment is required?

9 MS. BLACK: Well, actually, a license
10 amendment is required by the regulation. The reason
11 it is required is because your license probably has in
12 it a license condition or tech. specs. that say you're
13 going to meet 50.48, not 50.48(c). That is what the
14 license amendment would do.

15 CHAIRMAN ROSEN: But the license amendment
16 would be a very simple one.

17 MS. BLACK: Very simple, and it would just
18 be a permissive to use 805 to remove those other
19 specifications out of your license.

20 CHAIRMAN ROSEN: But there would be no back-
21 and-forth with the staff over to what to do or how to
22 do it at that point. It would be simply a
23 notification almost that the licensee was going to
24 comply with 50.48(c) rather than 50.48?

25 MS. BLACK: Except for the fact that this

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1 regulatory guidance that NEI is working on, and that
2 we are going to endorse, would provide more specifics.
3 So I think until that is out, it would be more
4 difficult for a licensee to just simply pick it up
5 using NFPA 805, because I think both the industry and
6 NRC relies that all the specifics needed for changing
7 into an 805 program are probably not included in the
8 appendices; especially, for instance, the PSA methods
9 are a little bit general.

10 CHAIRMAN ROSEN: So let's amend my
11 hypothesis. Now in my hypothesis we have the NEI
12 guidance as well.

13 MS. BLACK: Right, endorsed by NRC.

14 CHAIRMAN ROSEN: Endorsed by a reg. guide,
15 too.

16 MS. BLACK: Yes.

17 CHAIRMAN ROSEN: At which point now a
18 licensee can simply send you a letter which says they
19 want to use 50.48(c), and there would be very little
20 staff review of that, I would expect.

21 MS. BLACK: Yes, that was one of the
22 concerns, that this would require, transferring to 805
23 would require an entire review of the fire protection
24 program. 805 permits you to take your existing
25 program and put it into 805 space with all of the

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1 exemptions. You can pick up any part of your
2 licensing basis you want to transfer into 805 and keep
3 it in 805. Therefore, we are not going to go back and
4 go through all the closets and look at all the issues
5 that may have not been -- what do we call those?
6 Dirty laundry, no.

7 Fire protection has had a history of
8 differences of opinion on what's the licensing basis
9 and what isn't. That was getting in the way of
10 adopting 805. So our philosophy is, what's approved
11 stays approved; what was not approved stays
12 unapproved. But in order to get it in 805 we don't
13 look at all of those what we consider unapproved. We
14 won't go looking for them, but we go through our
15 normal process in the oversight program, perhaps come
16 across those issues as we have in the past, but we are
17 not going to make any special attempt to re-review any
18 questionable exemptions or deviations.

19 CHAIRMAN ROSEN: So where is the heavy
20 lifting in the future? What is the hard part that is
21 left in front of us? Is it the staff's review of NEI
22 guidance?

23 MS. BLACK: We still have to review the NEI
24 guidance and any public comments that we receive, but
25 we think the majority of the work on adopting this

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1 rule is over until additional, say, performance-based
2 methods or risk-informed methods are proposed, and
3 then we would have a review of those in the future as
4 well. That would require additional rulemaking in the
5 future to adopt those new methods.

6 MR. HANNON: I would also suggest that there
7 may be some heavy lifting associated with coming up
8 with the appropriate training program for the
9 inspectors.

10 MR. WHITNEY: This is Leon Whitney of the
11 Plant Systems Branch.

12 We have to draw the distinction between the
13 license amendments that are needed to adopt 805 and
14 license amendments that are needed for alternative
15 methods and analytical approaches. There's two
16 separate license amendments discussed in the rule
17 language, and I just wanted to make that clear. So a
18 licensee, under that current language that Mr. Hannon
19 read, would not have to come in under the second
20 license amendment for the alternative method
21 analytical approach within the appendix. Okay?

22 Something that wasn't published within 805,
23 not one of those appendices, later on they would have
24 to come in for a license amendment to use them. I
25 believe, even if they were endorsed in a reg. guide,

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1 on a plant-specific basis they have to ask, and it
2 would be rather easy to grant. But there are two
3 different license amendments in that rule language.

4 CHAIRMAN ROSEN: Thank you. We are ready to
5 move forward now with Mr. Emerson, Fred Emerson, of
6 NEI, please, for the industry perspective on the
7 proposed revision to 10 CFR 50.48.

8 MR. EMERSON: Good morning. I'm Fred
9 Emerson from NEI. Thank you for the opportunity to
10 discuss the industry viewpoint on the adoption of NFPA
11 805 into a rule that would allow the use of risk
12 information in fire protection regulation. Eric made
13 a number of references to what NEI is not going to do,
14 and I will discuss those in a little more detail in my
15 presentation.

16 Also, on the industry side of the auditorium
17 are several people who are active on our Issue Task
18 Force and in the development of the implementing
19 guidance that you speak of.

20 These are the topics I will cover today.
21 Eric provides some background of where 805 came from,
22 and I will add a little bit to that, not much. I
23 would like to make clear what some of the industry
24 positions are in going forward with supporting the
25 rulemaking and developing the implementing guidance,

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1 as we have agreed to do.

2 A few words about the current rule language,
3 and then a little bit more description of where we are
4 going with the implementing guidance:

5 The NFPA 805 development was done by the
6 NFPA Committee on Technical Facilities. A number of
7 the people in this room participated in that. It was
8 a several-year effort going through the NFPA process.
9 Both industry and NRC were represented in that effort,
10 along with people who are not necessarily associated
11 with either utilities or NRC. There was a great deal
12 of effort put into it, and we ended up with something
13 that was a useful document, but maybe not quite what
14 either the NRC or industry would have categorized as
15 ideal.

16 Based on the completion of this document,
17 industry agreed to support the rulemaking. As Eric
18 indicated, there were a number of issues that we spent
19 some time working through to provide that support, and
20 then we agreed to develop the implementing guidance.
21 I will provide a little bit more on each of those
22 points.

23 As I indicated, the Technical Committee on
24 Nuclear Facilities developed this effort, and there
25 was a lot of effort associated with it. I think I

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1 have mostly made these points already.

2 Some of the issues --

3 CHAIRMAN ROSEN: Fred, would you go back one
4 slide?

5 MR. EMERSON: Sure.

6 CHAIRMAN ROSEN: You did not address the
7 second bullet, I don't think, about the concerns over
8 the final product and the concerns to be addressed in
9 rulemaking. Do you want to comment on that now?

10 MR. EMERSON: Yes, I will provide that in a
11 little more detail in the subsequent slides.

12 CHAIRMAN ROSEN: Okay.

13 MR. EMERSON: In fact, in the next one.

14 Let's see, we had an issue with -- Eric
15 talked about the chapter in NFPA 805 that discusses
16 the fundamental elements of any fire protection
17 program. This was to provide a basis that anybody
18 adopting this standard would have to use or to adopt
19 if they were going to take advantage of the risk-
20 informed methods and performance-based methods that
21 were inherent in the rest of the standard. Eric
22 outlined in his slide what some of those fundamental
23 elements were.

24 The industry didn't have an issue with the
25 fact that there needed to a fundamental basis on which

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1 to found any fire protection program or that these
2 fundamental elements needed to be reflected, but these
3 elements, as stated in Chapter 3 of NFPA 805, were not
4 performance-based. They provided no allowance for
5 being performance-based, and industry felt that in a
6 performance-based standard there should be room for a
7 licensee to show that he could meet these fundamental
8 elements using a performance-based approach, just as
9 he could for other elements of meeting the standard
10 later on.

11 So one of the fundamental discussion points
12 we had with the staff over several meetings was that
13 we thought the application of performance-based, that
14 the licensee should be able to show that he could meet
15 these fundamental elements through performance-based
16 methods as well as through the prescriptive methods
17 that were outlined in Chapter of the standard. So
18 that was our issue there.

19 Also in the first paragraph of Chapter 3,
20 there was a statement that previously-approved methods
21 could be used to supersede elements of Chapter 3. We
22 felt that previously-approved was a little too
23 nebulous. It is pretty well-known that when NRC
24 approves something with an SER, those SERs are not
25 necessarily very specific. So the language as stated

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1 there left a lot of room for interpretation as to
2 whether NRC had approved something or not.

3 There might have been some specific feature
4 of a fire protection program that had been approved as
5 part of an overall approval of the fire protection
6 program but made no specific mention of that method.
7 The language that we were proposing was to allow the
8 use of previously-docketed material, instead of
9 previously-approved, as a more specific way to
10 indicate what commitments that the licensee would be
11 making to supersede Chapter 3 elements with something
12 that he already had in place.

13 Then, again, we spent several meetings
14 discussing these topics, and I believe worked them
15 out. I think we have mostly worked them out. We have
16 had a number of meetings in the last several months to
17 discuss what "docketed" meant and what "previously-
18 approved" meant. I think perhaps the discussions are
19 not finished yet, and we will probably have more
20 meetings just to make sure that everybody is clear on
21 what those mean, but those were the principal issues.

22 CHAIRMAN ROSEN: Maybe the staff or you can
23 give me a little clearer view of where that is now.
24 Clearly, SERs had to leave a lot unsaid, and docketed
25 material, having said things specifically that are not

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1 commented on by the staff, may in fact not have been
2 approved. So if a licensee relies on a method or an
3 analysis, technique, or a feature of a previously-
4 docketed piece of material, say, in response to an RAI
5 or something like that, it is obvious that you can get
6 into a situation in the future with an inspector where
7 the licensee can point to the RAI response and the NRC
8 staff can say, "Show where we accepted that particular
9 analysis method," for example, "in the SER," and no
10 one will be able to do that. You will be back into
11 the endless discussion loop that we are really trying
12 to avoid.

13 Is there some motion in a direction to
14 figure out how to deal with that?

15 MR. EMERSON: Again, the staff has put out
16 three versions of the rule language for industry
17 comment prior, and this was intended to aid the public
18 in understanding what the NRC was going to propose to
19 the Commission in July. Each time we have had a
20 meeting to discuss, there have been some changes in
21 the rule language and there have been some shifts back
22 and forth.

23 Industry has provided some viewpoints, and
24 various NRC agencies, including OGC, have provided
25 viewpoints. I don't know that I am in a position to

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1 -- I cannot speak for the staff and how or to what
2 extent they have coalesced on a specific viewpoint.
3 Susie implied that you've pretty much finished it.

4 MS. BLACK: Well, Steve, like I was saying,
5 this was going to be a very big sticking point in the
6 rulemaking, and we realized that nothing is different,
7 or should be different, between one day when you are
8 in your Appendix R program and the next day when you
9 are in your 805, as far as those types of discussions
10 or concerns.

11 So we didn't want to try to resolve those
12 types of problems. We are going to resolve those on
13 a separate track, because trying to define that within
14 this rulemaking would have bombed down this
15 rulemaking. You don't have any different problems
16 when you go into 805 with the inspectors as you have
17 today. So we are working that on a separate track,
18 although NEI is proposing in their guidance document
19 some method of determining what is actually approved,
20 and we are going to review that, but we are not at
21 this point taking any position on their proposal.

22 CHAIRMAN ROSEN: This is not something the
23 ACRS needs to take a position on, I think is what you
24 are saying?

25 MS. BLACK: Right.

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1 CHAIRMAN ROSEN: Because it is not a problem
2 that has turned up as a result of 805?

3 MS. BLACK: Right.

4 CHAIRMAN ROSEN: It is just a problem that
5 has always been there?

6 MS. BLACK: Correct.

7 MR. SIEBER: It almost sounds like we are
8 right to the point of where rulemaking ought to occur,
9 unless these kinds of issues have stronger definition
10 and better resolution, it would be my opinion.

11 MS. BLACK: One of the issues that the
12 industry had is that they didn't want a complete re-
13 view of the fire protection program, which we agreed
14 with. We think if you are safe today, you are safe in
15 805 tomorrow, after you go through the process of
16 transforming into it.

17 But, I mean, certainly the licensee could
18 take advantage of changing from their current program
19 to 805 to come into the NRC and say, "These are the
20 gray areas where we are not sure that you have ever
21 approved us or not," and come ask us about it, but we
22 are not requiring that on a generic basis.

23 MR. EMERSON: Part of the difficulty we
24 face, both the staff and the industry, is the staff is
25 developing a rule, and the industry is developing

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1 implementing guidance in parallel with the rule. We
2 are both working to meet a schedule for completing the
3 rule with an appropriate guidance document in place
4 and approved as a regulatory guide.

5 Because this is a relatively new type of
6 rulemaking activity for the staff, I mean, obviously,
7 there is going to be issues to be worked out within
8 the staff on what the rule language should say and
9 shouldn't say and what the transition should be and
10 shouldn't be. At the same time, industry is trying to
11 react to these changes and provide implementing
12 guidance that offers a way to deal with this.

13 So, at the same time the staff is working
14 what the language of the rule should be and the
15 statements of consideration, the industry is
16 developing guidance to explain this. So it is
17 required, frequent interaction, so that we can keep
18 the implementing guidance and the rule in locked step,
19 so that we are not creating difficulties for either
20 the licensees down the road who need to implement this
21 or the NRC in inspecting and enforcing it.

22 So if there seems to be some uncertainty
23 here, it is because we are both trying to keep a
24 schedule and move in parallel with a lot of
25 communication, and somewhere between the rule

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1 language, the statements of consideration, and the
2 implementing guidance, all of the necessary guidance
3 is going to be provided to the people who are going to
4 use it. We haven't worked out what that interface is
5 yet fully.

6 As I indicated, the implementing guidance
7 that we are developing is going to be the vehicle for
8 resolving some of the issues. In some cases you don't
9 need more words in the rule; you need a better
10 explanation in the implementing guidance. We are
11 going to provide that.

12 In other cases there are things that need to
13 be stated clearly in the rule, so that there is no
14 uncertainty on either the NRC's part or the potential
15 licensee user's part what the rule is.

16 The NRC we know utilized this, will
17 eventually approve this into a regulatory guide. We
18 have a contractor team developing the implementing
19 guidance. As Eric indicated, we intend to provide the
20 first draft of this later this month. We have just
21 gotten the first draft, and we are reviewing it now,
22 and we will be providing it to staff shortly.

23 The last bullet again indicates the issues
24 we face in proceeding in parallel with the industry
25 effort and the staff effort.

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1 CHAIRMAN ROSEN: Before you get off that
2 slide, what is that bullet NEI rulemaking ITF
3 oversight"? What is ITF?

4 MR. EMERSON: Oh, NEI has overall a Fire
5 Protection Working Group which oversees a number of
6 fire protection issues or how industry is going to
7 deal with them. Supporting that working group are
8 issue task forces devoted to specific issues. The
9 Rulemaking Issue Task Force has been for some time now
10 addressing issues related to the 805 rulemaking. We
11 worked on the Comprehensive Regulatory Guide with the
12 staff when that was being developed. So that's what
13 this group is going to be doing in the future, is
14 shepherding the implementing guidance through the
15 stage until we get to the rule stage.

16 There were some fundamental industry
17 positions that I think it would be useful to put
18 forward as basically our goals in supporting this
19 rulemaking. First, we want to see increased use of
20 risk information in fire protection regulation. Now
21 everybody in this room knows how deterministic 50.48
22 and Appendix R are, and we would like greater
23 flexibility in the use of tools, both if they choose
24 to adopt an alternate licensing basis, like will be
25 offered in this rule, or if they choose to maintain

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1 their existing licensing basis.

2 The second point is that the rulemaking
3 should be optional. That was clearly indicated in
4 Eric's slide and really is not an issue, but it is a
5 fundamental position, which we have explained a number
6 of times in past years.

7 MR. SIEBER: On that subject, since the use
8 of 805 is optional, how many licensees do you think
9 will take advantage of it?

10 MR. EMERSON: I can't give you a good answer
11 to that. What I can tell you is that what we are
12 striving for with developing the implementing guidance
13 and working with the staff on the rule is to make it
14 as useful as possible and as advantageous as possible,
15 so that we remove unnecessary impediments to using it.

16 Any licensee who has had the same licensing
17 basis in place for more than 20 years now and is
18 achieving the end of his initial operating license may
19 not be inclined to make a change like this, because it
20 is a big change, unless he sees some distinct
21 advantages. So we are trying to make sure that those
22 advantages are laid out in a logical and
23 straightforward way, and to make it as easy as
24 possible within the constraints of sound regulation to
25 do that.

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1 MR. KRESS: Do you have a list of likely
2 changes various plants would make if they transitioned
3 to this rule?

4 MR. EMERSON: That would really be plant-
5 specific.

6 MR. KRESS: I'm sure it would be, yes.

7 MR. EMERSON: Everyone's licensing basis is
8 different. So it would be really hard for me to say
9 there is a list of specific things.

10 MR. KRESS: Do you have some things that
11 likely each plant would do?

12 MR. EMERSON: Assuming for a minute that
13 every plant would choose to do this, each plant would
14 have to determine where he stood in his own licensing
15 basis, what he had committed to, what he hadn't
16 committed to, how his plant was designed, and how his
17 licensing basis stacked up with an alternate licensing
18 basis, and then NFPA 805. He would have to decide
19 what portions of 805 were advantageous to him that he
20 wished to adopt and which portions, as the staff
21 indicated earlier, he would bring forward from his old
22 licensing basis into the new one.

23 MR. KRESS: So you might have a hodgepodge
24 of new licensing basis, various mixtures of the old
25 licensing basis and the new one?

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1 MR. EMERSON: Well, what you raise is a good
2 point. It is really a fundamental tenet of our
3 concerns in making sure that this is done properly,
4 and that's that the licensing basis, if a licensee
5 does make a transition, has to be very clearly
6 understood by both the staff and the licensee
7 throughout the whole process.

8 If a licensee doesn't understand his
9 licensing basis, he could hardly expect the staff to,
10 and it is really critical that that licensing basis be
11 understood through the whole process. So, as you say,
12 if it is a hodgepodge or a mixture of old licensing
13 basis and new licensing basis, that has to be clearly
14 understood.

15 CHAIRMAN ROSEN: Fred I -- oh, excuse me.

16 MR. KRESS: That means it would have to be
17 very well-documented?

18 MR. EMERSON: Yes.

19 CHAIRMAN ROSEN: I find that answer sort of
20 unsatisfactory in the sense that surely in the
21 discussion of this with your stakeholders, the
22 licensees, there must be some anecdotal information
23 you could pass along to give us a better feel for what
24 kind of changes people are contemplating. Can't you
25 just say, well, licensee X, without naming the

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1 licensee, was thinking about these kinds of changes?

2 MR. EMERSON: I think we have a licensee
3 here who would like to say something.

4 MR. BRANDES: Yes, I'm Doug Brandes from
5 Duke Energy Company. We have, indeed, thought through
6 this at a high level for our three nuclear plants. I
7 also have our PRA analyst here, and we have spoken
8 about some of the things that we perhaps see, if we
9 decide to pursue a transition like that.

10 My opinion at this stage is that we would
11 probably pay less attention or find there is less
12 safety significance on some of the spurious actuation-
13 type issues, perhaps less emphasis on some of the
14 proscriptive barrier qualifications, and that we would
15 end up paying more attention to things like fire
16 prevention, control of hot work combustible materials,
17 and fire brigade response issues.

18 CHAIRMAN ROSEN: That's helpful. Thank you
19 very much.

20 I have one other question on this slide
21 before you go along. It puzzles me to see that sub-
22 bullet under the top one that "Licensees should be
23 able to use tools whether or not they transition to
24 NFPA 805." What sort of tools are you talking about,
25 risk tools?

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1 The Appendix D, was it, I think, in the NFPA
2 805 standard, are you saying that licensees simply
3 should be able to go ahead and do that now or when the
4 new rule is in place, without really adopting NFPA
5 805, simply go ahead and pick up pieces? Wouldn't
6 that create an unanalyzable condition? No one will
7 know where we are at, if that were made true. Help me
8 with that. I don't understand that.

9 MR. EMERSON: Okay. That has been a
10 discussion topic between the industry and the staff,
11 as to whether adoption of NFPA 805 should be an all-
12 or-nothing proposition. You either make a commitment
13 to make a total transition or you stay where you are
14 and you don't use any of the tools at all.

15 We see it as kind of an evolutionary
16 process. Since we are all moving in a risk-informed
17 direction, and since we in the industry think it is
18 desirable to take advantage of that in the fire
19 protection area as well, which has traditionally not
20 been risk-informed, as I indicated, for a licensee to
21 make a transition completely to a new licensing basis
22 is a significant effort, and he is only going to do
23 that if he sees a certain advantage.

24 So we think that by offering the licensee
25 the ability to use some of the tools like the ability

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1 to support exemption requests with risk arguments or
2 fire modeling or support, alternate ways of fire
3 protection operations in his plant with performance-
4 based techniques, that would afford the opportunity
5 for the licensee to begin the process of using risk
6 information. So that a licensee who chooses to begin
7 the process and sees increasing advantage from using
8 that may eventually go farther in the transition than
9 he would if he had to choose between an all-or-nothing
10 approach from the beginning.

11 MR. KRESS: Would Reg. Guide 1.174 fit into
12 there anywhere on how to make risk-informed changes to
13 the licensing basis?

14 MR. EMERSON: Certainly Reg. Guide 1.174
15 provides kind of the supporting --

16 MR. KRESS: The framework.

17 MR. EMERSON: -- supporting framework for
18 what went into NFPA 805, but -- now somebody on the
19 staff correct me if I am wrong -- it didn't deal
20 specifically with fire protection, and 805 I think
21 offers some additional value to a licensee who wants
22 to move in the risk-informed direction for fire
23 protection.

24 MR. KRESS: You know, it seems every time we
25 come up with a supposedly new risk-informed and

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1 performance-based rule, we end up with this issue.
2 That is, should we require a full change and
3 commitment to the whole rule or should we allow it to
4 be slight parts of it, and the parts that we want to
5 use and keep the old licensing basis?

6 I just wonder, and this is probably a
7 question to the staff rather than you, if the staff is
8 planning to have any criteria on that. Do we have any
9 guidance or criteria on that?

10 MS. BLACK: Since it is a general question,
11 we will let Chris Grimes --

12 MR. KRESS: It is very general. Chris would
13 be a good guy to address it.

14 MR. GRIMES: This is Chris Grimes. I'm the
15 Program Director for Policy and Rulemaking in the
16 Office of Nuclear Reactor Regulation.

17 That is an issue that we have given a lot of
18 thought to in terms of coming to the ACRS here in the
19 near future and talking about our vision of the
20 regulatory structure in the future. Where should the
21 regulatory changes go in a way that offers the
22 industry and our stakeholders a clear appreciation for
23 how we are evolving the safety standards, but at the
24 same time recognizes that all of the domestic plants
25 have evolved their licensing basis over time and they

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1 are all different?

2 So we are approaching this from the
3 standpoint of looking at what kind of outcomes do we
4 envision for the future in a way that the regulatory
5 standards can be implemented with the maximum
6 flexibility but with a consistent theme about how
7 safety is achieved. So the fundamental answer to your
8 question is that we have to deal with an environment
9 where all plants are different, all plants have a
10 variety of different needs. So we need to provide
11 simple, but flexible, means for them to implement
12 these safety standards.

13 My view of the regulations right now is that
14 they put minimal amount of definition in with a lot of
15 guidance on different ways to implement it. We, quite
16 frankly, struggle with trying to explain what that
17 level of safety is, and I think Reg. Guide 1.174 is an
18 illustration of how we have tried to do that with a
19 fundamental framework.

20 MR. KRESS: One of the reasons I asked the
21 question is, in this whole process of risk-informing
22 the regulations, it seems to me like we need a set of
23 risk acceptance values other than just the CDF order.
24 Those are good, but if we had a complete set of those,
25 then it seems to me like they would clarify what rules

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1 and what parts of the rules would be allowed, because
2 you would just look at the overall risk status of the
3 plant with respect to these risk acceptance
4 guidelines, and if they leak those at some confidence
5 level, or, you know, you're not worried about defense
6 in-depth margins, and I don't know how you fit those
7 in. But that would simplify this whole question.

8 MR. GRIMES: And I think that that is the
9 fundamental need that we see in moving forward to
10 develop a sound risk-informed framework, a risk-
11 informed, performance-based risk management system.
12 The point that you made about review margins
13 management and the question of the quality of the
14 decision tools as being critical to our ability to --
15 we have avoided trying to say that there is a risk
16 definition, a core damage frequency or a LERF, a large
17 early release frequency. We have resisted doing that
18 because of uncertainties --

19 MR. KRESS: Absolutely.

20 MR. GRIMES: -- and our ability to
21 articulate those uncertainties.

22 MR. KRESS: I understand that, but as we get
23 better at doing the PRAs and better at doing the
24 uncertainties, I think we need to start thinking about
25 really going to that absolutism.

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1 MR. GRIMES: And our view --

2 MR. KRESS: It would simplify life a whole
3 lot.

4 MR. GRIMES: We agree, and our view at this
5 point is that we need to move forward very carefully
6 in defining the quality standards for a PRA, the
7 methods for managing margins, and the treatment of
8 defense in-depth.

9 MR. KRESS: And those are basically the
10 three real issues in doing that.

11 MR. GRIMES: That's correct.

12 MR. KRESS: And I agree with it. Thank you.
13 That is a very good answer. I appreciate that.

14 CHAIRMAN ROSEN: Now back to the question
15 that was raised before about the use of tools, I think
16 your answer is a constructive one, that the intent of
17 the industry certainly, and perhaps the staff, is to
18 allow licensees to get their feet wet without making
19 the full transition to 805, to begin to use some of
20 the tools that are in 805, some of the risk- and
21 performance-based tools, to see how they work and to
22 begin to take some partial advantage in places where
23 that advantage is obvious. So I am in favor of that.
24 I think that is a good idea.

25 The problem I still have, though, is, how

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1 does one do that in a regulated environment where a
2 licensee could be perceived to have stepped outside
3 their Appendix R basis. Even though they are using
4 tools that are in the regulatory area, they just
5 haven't subscribed to those tools. What would be the
6 regulatory response to that, and how would you control
7 it?

8 A whole set of questions about unqualified
9 uses turn up and people not understanding what's going
10 on. I'm talking about resident inspectors and even
11 headquarters staff, if licensees begin piecemeal to
12 adopt pieces of this without actually making a formal
13 transition to NFPA 805.

14 MS. BLACK: Steve, could I answer that?

15 CHAIRMAN ROSEN: Please.

16 MS. BLACK: If they do not adopt 805 and
17 they wanted to use these techniques, they have to come
18 in for an exemption or a deviation because the
19 requirements are proscriptive. So, therefore, it
20 would become part of their licensing basis when we
21 approve that use.

22 The staff had a lot of discussion about
23 whether they should be able to be "cherry-picked," I
24 think is the term, and we believe that it is best to
25 do the upfront analysis and then, because the standard

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1 allows you to keep your entire licensing basis on the
2 deterministic side until you want to take a step
3 toward changing one of your rooms or one of your
4 areas, but we would certainly consider an exemption or
5 deviation request on a case-by-case basis, based on
6 these tools.

7 CHAIRMAN ROSEN: Okay, I understand that
8 now. Thank you.

9 I think that would then put the staff in
10 this position where you obtain control over what is
11 going on from a regulatory basis, and the licensee
12 could continue to maintain their licensing basis, but
13 there would be a tug-of-war going on between the
14 staff's desire to give the licensee some flexibility
15 to begin to get their feet wet and the countervailing,
16 no doubt, desires not to write more exemptions.

17 MS. BLACK: Correct, and the beautiful thing
18 about 805 is that it would permit licensees in the
19 future to make these changes based on the criterion
20 rule without coming to NRC.

21 MR. TRUBATCH: Could I make an observation
22 here? This is Sheldon Trubatch.

23 The sub-bullet there is really quite
24 unacceptable from my point because a licensee at any
25 time can come and request an exemption or deviation on

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1 any basis that they think they can justify the
2 exemption or the deviation. So that's not the issue
3 here. I mean, they can use those tools today without
4 NFPA 805 being even adopted yet as a rule.

5 What this sub-bullet I think is trying to
6 get at is that, once the staff has adopted NFPA 805
7 and the tools, then if a licensee comes in and says,
8 "I want to stay in my current licensing basis, but I
9 want an exemption here, and I want to use this tool,
10 and here's the results," that the argument over using
11 the tool is now superseded because the staff has
12 already accepted that that is a good tool. So the
13 only thing that the staff will look at is how that
14 tools has been applied in this particular case, rather
15 than the two-step process of first saying, "Justify
16 the tool," and then justify --

17 MR. KRESS: When you say, "the tool," you're
18 talking about a prior PRA?

19 MR. TRUBATCH: Some kind of risk analysis.

20 MR. KRESS: Yes.

21 MR. TRUBATCH: And if you look at the very
22 old exemptions, they really are what I would
23 characterize as informal risk analyses. So we are not
24 even talking about something that hasn't been in the
25 past.

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1 MR. KRESS: Oh, yes, but that informal risk
2 analysis couldn't be called a tool that's approved by
3 NRC. I think --

4 MR. TRUBATCH: No.

5 MR. KRESS: -- it has to be a little more
6 than that.

7 CHAIRMAN ROSEN: Would you state your name
8 again and your affiliation, please?

9 MR. TRUBATCH: Sheldon Trubatch. I have my
10 own law office. I am also part of the team that is
11 working on the regulatory guidance.

12 CHAIRMAN ROSEN: Thank you.

13 MR. EMERSON: So to kind of sum this up, the
14 805 for the licensee who chooses not to adopt the
15 whole enchilada, as Eric said right at first, provides
16 a structure for him to use these tools. He can have
17 some confidence that if he does it in a certain
18 manner, that the staff will accept it, and he doesn't
19 have to do some of the heavy lifting to convince the
20 staff that this is the right tool, as Sheldon just
21 indicated.

22 Okay, I think we were on the second bullet.
23 The third position is that there needs to be an
24 uncomplicated transition. Uncomplicated doesn't
25 necessarily mean simple.

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1 The fourth bullet applies also that you need
2 a thorough understanding of the licensing basis.

3 CHAIRMAN ROSEN: My sense of that third
4 bullet is that I need a road map. I need some kind of
5 chart that shows me, from the desire of the licensee
6 to go ahead with NFPA 805 to actually being in a full
7 environment, the steps. It is a little bit hard to
8 put it all together.

9 MR. EMERSON: Between the rule and the
10 implementing guidance, there needs to be a clear road
11 map.

12 CHAIRMAN ROSEN: Right.

13 MR. SIEBER: I guess my way of looking at
14 this transition is that licensees will go along in a
15 deterministic way until they come up with a situation,
16 maybe by just thinking about it or discovery or
17 inspection or something like that, that says, "I'm in
18 trouble in this specific area because I don't comply
19 with some feature of Appendix R or the branch
20 technical position. What am I going to do?" The
21 choices are you either physically alter the plant or
22 you do some kind of analysis to justify where you are.

23 If you have applied for an adopted 805, that
24 provides the tools to solve that problem. Then as you
25 go along, these are the kinds of places where you

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1 would apply the tool as opposed to saying, "Let me do
2 my entire whole fire hazards analysis over again and
3 see if I can cut out some sprinkler heads," or
4 something like that. I see this more as application
5 where you discover something in the plant that needs
6 to be justified.

7 CHAIRMAN ROSEN: Well, Jack, but don't you
8 think, though, that using your hypothesis, that a
9 licensee would not -- after having discovered the kind
10 of condition you postulate, he wouldn't go then and
11 adopt 805. He would use that second sub-bullet. He
12 would use the tool rather than the whole enchilada.

13 MR. SIEBER: Well, my impression was you
14 have to apply and adopt 805 to use the tools even in
15 a specific case. Is that not correct?

16 MR. HANNON: No. This is John Hannon again.
17 No, what we are saying here is that -- and I think
18 Sheldon pointed it out -- is that a licensee has the
19 option now, if they want to apply for an exemption, to
20 use these tools to support. The only difference would
21 be if the tools were approved in rulemaking, then the
22 expectation of having the staff re-review the tool
23 would be moot at that point.

24 So they could still apply the risk- and
25 performance-based methods at that point in the

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1 scenario you would describe and come in for an
2 exemption without adopting 805.

3 MR. SIEBER: That's true, but then you would
4 have to actually docket something for each case that
5 you wanted to use a tool, as opposed to 805, where you
6 don't have to be concerned with it under 50.59.

7 I'm not exactly sure what the outcome would
8 be, but the thermal lag issue is probably one of those
9 things that dawned upon licensees after the plant was
10 built and stuff was installed, and then all of a
11 sudden here comes this test report in that says maybe
12 this doesn't do as well as it should. So I could
13 picture it being used in those kinds of circumstances.

14 CHAIRMAN ROSEN: Susie, did you want to
15 comment on the use of 50.59 in that circumstance or
16 some other comment perhaps?

17 MS. BLACK: Actually, 805 has its own change
18 methodology within it. It isn't 50.59. It is in
19 change, not management.

20 MR. SIEBER: It is in the standard.

21 CHAIRMAN ROSEN: Yes, we have a comment
22 here?

23 MR. BRANDES: Yes, Doug Brandes from Duke
24 Energy. I would like to make a point.

25 My observation is that perhaps the first few

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1 licensees that transition might consider doing it
2 because they have found or identified a problem. But
3 at least at Duke Energy the way we do business every
4 day is based on risk monitors and risk factors. It
5 appears to us that fire protection is kind of like a
6 dangling participle in the overall consideration of
7 these daily risks.

8 At some point, if there are not too many
9 barriers and we could see the way to make it happen,
10 it might be useful to transition the fire protection
11 to a risk-informed licensing basis, so that it better
12 fits in our overall day-to-day consideration of risk.
13 I wouldn't be surprised if somewhere out near our
14 horizon others see the benefit of that as well.

15 CHAIRMAN ROSEN: Yes, well, I respond to
16 that immediately with that's right on, Doug. Being
17 from another plant myself before I took this job, that
18 is so true. That whole context of decisionmaking is
19 on a risk basis, and fire protection basically trumps
20 all of that.

21 If that sprinkler up there isn't working and
22 it is in our Appendix R basis, you know, you just
23 light off and go fix that sprinkler, even that, heck,
24 there are lots of other things that are much, much,
25 much more important that are out there that command

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1 resources. But that just distorts the way an
2 appropriate risk-managed environment behaves. For
3 that reason, I think some places will transition, even
4 though they don't see an immediate benefit or even
5 have an immediate need.

6 That is a very good point. Thank you.

7 MR. EMERSON: Each of those positions is
8 supported by the next slide. In putting up this
9 slide, I think we have pretty well covered all of the
10 bullets there. So I am going to keep moving.

11 MR. KRESS: Would you expand a little on the
12 second bullet there?

13 MR. EMERSON: On the second bullet?

14 MR. KRESS: Yes, does that just say that you
15 think all of the licensees --

16 MR. EMERSON: Whether or not they --

17 MR. KRESS: -- have a pretty good fire risk
18 assessment tool? Whether or not --

19 MR. EMERSON: It just means that all
20 licensees, whether they go the whole way to a new
21 licensing basis or want to be able to use the tools
22 that 805 affords, need to be able to have that
23 opportunity. And if we are going to write
24 implementing guidance that should be implemented, that
25 it makes allowance for an evolutionary process from

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1 beginning in a small way to adopting it altogether.
2 So the rules are consistent throughout that process.

3 MR. KRESS: Do you see those tools being
4 subjected to any industry certification process, a
5 PRA, or would that be something separate?

6 MR. EMERSON: Well, there is an effort
7 beginning to develop, a fire PRA standard. One of the
8 other gentlemen here is the Chairman of the writing
9 committee for that and could speak more clearly to --

10 MR. KRESS: Is that with ANS or ASME or --

11 MR. EMERSON: Yes, yes.

12 CHAIRMAN ROSEN: It's with ANS.

13 MR. EMERSON: Right, and EPRI is beginning
14 a project with the Office of Research for fire PRS
15 requantification. So between those two efforts, there
16 is going to be an effort to make a standard more
17 available and set forth clearer guidelines for what
18 effective fire PRA should be. That will definitely
19 support our ability to use risk tools in the future
20 using 805 or other techniques.

21 CHAIRMAN ROSEN: Now going back to one of
22 our members of the public who spoke, Doug Brandes from
23 Duke answered in part a question we raised earlier,
24 which Jack raised, which was, who's going to do this?
25 Who is going to take advantage of this?

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1 It sounds to me like structurally Duke is
2 thinking about moving forward with this NFPA 805
3 approach. That response is at least an important
4 piece of the answer to who's going to do it. Am I
5 correct?

6 MR. BRANDES: I'm going to say right now we
7 are looking at the possibilities. There's still a lot
8 of barriers and potential hurdles between now and the
9 time the rule is issued. So if we find that we can
10 work through the barriers and the hurdles aren't too
11 high, then I think we would probably be one of the
12 first.

13 MR. EMERSON: Again, I think we have devoted
14 a fair amount of conversation to this point about the
15 optional nature of the rulemaking.

16 Now with regard to the transition, the first
17 quotation I have in my slide has already just
18 mentioned by the staff. The transition process
19 doesn't either add or subtract from the safety of the
20 plan. Just from the standpoint of making a
21 transition, the safety doesn't change. What does
22 change is the regulatory environment and how that
23 safety is measured or changes from a deterministic
24 viewpoint with you either comply with the regulations
25 or you don't to a more risk-informed, so that you can

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1 focus your efforts in either knowing what your safety
2 pinch points are, the ones that you have to monitor
3 and maintain, and ones that you perhaps have to
4 improve so that you can optimize safety with a more
5 reasonable allocation of resources. But it doesn't
6 change the inherent nature of the plant safety.

7 As I indicated earlier, the process has to
8 be well-understood by everyone. The staff indicated
9 that some training might be required for the
10 inspectors when this is done. Obviously, the
11 residents will have to understand it better and the
12 licensees will have to understand it better. So that
13 everyone understands clearly, very clearly, where the
14 licensee is at any stage. Whether he has kept his
15 existing licensing basis and is going in for a single
16 exemption or whether he chooses to make the whole
17 transition, everyone needs to understand that clearly.

18 The things that we have to think about and
19 work through between the rule and the statements of
20 consideration and the implementing guidance are things
21 like: What do you have to submit versus what do you
22 retain? Where are license amendments required versus,
23 I'll say, 50.59-type supporting evaluations, where a
24 licensee can make a change without requiring a license
25 amendment or SER in advance? Those are the kinds of

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1 things that I don't think we have finished thinking
2 through and working through, but have to be laid out
3 very clearly before we end up with a rule that
4 licensees are going to think about adopting.

5 CHAIRMAN ROSEN: And this would be on that
6 road map we talked about earlier.

7 MR. EMERSON: Uh-hum, right.

8 CHAIRMAN ROSEN: I think it would be the
9 answers to those kinds of questions.

10 MR. EMERSON: Uh-hum.

11 CHAIRMAN ROSEN: What about, can you say
12 something -- maybe this is a question that may be well
13 for the staff -- can you say something about what the
14 effect of all this will be on the ROP in the oversight
15 process?

16 MR. WEISS: This is Eric Weiss.

17 We have yet to develop the inspection
18 guidance or the training. We have only outlined for
19 this Committee the concept that there are four pieces:
20 the rule, the reg. guide, the inspection guidance, and
21 the inspection training. We acknowledge that all of
22 them have to be put in place for this process to work.

23 Our vision for the reactor oversight process
24 was outlined in broad strokes in that the licensee,
25 once having adopted the NFPA 805 licensing basis,

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1 would follow the approved procedures and methods and
2 not make license submittals, once having entered the
3 process, but would follow the methods and put the
4 analysis in the file drawer, so to speak, and have it
5 available for inspection.

6 Then we need to construct inspection
7 procedures and training that are effective and
8 efficient for the inspectors. I have attended other
9 ACRS meetings where this process has been described in
10 some detail in ways that have been effective and not
11 effective.

12 I tell you, I don't think I would be letting
13 the cat out of the bag by saying that the people that
14 do fire protection inspection in the region are not
15 necessarily qualified now, or will they in the future
16 be qualified, to revisit detailed fire modeling or
17 necessarily even detailed PRA efforts. What we need
18 to do is we need to construct an effective and
19 efficient inspection process based upon an Appendix B-
20 type inspection procedure, but that is all yet to be
21 worked out.

22 I wish I could be more definitive, but we
23 are just not at that stage yet. I would be sharing
24 personal views rather than representing staff
25 positions, if I went much further than that.

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1 CHAIRMAN ROSEN: Well, I understand that,
2 Eric. I think what you have said, though, is
3 important, and that is that this is such a significant
4 change that the people who oversee the current
5 deterministic basis may not be qualified now, or may
6 not be able to be qualified, to oversee all the tools
7 in the new basis.

8 MR. WEISS: There was an ACRS meeting
9 recently on another subject. It had to do with
10 reactor systems where I think there was a particularly
11 effective process described. Inspectors don't go out
12 and review the details of core physics calculations,
13 but they go out and see whether approved codes were
14 used. They are not necessarily qualified to do the
15 same thing that a Ph.D. core physicist does here in
16 headquarters, but, nevertheless, they can go out and
17 make sure that the configuration of the plant is as
18 described in the analysis, that the people were
19 properly qualified to do it.

20 You know, certain people are approved to use
21 codes. In some cases they are vendor codes; in other
22 cases they have been benchmarked and licensees are
23 approved to use them. But even then, there are
24 approved members of the staff that do them. Not
25 everybody does them. Inspectors routinely turn up

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1 very useful insights without having to revisit the
2 details of a calculation.

3 Now I am probably putting too much emphasis
4 on this point, but, nevertheless, I am trying to share
5 with you that I have a clear vision that there's an
6 effective way to do this and there's an ineffective
7 way to do it, and we are going to get to it and we are
8 going to construct something that closely parallels
9 what goes on elsewhere in the inspection process, and
10 construct something that won't waste the inspectors'
11 time and will achieve good safety results.

12 CHAIRMAN ROSEN: The four steps you have
13 outlined in this process are the rules, the reg.
14 guide, inspection procedures --

15 MR. WEISS: Yes, and training.

16 CHAIRMAN ROSEN: -- and inspector training?

17 MR. WEISS: Yes.

18 CHAIRMAN ROSEN: We are focusing on the
19 training. My particular point was about how in an
20 NFPA 805 environment a finding of some off-normal
21 circumstance in the fire protection program would be
22 analyzed in the ROP. Would that be different than the
23 current SDPs? Would they be different for an 805
24 plant than for a non-805 plant?

25 MR. WEISS: I don't think so. I don't think

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1 so. I don't know if this would be useful or not, but
2 I want to share with you something that we have been
3 doing in the Plant Systems Branch.

4 We have been conducting quarterly training
5 of fire protection inspectors to try to bring up the
6 level of expertise. One of the things that we have
7 used as a tool in that training process is something
8 that we have developed, fire dynamic spreadsheets that
9 use equations and correlations out of the SFP
10 Handbook. They are put on Excel spreadsheets.

11 It permits an inspector to determine whether
12 a fire is credible or not, whether it will affect a
13 target across the room. It has been something of a
14 success for us. That kind of tool could help an
15 inspector quickly determine whether there is a problem
16 or not a problem without getting into the details of
17 a more complicated fire model. I mean it is a quick
18 "go/no go," using quantitative techniques. If
19 something becomes borderline or there is controversy,
20 then the issue can come to headquarters, where we can
21 apply more powerful calculational techniques.

22 But in a matter of literally a minute or so,
23 an inspector can say, "Aw, this combustible load can't
24 possibly affect that cable tray across the room.
25 That's a non-problem. I've plugged in the room size,"

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1 and the stored values for the heat capacity of
2 concrete, and so forth, are already in the
3 spreadsheet, and put in the vent size, and so forth,
4 and it gives him a quick snapshot of whether there is
5 a potential problem or not.

6 But that is meant as anecdotal evidence that
7 we are working on the problem. We haven't forgotten
8 about third and fourth components of this, although it
9 is, admittedly, downstream.

10 CHAIRMAN ROSEN: Well, I am interested in
11 your answer. I think I am a little familiar with it,
12 with those spreadsheets, but I think it doesn't go
13 directly to the impacts on the ROP. I guess your
14 answer right now is you don't think it will have an
15 impact on the ROP, though that remains to be seen.

16 MR. HANNON: I would also add -- this is
17 John Hannon -- that I believe that the current
18 resources that we have in the regions can be trained
19 to execute the inspection program in the risk-informed
20 arena. That is our intention. As we pointed out
21 earlier, they may not necessarily be qualified to do
22 that now, but our intention would be that, after the
23 training, they would be qualified.

24 CHAIRMAN ROSEN: Okay, thank you.

25 MR. EMERSON: As I indicated earlier,

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1 whatever the degree of transition that any licensee
2 chooses to adopt, I think it is extremely important
3 that both the licensee and the NRC staff, potential
4 inspectors, understand clearly what that is,
5 especially if there is a time element involved in the
6 transition. If a licensee writes a letter stating,
7 "We intend to adopt NFPA 805, say, for fire area A, B,
8 and C, and we intend to do it a year from now," both
9 the NRC and the licensee need to understand what the
10 licensing basis is between now and then.

11 Because the adoption of NFPA 805 for three
12 fire areas perhaps is going to involve an analysis of
13 the fundamental elements of the fire protection
14 program, to what extent they apply, to what extent
15 they may be superseded by existing elements of the
16 licensing basis, all of that needs to be, first of
17 all, analyzed carefully by the licensee who intends to
18 make the change, and, secondly, he needs to convey
19 clearly the stages of the transition process, so that
20 what licensing basis he is under at any one time is
21 not in any way subject to question by either his own
22 staff or the NRC who come in and look at it.

23 So some of the issues that I think we need
24 or have been discussing, and may continue to discuss
25 as we move forward with the draft rule language and

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1 the implementing guidance, is, first of all, what is
2 the licensing basis, what is the current licensing
3 basis, and do we understand clearly what that is?

4 How is the currently-docketed licensing
5 basis to be used versus explicit approvals from the
6 staff on elements of the current licensing basis? How
7 are you going to get approval of risk-informed,
8 performance-based methods that you don't now take
9 credit for in your licensing basis that you want to
10 use to supersede something either in your current
11 licensing basis or in a provision of NFPA 805? How
12 are we going to get that kind of approval, either
13 through license amendment or through some other
14 process involving an SER, or whether approval is
15 required at all?

16 Those are issues we haven't completely
17 addressed. You have touched on several times the
18 inspection and enforcement, obviously, depends on
19 having this good understanding of what the licensing
20 basis is. So I would say that we still have a bit of
21 work to do to lay out for the licensees and the staff
22 how you would treat the licensing basis during the
23 transition process. To what extent can you use
24 previous elements to supersede new elements, and how
25 do you define that during the transition process?

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1 As I indicated earlier, the staff has issued
2 three versions of the rule language, the most recent
3 being I think it was last week, maybe the week before,
4 quite recently. We have, and the industry has,
5 appreciated the staff's willingness to share the
6 drafts of the rule language because, again, it is
7 difficult to develop a set of implementing guidance if
8 you are not completely clear on what the draft rule is
9 that you are writing guidance for.

10 There has been some evolution in the
11 language of the rule, and I don't know, maybe there
12 will yet be some evolution before it is submitted to
13 the Commission in July. I can't speak to that. But
14 the willingness of the staff to share those drafts
15 with us and to spend the amount of time we have spent
16 discussing it has been helpful in the development of
17 the guidance.

18 I don't want to devote too much, put too
19 much emphasis on either the positive comments or
20 concerns because this language has been available only
21 so recently. In reading it, I would say there are
22 some issues that we may have to spend more time on
23 resolving before we feel we can understand them fully
24 and develop them more completely in the implementing
25 guidance.

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1 We have talked in the past about the use of
2 performance-based methods in Chapter 3. We didn't see
3 the language in the current version of the rule that
4 allows that. I don't think we have fully addressed
5 some of the proposed industry exceptions, although we
6 have seen some effort on the staff's part to do that,
7 and whether there is a license amendment needed for
8 analytical methods.

9 Again, those are things I think we will end
10 up working on in the future. I don't want to put too
11 much emphasis on these concerns because I think these
12 are all things that we will be able to work out, so
13 that the combination of rule language and implementing
14 guidance works when we are done with it.

15 Now I would like to spend a little time on
16 the implementing guidance. I can't be too specific as
17 to give you chapter and verse of what the guidance is
18 or is not going to say in certain areas because pieces
19 of it are only freshly written and not yet reviewed or
20 not written yet.

21 The overall schedule for developing the
22 guidance is, again, in concert with the development of
23 the rule, and that is to achieve completion, overall
24 completion, by I think the end of 2003.

25 The staff indicated earlier that their

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1 schedule for submitting to the Commission is July.
2 The Commission will take some time to review that and
3 will provide feedback to the staff on what they like
4 or don't like about the staff proposals for the
5 ruling.

6 So we have structured the development of the
7 implementing guidance to allow for the fact that there
8 might be a significant change of direction if the
9 Commission chooses to tell the staff to go in a
10 different direction than the one they have proposed.
11 So we are holding back some of our efforts until we
12 see what the Commission's direction is on that. So we
13 have proceeded with developing areas where we think
14 that we can do so without too much fear that the
15 course is going to be reversed, but holding off in
16 some of the more critical areas until we see what the
17 direction is.

18 Once the Commission has issued -- and we
19 will provide a draft of the guidance to the staff in
20 its initial stage, as I said, in June -- once the
21 Commission has issued its direction, we will beef up
22 the guidance to take advantage of our knowledge of the
23 Commission's chosen direction, and a second draft will
24 be in the December-January timeframe. The third
25 draft, again after a staff review period for each of

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1 them, we expect would be next spring sometime. So,
2 hopefully, that would support the overall goal of
3 having the guidance ready at the time the rule is in
4 late 2003.

5 There was some discussion earlier about the
6 appendices. So I would kind of like to discuss that
7 a little bit here.

8 The structure of the implementing guidance
9 that we are developing is that the body of the
10 guidance document will be process information,
11 specifics in what you should do to look at your
12 licensing basis, what kinds of documents you should
13 submit and retain, all of the analysis steps and
14 documentation, and some middle steps, configuration
15 management steps after you have made the transition,
16 all of that to be laid out clearly in the body of the
17 guidance document.

18 Now we intend to provide appendices that
19 address the use of the information directly in 805.
20 There are certain processes in 805 that require
21 further explanation, so the licensee can interpret and
22 use them properly.

23 As far as the appendix material in 805, we
24 propose to take advantage of it and use it in our
25 implementing guidance, where it seems appropriate, not

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1 necessarily endorsing it or not endorsing it, but
2 taking advantage of it where it supports a clear
3 understanding of how to make the change.

4 I am going in the next few slides to just
5 give the current status of the outline, and I am not
6 really going to spend any time on this because I can't
7 share any meat with you for any specific piece of it,
8 but I just want to give you a feel for the types of
9 subjects we are covering in the document and in the
10 appendices to the document.

11 We want to lay out the responsibilities of
12 the licensees as they go forward, the applicability of
13 this document to them, and indicate what the
14 regulatory framework is for the application of risk-
15 informed methods.

16 Then we get more into the meat of it, as in,
17 describe for the licensee what the transition process
18 is and what options he might have, depending on what
19 his current licensing basis is and where he wants to
20 go with the final product.

21 Specifically, we want to provide guidance --
22 and this is probably the heart of the document -- if
23 he wants to go the whole way and adopt this as a new
24 licensing basis or whether he wants to be able to use
25 it within the current licensing basis, there need to

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1 be clear directions for either alternative, in our
2 view. Those sets of guidance in Sections 6 and 7 need
3 to be consistent so that, as I indicated, it is an
4 evolutionary process; he can move from adopting less
5 of it to adopting more of it without changing the
6 rules that he is operating under.

7 Configuration control is going to be an
8 important factor. Once he has made a transition and
9 he has analyzed where he is, knows where he is, if he
10 makes changes to the plant in the future, what he has
11 to do to maintain his ability to comply with his new
12 licensing basis. So we will provide guidance in that
13 direction as well.

14 In the appendices, the subjects in the
15 appendices parallel the material that is in the
16 standard itself. As I have indicated, it is more of
17 a how to consider and apply 805 directly.
18 Establishing the fundamentals in Chapter 3, how you go
19 about doing that. Identifying the performance
20 criteria, the hazards in the systems and components.
21 How to evaluate against performance criteria that you
22 have established. How to use some of the tools that
23 are in 805, like the risk-informed change evaluation.
24 How to do documentation and how to interpret, how to
25 apply 805's provision for documentation, configuration

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1 management, and monitoring, and how to consider non-
2 power operational modes, which is a new feature of
3 805. So all of those are elements of the guidance
4 that we will provide.

5 Doug Brandes has indicated earlier that for
6 a licensee to consider making this transition, he has
7 to see that the potential barriers and some of the
8 hurdles can be overcome. The technical issues that I
9 have listed here are ones that we have had ongoing
10 discussions with the staff. Again, I don't want to
11 try to use this as a forum to debate the issues one
12 way or the other because there are other forums for
13 doing that. I just wanted to indicate what some of
14 these concerns were, and some of the release criteria,
15 and it is stated as one of the criterion as a basis
16 for applying 805. The other two are elements of
17 Chapter 3 that we think could stand some revision.

18 How we decide on defining the current
19 licensing basis, what we need license amendments for,
20 and making sure that the convergence of the rule
21 language and implementing guidance, all of these are
22 things that we think can be overcome. So we are
23 looking forward not so much to debates, but to getting
24 a useful product that the staff and the industry are
25 able to use.

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1 Monitoring is a potential hurdle that we
2 will deal with in the implementing guidance.
3 Consideration of shutdown of low-power modes for fire
4 protection is something that we will have to devote
5 some guidance to, since it is not something that is
6 currently done.

7 CHAIRMAN ROSEN: What do you mean by
8 monitoring?

9 MR. EMERSON: Those of you who are more
10 familiar with 805 than I am, but there is a provision
11 in 805 for things that you have to monitor, and
12 somebody else can chime in on what exactly those
13 provisions are. But we want to be sure that the
14 monitoring is -- anybody want to jump in here?
15 Dennis?

16 MR. HENNEKE: Yes, this is Dennis Henneke
17 with Duke Power.

18 The monitoring program is basically anything
19 that is in the performance-based part of it, like your
20 fire pump, sprinklers, we monitor similar to what you
21 do in maintenance rule. So they would go into your
22 maintenance rule programs.

23 MR. EMERSON: Rather than focusing on
24 hurdles and barriers, which we will get through, I
25 would like to close by describing what we see the

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1 benefits of this. As was pointed out earlier,
2 certainly this would have value in resolution of
3 current fire protection issues. I think each plant
4 has issues where they might benefit from having a
5 risk-informed regulatory environment to apply to it.

6 The staff has pointed out, and we agree,
7 that this will address the four NRC pillars. As Doug
8 had pointed out earlier, we would like to be able to
9 focus the fire protection program on more risk-
10 significant issues, and making this change and putting
11 guidance in place will allow us to do that. It will
12 provide a structure and a consistent method for doing
13 the analysis, such that the licensees have some
14 confidence that the staff will accept it, and the
15 staff will have some confidence that the licensee has
16 used a rigorous process for implementing the tools.

17 It will help us address issues in areas
18 where fire protection competes with other issues,
19 where there may be more fire protection and maximizing
20 defense in-depth, and the provisions we hold sacred
21 for fire protection may run into other areas of plant
22 operations where there is a competing interest. By
23 placing fire protection in the overall risk context of
24 the plant, that will help us sort through competing
25 concerns like that.

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1 CHAIRMAN ROSEN: As long as the other
2 competing issues also are risk-informed.

3 MR. EMERSON: Right. The assumption here,
4 of course, is that the risk information has proceeded
5 farther in the consideration of other issues than it
6 has in fire protection. We want to be able to use
7 fire protection in a consistent manner throughout the
8 plant.

9 CHAIRMAN ROSEN: In most areas that is true,
10 but not in all.

11 MR. EMERSON: Right. You're right.

12 Well, that concludes my discussion of how
13 the industry is participating and what our views are
14 on this rulemaking process.

15 CHAIRMAN ROSEN: Thank you very much.

16 Are there any questions, further questions,
17 from members of the Committee? Any further statements
18 from members of the public? Or the staff?

19 (No response.)

20 If not, we will recess now until 10:45.

21 (Whereupon, the foregoing matter went off
22 the record at 10:17 a.m. and went back on the record
23 at 10:45 a.m.)

24 CHAIRMAN ROSEN: Mr. Eric Weiss will now
25 address us on post-fire safe-shutdown circuit

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1 analysis.

2 MR. WEISS: Hi. This is Eric Weiss.

3 My presentation on post-fire safe-shutdown
4 circuit analysis for the ACRS Fire Protection
5 Subcommittee begins with the second slide on purpose.
6 We are going to briefly describe the history of the
7 issue, outline our objective, alternative and planned
8 courses of action, introduce NEI's methodology, NEI
9 00-01 as a potential key element to the circuit
10 analysis resolution, explain the relationship of risk-
11 informed and performance-based fire protection
12 rulemaking that we just discussed, and seek ACRS
13 comment and advice on NEI 00-01.

14 Slide 3. On June 3, 1999, NRC issued
15 Information Notice 99-17, "Problems Associated with
16 Post-Fire Safe-Shutdown Circuit Analysis," that
17 identified some of the issues. In response, NEI
18 undertook a voluntary industry initiative. As part of
19 that initiative, they conducted special cable fire
20 tests at Megapoint Laboratories to test the
21 configuration and vulnerability of certain
22 configurations of cable susceptibility to spurious
23 actuation, multiple spurious actuations. NEI is also
24 developing criteria based upon those test results for
25 post-fire safe-shutdown circuit analysis.

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1 On November 29th, 2000, the NRC temporarily
2 halted certain associated circuit inspections, pending
3 completion of the industry initiative. In February
4 2001, NEI formed an expert panel with the task of
5 interpreting the results of the cable fire tests. On
6 October 18th, 2001, NEI submitted to the staff Draft
7 C of their circuit analysis methodology, NEI 00-01.
8 February 2002, expert panel completed their efforts on
9 interpreting the results of the cable fire tests, and
10 on March 6th, NRR provided comments to NEI on their
11 circuit analysis methodology, NEI 00-01.

12 Our objectives are: To clarify the
13 regulatory positions that maintain safety and to train
14 inspectors accordingly. We plant ultimately to
15 reinstitute inspections to enhance public confidence;
16 to acknowledge effective and efficient strategies that
17 come out of the circuit analysis testing and the
18 methodology that NEI is developing, and to facilitate
19 the use of risk insights to reduce unnecessary
20 regulatory burden.

21 The rule that we just discussed, the
22 proposed rule NFPA 805, is an important aspect of
23 this, in that it lays the regulatory groundwork for
24 adopting risk insights as a licensing basis.

25 Now the staff has a number of alternatives

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1 and courses of action. One thing that we are pursuing
2 in parallel with NEI 00-01 is we are developing a
3 NUREG with definitions, principles, illustrations, and
4 practical methods of implementing the resolution
5 techniques.

6 We feel that one of the problems that we had
7 when we ran across the circuit analysis issues was
8 that we didn't have our inspectors fully trained; we
9 didn't have the fundamentals of circuit analysis
10 clearly defined to everyone's satisfaction. That is
11 not to say that we didn't have regulatory positions on
12 it, but we didn't have them consolidated in one place
13 that people could easily refer to and resolve
14 disputes. That created certain inefficiencies and
15 misunderstandings.

16 Appendix B to NFPA 805 addresses circuit
17 analysis to some extent, and that is certainly a
18 viable option, an alternative that we can consider.
19 Then, of course, what is on the table today, what we
20 will be spending most of our time discussing, is NEI
21 00-01. The staff had contemplated using that in a
22 number of ways that are bulleted here. This is meant
23 to be in sort of a hierarchy of what we think we could
24 use it for, depending upon the degree of refinement,
25 our pedigree, if you will, of NEI 00-01.

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1 We could use it, in this NUREG I talked
2 about, sort of capture what some people call the low-
3 hanging fruit. Those risk insights that are
4 relatively noncontroversial and don't need much more
5 refinement we can capture right away in the NUREG and
6 adopt it. With a little bit more sophistication,
7 perhaps we can use it to focus inspections on risk-
8 significant areas. We can use it to prioritize
9 corrective actions. We can use it to color SDP
10 findings.

11 If NEI 00-01 gets to a relatively high
12 degree of refinement, where uncertainty is addressed
13 in a somewhat more sophisticated way, perhaps we can
14 endorse it in a reg. guide, and, ultimately, I suppose
15 the pentacle of what we could use it for would be to
16 adopt it, in the rulemaking process, we could approve
17 it as an approved alternative under the mechanisms
18 that I have described in NFPA 805, where NRC can adopt
19 alternative means. But that is part of the reason we
20 are here today, is to discuss our comments and the
21 level of refinement that we have achieved.

22 Slide seven, please. As you know, Appendix
23 R to 10 CFR 50, our current fire protection
24 regulation, is a deterministic approach that may not
25 permit much use of risk screening outside of the

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1 exemption process. Certainly today a licensee can
2 approach us with any risk insight that they have and
3 ask for an exemption or a deviation.

4 But what we had contemplated with NFPA 805
5 is that there would be a risk-informed, performance-
6 based approach which would accommodate risk insights
7 generically rather than as plan-specific exemptions or
8 deviations. If we could achieve this level of
9 refinement, we could endorse it in the 805 process.
10 That would permit more latitude in the use of NEI
11 00-01.

12 We submitted many comments on Draft C, over
13 a hundred comments on Draft C of NEI 00-01. I would
14 say, to my way of thinking, the most salient comment
15 that we had is that the degree to which circuits can
16 be screened from consideration depends in part upon
17 the confidence or uncertainty associated with that
18 methodology.

19 If one is using this as what is, in effect,
20 a design tool, then one must have confidence that the
21 uncertainty associated with an analysis is captured by
22 the safety margins and the defense in-depth that
23 remains. Otherwise, one's taking a significant
24 latitude with the licensing basis.

25 So the staff would appreciate any advice,

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1 but, in particular, the staff would appreciate
2 comments on the following:

3 Which purposes that we have contemplated for
4 using NEI 00-01 are appropriate, given its current
5 level of refinement? Fred Emerson from NEI is going
6 to talk about how they resolved their comments, if not
7 in detail, at least in general.

8 What I am referring to in particular are
9 those purposes that I outlined in slide six of the
10 presentation, that hierarchy of uses that we are
11 contemplating using NEI 00-01 for, and what needs to
12 be done, if anything, to improve NEI 00-01 so that it
13 can be used for those purposes, and are there other
14 purposes for NEI 00-01 that the ACRS would recommend
15 that the staff consider?

16 That's the end of my brief, but formal,
17 presentation on circuit analysis. I will turn it over
18 to the Committee for questions.

19 CHAIRMAN ROSEN: Yes, could we go back to
20 your earlier presentation and have you go through
21 those purposes for us, in light of your question?

22 MR. WEISS: Are you referring to the --

23 CHAIRMAN ROSEN: Yes, your earlier
24 presentation.

25 MR. WEISS: 805?

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1 CHAIRMAN ROSEN: Yes, the 805. Could you
2 dial that up there? Which slide is that?

3 MR. WEISS: Let's see, on slide seven of
4 that rulemaking, at the bottom of the page, I refer to
5 the fact that new risk-informed, performance-based
6 methods may be approved by NRR.

7 CHAIRMAN ROSEN: Then you talked about a
8 hierarchy of --

9 MR. WEISS: Well, the hierarchy I was
10 referring to was on slide six of the current
11 presentation --

12 CHAIRMAN ROSEN: Oh, okay.

13 MR. WEISS: -- where I say that we could use
14 it, applicable sections in this NUREG that we are
15 developing. Slide six of the current presentation
16 talks about alternative courses of action.

17 We are developing a NUREG in parallel with
18 NEI 00-01, to lay out some of the fundamentals. It
19 would seem appropriate that we capture what I referred
20 to as the low-hanging fruit, those insights that we
21 can pick out of NEI 00-01 without further refinement
22 that we can generally agree upon, represent valid risk
23 insights in the area of circuit analysis. That really
24 ought to be part of our NUREG.

25 You know, I would say, prior to turning on

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1 inspections again, we ought to think about three
2 things. First, we ought to have a technical basis
3 with some risk insights incorporated into that
4 technical basis. Second, we ought to have a degree of
5 buy-in or dialog with the industry and the public
6 about what it is we are going to be doing, because
7 this had been a very controversial area. Then the
8 third thing I would say is that we need to have the
9 inspectors trained.

10 Now we are approaching this in kind of a
11 parallel path-type way. We are developing the NUREG
12 to clear up some of the fundamentals. We are
13 proceeding to train inspectors on some of the
14 fundamentals. The NUREG should incorporate some risk
15 insights. Obviously, NEI 00-01 should have something
16 in it that we can adopt without achieving a further
17 degree of refinement.

18 but if NEI 00-01 were the perfect document,
19 if you could turn to it and say with confidence that
20 everything that is screened out by NEI 00-01 is of no
21 concern, that would elevate it in this ideal world to
22 a position of being a document that we could rely upon
23 in design space. Then you could drop down to the last
24 bullet on slide six, where we say we adopt it in the
25 NFPA 805 rule process, where we say, in effect, this

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1 is a valid way of doing circuit analysis. You follow
2 NEI 00-01; you're done. That meets the rule.

3 But my point is that there is a hierarchy
4 here. In some sense, I am asking for advice on your
5 opinions as to what you see as what needs to be done
6 to further refine this for each of these methods, if
7 anything. And are there other things that we could
8 use NEI 00-01 for or other ways we could use NEI
9 00-01, other than those that I have contemplated, that
10 the Committee thinks would be an appropriate vehicle
11 for capturing the risk insights of NEI 00-01? I am
12 sure your judgment there, like ours, will depend upon
13 the confidence that you attach to the methodology, its
14 degree of refinement.

15 Draft C, in my opinion, the most significant
16 issue with it was this addressing of uncertainty.
17 Obviously, with a hundred comments, there were a lot
18 of other issues there as well, but that, to my way of
19 thinking, is top in the hierarchy of things that
20 regulators need to think about when they apply a risk
21 insight to the regulatory process.

22 CHAIRMAN ROSEN: Okay, that is very helpful.
23 I say I am sure we will reserve judgment until we
24 heard from Fred Emerson of NEI and ask him the same
25 sort of questions, what his take on your questions is.

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1 So, with that, you have finished half-an-
2 hour early, and we could all take a break. But I
3 think what we will do instead, Fred, is ask you to
4 come up and use some of that time, perhaps save a
5 little more time for Committee discussion.

6 MR. EMERSON: We should be even farther
7 ahead by the time I get finished.

8 CHAIRMAN ROSEN: But would you also address
9 the comments that Eric just made about the appropriate
10 use and how mature you think NEI 00-01 is and where it
11 could and what to fit in the regulatory hierarchy?

12 MR. EMERSON: I will try. Thank you again
13 for the opportunity to discuss this with you. We have
14 participated in prior briefings of the Fire Protection
15 Subcommittee on this subject, and so I would like to
16 update you as to where we are now, including where we
17 are with responding to the comments that the staff has
18 given us.

19 I am going to talk a little bit about the
20 activities that have gone into helping resolve this
21 circuit failures issue and that will be reflected in
22 the final version of NEI 00-01. Those activities
23 include the circuit failure testing that Eric referred
24 to, as well as the expert panel deliberations.

25 I will spend a little time talking about

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1 what they did and what they concluded, and the pilot
2 evaluations that we conducted of the NEI document, the
3 two plans to check the feasibility of its use.

4 Then I will spend some time responding in a
5 general way discussing the themes of the comments that
6 we received from the staff while we were in the
7 process of developing the in-depth responses to those.
8 By the way, the number was 170, which I guess is well
9 over 100.

10 CHAIRMAN ROSEN: Plus or minus 70.

11 MR. EMERSON: Yes. That is the uncertainty
12 there.

13 Now the circuit failure testing discussion
14 is taken from a similar discussion that I made at the
15 last Fire Protection Information Forum, which I think
16 you heard. So I am not going to spend a lot of time
17 talking about results of that. What I am going to
18 talk about is a little bit about what we observed and
19 how that got factored into the expert panel
20 deliberations.

21 We are almost finished preparing an EPRI
22 report which gives -- since EPRI sponsored the tests
23 -- which provides a thorough evaluation of the tests.
24 I know that the Office of Research participated in the
25 tests, and Sandia National Labs have issued some

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1 reports on the work that they did in conjunction with
2 us during the testing program. Again, one of the
3 principal inputs to the expert panel deliberations was
4 the results of this test.

5 What I am going to say about the testing is
6 basically to repeat what I said last October about
7 what our observations were, and this may give you a
8 little bit of context in which to judge what the
9 expert panel decided when they did their work. So I
10 am going to spend the next few slide going over what
11 some of the observations were.

12 I use the term "observations" very carefully
13 because what these are is something that you could
14 obtain just from being an innocent bystander and
15 standing there during all of the tests, and seeing
16 what physically happened during the test results.
17 These observations are not based on a detailed
18 analysis of all of the data that we got out of the
19 tests, and there was a lot of data.

20 CHAIRMAN ROSEN: Which we will expect to see
21 in the EPRI report.

22 MR. EMERSON: Yes, the EPRI report will do
23 a pretty complete job. Now the amount of data that we
24 have, you know, we are talking about a lot of data.
25 The EPRI report I think will condense it pretty well,

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1 so that the reader, the public, will not have to wade
2 through reams of data in order to arrive at useful
3 conclusions.

4 So what did we observe? First of all, just
5 as a bit of a background, the way we set up the tests,
6 we conducted 18 tests. We set up an apparatus that
7 allowed us to test for actual actuations of valve
8 motor starters. We put multi-conductor and single-
9 conductor cables in the fire. We determined to what
10 extent we got shorts to ground, hot shorts. We looked
11 at vertical and horizontal tray configurations. We
12 tested different types of cable, at least three
13 significantly different types of cable. We looked at
14 the water effects of spray post-fire.

15 We tried to look at the various parameters
16 that we thought would have a bearing, and we had a lot
17 of input from the staff on designing the test program,
18 so that we were trying to capture insights that would
19 be useful to the staff, as well as to us.

20 As I indicated, Sandia National Laboratories
21 participated in the test by testing one circuit using
22 their own apparatus as we were testing other circuits
23 using ours. So what we were checking for was spurious
24 actuations and shorts to ground, to determine when
25 they would occur, if they would occur, and under what

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1 circumstances they would occur.

2 So what we observed, in some cases there
3 were no failures. Let me also say that we tested a
4 range of fire sizes, heat release rates ranging from
5 70 kilowatts on up to close to 500. We tested
6 different combinations of cables and configurations
7 with those heat release rates.

8 Okay, in some cases there were no failures
9 at all. In other cases circuit failures were observed
10 during the test. We had shorts to ground. We did
11 have hot shorts that resulted in device actuations.
12 We did not see any open circuits, which is one of the
13 things that the regulations require plants to consider
14 when they are performing their safe shutdown analyses.
15 We did not actually see any of those.

16 Again, based on observation rather than
17 detailed data analysis, it was clear from watching the
18 tests that the cable type has a significant role to
19 play in the likelihood of circuit failure. The amount
20 of tray fail seems to have a significant effect,
21 whether you have a single layer of cables in a tray or
22 you have three or four layers. Whether the cable is
23 in tray or conduit plays a role. Whether the tray is
24 oriented in a horizontal or vertical direction seems
25 to play a role, and the time and temperature were both

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1 factors in considering failures.

2 Historically, in Appendix R space we have
3 assumed that if a fire got to a certain temperature,
4 we saw an effect; we had to postulate a failure of
5 certain types of cable. There were some generally-
6 accepted thresholds established. But what we saw
7 during these tests was that time also plays a role,
8 that just because you achieve a certain temperature
9 does not automatically mean you get a failure. So
10 these are all things that we observed during the
11 tests.

12 Again, these observations vary somewhat
13 depending on what type of cable was involved in any
14 particular test. Generally, not always, we generally
15 observed that the time to failure for these cables was
16 greater than 30 minutes, a broad generalization. The
17 time to failure seems to be longer if you have
18 thermoset type of cable or armored cable. It seems to
19 be longer if you have more tray fill. Thermal mass
20 seems to play a role there. It seems to be longer if
21 you have vertical trays rather than horizontal or if
22 you have the cable in conduit as opposed to be
23 directly exposed to the fire.

24 Generally, we observed that the hot shorts
25 that we got were of short duration, and then shorter

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1 to ground -- again, not always, but generally.

2 CHAIRMAN ROSEN: That last point is a very
3 important one, is it not?

4 MR. EMERSON: Yes. I am going to elaborate
5 just a little bit on that last point.

6 MR. SIEBER: That means a spurious
7 actualization occurs and then the fuse blows, so you
8 can't reset it.

9 MR. EMERSON: Right, right.

10 MR. SIEBER: So that's the worst outcome.

11 MR. EMERSON: Well, actually, the short to
12 ground may remove the hot short. It may be a good
13 thing because --

14 MR. SIEBER: But once it moves, it moves,
15 right?

16 MR. EMERSON: Well, not all valves --

17 MR. SIEBER: Go that fast.

18 MR. EMERSON: -- go that fast. So that is
19 a level of detail that we're not really going to get
20 into here, but --

21 CHAIRMAN ROSEN: Let me, before you jump
22 ahead, there is something important you have been
23 saying over and over. I want to be sure I understand
24 its context.

25 MR. EMERSON: Okay.

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1 CHAIRMAN ROSEN: And that is that these are
2 observations, not results. In reading between the
3 lines, are you saying that it is possible that, even
4 though you observed certain things here, the expert
5 panel or the EPRI report, when it does the full
6 analysis, may draw some slightly different conclusions
7 rather than the bare conclusion you would get from
8 your observation?

9 MR. EMERSON: Yes. I will elaborate on this
10 a little further when I talk about the expert panel
11 results, but the purpose of the expert panel was to
12 come up with probabilities. So there were some of the
13 phenomena or observations, whatever you want to call
14 it, that I think may be useful to capture in NEI 00-01
15 that the expert panel did not. So there may be things
16 that we can, information that we can use in the
17 resolution of the issue that perhaps the expert panel
18 didn't; it wasn't directly in their charter to
19 address. I will elaborate on that when we get there.

20 With regard to the durations of the circuit
21 failures that we did get, of the hot shorts that we
22 did get, and the actuations, almost half of them
23 lasted less than 30 seconds before they shorted to
24 ground. Then there was about 40 percent that went
25 from half a minute to three minutes, and then there

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1 was less than 20 percent that were longer than three
2 minutes.

3 So you can compare that with the types of
4 valve operators that you have in your plant, and you
5 can decide for yourself in any particular case whether
6 that spurious actuation would result in an undesired
7 consequence in terms of water either going someplace
8 it is not supposed to or not going where it is
9 supposed to.

10 Again, an observation that blown fuses were
11 more likely than device actuations, probably because
12 there are more opportunities for valves, for the wires
13 to short out than they are to contact another wire
14 connected to a device.

15 In checking the effect of water spray, in
16 almost all of the 18 tests, once the cables had
17 achieved a pretty severe damaged condition late in the
18 test, but perhaps not completely damaged such that all
19 possible devices had actuated or shorted to ground, we
20 sprayed with water to see if that would hasten the
21 onset of additional failures. In only one case did
22 that happen.

23 CHAIRMAN ROSEN: By additional failures, do
24 you mean additional spurious actuations?

25 MR. EMERSON: Right, and by that time we had

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1 burned some or all of the insulation off the wires,
2 but perhaps a certain set of wires hadn't yet caused
3 an actuation. We wanted to see if water might enhance
4 the likelihood that that would happen, as you might
5 expect, given a better conducting path and, again, an
6 observation that happened only once in the times that
7 we checked it out.

8 CHAIRMAN ROSEN: But in most cases water
9 portended to put out the fire?

10 MR. EMERSON: Yes.

11 CHAIRMAN ROSEN: So here's the balance: Do
12 you want to put out the fire or risk an additional
13 spurious actuation? At least in this observation, it
14 says putting out the fire was the right answer.

15 MR. EMERSON: Well, it is not, no, I don't
16 think it is a question of whether you put out the fire
17 or not. I think in any case you're going to use
18 whatever means you have to put the fire out. It is a
19 case of how likely is it that something that you are
20 going to do anyway is going to cause an additional
21 problem. At least in observation we would say that in
22 most cases it didn't exacerbate the situation.

23 CHAIRMAN ROSEN: I think that is a very
24 useful finding.

25 MR. EMERSON: So, anyway, it was a piece of

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1 information we thought might be helpful down the road.

2 I think there is a member of the staff that
3 has a question.

4 CHAIRMAN ROSEN: Please come up and identify
5 yourself, as if anybody here didn't know who you are.

6 MR. SALLEY: Mark Salley from NRR.

7 You've got to be careful with the
8 observations.

9 CHAIRMAN ROSEN: You've got to get on a
10 microphone, so the record will capture your remarks.

11 MR. SALLEY: You have to be careful with the
12 water spray and making that observation. I just want
13 to point a comment out, that the water spray was
14 conducted at the end of the test. So if you have four
15 possible combinations and all four had come in during
16 the thermal insult, then obviously when you put the
17 money on, there was nothing left to react. So it is
18 somewhat biased. I mean, you didn't run the test
19 until you had no failures and then put water on. You
20 would get totally different answers. I just wanted to
21 point that out.

22 MR. EMERSON: To address Mark's issue, when
23 we put water on it, we did it intentionally when there
24 were things that could have happened that hadn't yet.
25 Obviously, we had had a fair number of failures

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1 already. We wanted to see if there would be
2 additional ones.

3 CHAIRMAN ROSEN: But the test was not
4 designed specifically to find that out? You would
5 design a slightly different test perhaps if you wanted
6 to look at whether water spray resulted in additional
7 circuit failures --

8 MR. EMERSON: Yes.

9 CHAIRMAN ROSEN: -- and wanted the
10 probability distribution for that.

11 MR. EMERSON: I was a piece of additional
12 information we could get for an extra expenditure of
13 resources.

14 The last observation on this was that it
15 appeared from the test that we conducted that
16 conductor-to-conductor shorts were more likely than
17 cable-to-cable shorts. By conductor-to-conductor, I
18 mean among conductors and among wires in the same
19 cable rather than between wires in different cables.

20 Okay, now I am going to spend some time
21 talking about the expert panel process and the
22 results. Now before I got any further with this, I
23 will say that this information is in an EPRI report
24 that was just issued. The information is available
25 under normal EPRI provisions for releasing

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1 information.

2 CHAIRMAN ROSEN: Does that mean you have to
3 pay for it if you are not a member of EPRI or --

4 MR. EMERSON: Yes.

5 CHAIRMAN ROSEN: Well, the real question is,
6 is it available to the staff?

7 MR. EMERSON: Well, EPRI -- I think the
8 answer to that is yes. I think I cannot directly
9 speak for EPRI, but I think they have decided to make
10 this information more available rather than less
11 available. So I don't think there is going to be any
12 significant barrier to making this available to staff.

13 Okay, the project was funded by EPRI. The
14 report has just been issued.

15 MR. SALLEY: Fred, I can answer that
16 question, if that is all right. The report is
17 available. It is in our library. Our library sent it
18 to us yesterday, and I forwarded it on to Rob, so he
19 can get it to you, yesterday.

20 CHAIRMAN ROSEN: Okay, thank you.

21 MR. EMERSON: Okay, I am not going to try to
22 go through the results in detail. I am going to try
23 to present a subset of the results, which may be
24 helpful.

25 Now this panel process utilized a process

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1 that was outlined in NUREG CR-6372 during the
2 estimation of seismic hazard. There were several
3 options for how one could use that method. The method
4 that we chose was to have a technical integrator who
5 was responsible for determining the probabilities, but
6 that he had input from a panel of experts that
7 represented appropriate disciplines and could draw on
8 their conclusions and study of the same data. Then
9 over the top of that we had two peer reviewers to help
10 assure that the process was carried appropriately and
11 that the data was considered appropriately in arriving
12 at the conclusions.

13 CHAIRMAN ROSEN: How many experts was this?

14 MR. EMERSON: I am going to get to that.

15 CHAIRMAN ROSEN: Okay. Okay, the next few
16 slides I am going to go through the process in summary
17 form.

18 The first step was to identify the
19 participants. We selected Robert Budnitz as the
20 technical integrator. The peer reviewers that we
21 selected were Neil Todreas from MIT, a professor of
22 nuclear engineering there, Dennis Henneke from Duke
23 Energy, who is a PSA expert.

24 We selected the experts to, first of all,
25 represent a cross-section of disciplines that would

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1 pertain to the determination of probabilities. The
2 types of expertise that might pertain are people who
3 understand electrical engineering, people with
4 experience in doing fire testing, people with
5 expertise in cable construction, people with
6 experience in fire protection and PSA. All of those
7 disciplines could have a role to play in deciding what
8 the probabilities should be, so we tried to select a
9 cross-section of people that represented those
10 disciplines.

11 We also wanted to select a cross-section
12 that represented industry sources, regulatory sources,
13 and the public. So we had representatives to fulfill
14 those three different stakeholder inputs.

15 So the people that you see listed here were
16 the experts that were chosen and participated in this
17 activity, what their affiliations are, and the types
18 of expertise they brought to the table.

19 CHAIRMAN ROSEN: Some of those affiliations
20 I'm not familiar with the abbreviations. UMD?

21 MR. EMERSON: University of Maryland.

22 CHAIRMAN ROSEN: And APS?

23 MR. EMERSON: Arizona Public Service.

24 CHAIRMAN ROSEN: UCB?

25 MR. EMERSON: University of California at

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1 Berkeley.

2 I will go through this fairly quickly. The
3 information was disseminated to the experts. It took
4 a little longer than we expected. The information
5 that was disseminated were the data from the actual
6 tests, compilations of test results that were prepared
7 by Omega Point and by NEI and EPRI. There was
8 information that Sandia had at its disposal from
9 previous evaluations of other tests that were
10 available. Most of the information that was
11 considered had to do with this series of Omega Point
12 tests that EPRI sponsored.

13 We spent some time agreeing on the
14 formulation of the technical question that the experts
15 would consider, and I will elaborate on that in a
16 subsequent slide.

17 The panelists reviewed and evaluated the
18 technical information, as did the technical
19 integrator, who did his own analysis, and then
20 evaluated the input that he got from the experts who
21 participated. Not all of them did; some of them had
22 to drop out for reasons of conflicts with other work
23 that they had to do.

24 After the technical integrator developed his
25 draft report, he circulated it for comment among the

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1 experts to make sure that their opinions had been
2 characterized fairly. Then he issued the final
3 report, and the peer reviewers prepared their reports
4 on the viability of the process and the ways that it
5 was done.

6 The information that I am describing here
7 comes out of the EPRI report. The information that
8 was considered, as I indicated, most of it was the
9 extensive data that was available from the Omega Point
10 test as well as the test reports as they existed at
11 the time, the test plans, the documents that were
12 developed during the test to facilitate the
13 preparation and performance of the tests, the Sandia
14 reports, as I mentioned, the NEI test plan, and the
15 cable materials information that we gleaned from those
16 who contributed cable to this effort.

17 The questions, after a lot of discussion,
18 the questions that we settled on that the experts
19 addressed, the first one was, under what conditions
20 could a serious fire cause spurious actuation? The
21 second one was, what's the probability of such
22 actuation?

23 Overall, the results of the expert panel
24 were intended to fit into this risk equation which I
25 presented previously. This risk equation is the

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1 formulation in NEI 00-01 for determining the risk
2 significance of spurious actuations. The piece of
3 this equation that the expert panel had input to was
4 the piece of SA component, which was the probability
5 of spurious actuations given cable damage.

6 MR. KRESS: I guess this was asked before,
7 but I missed an earlier Fire Protection Subcommittee.
8 Was it presumed that all those probabilities are
9 independent of each other?

10 MR. EMERSON: Yes, and some of the staff
11 comments that we've gotten on past revisions of the
12 NEI document are intended to make sure that we
13 consider those as independent numbers, and we remove
14 degrees of dependence that exist. So by the time that
15 all was said and done, yes, those values would be
16 independent.

17 As part of the expert panel process, because
18 some of the panelists were more familiar and
19 comfortable developing probabilities that you would
20 achieve, cable damage or fragility, and someone more
21 comfortable with developing probabilities of spurious
22 actuation, given damaged cable, and someone more
23 comfortable to coming up with the total package, the
24 total probability of spurious actuations, the
25 panelists agreed to break down this piece of SA into

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1 two subpieces of probability of cable damage, a
2 probability that you would get cable damage, and a
3 probability that you would get a spurious activation,
4 given cable damage.

5 So, basically, the technical integrators
6 were always made harder by the fact that the experts
7 had some choice in which parameters they developed
8 probabilities for, and it was up to the technical
9 integrator to put it all together into a single piece
10 of SA number.

11 CHAIRMAN ROSEN: But in every case the
12 experts identified what the numbers were that they
13 were giving to the technical --

14 MR. EMERSON: Yes, they were clear as to
15 what number or which parameter --

16 CHAIRMAN ROSEN: Whether they were giving a
17 piece of CD or a piece of SACD?

18 MR. EMERSON: Right. All of the experts'
19 reports are listed as appendices or provided as
20 appendices in the report. So you can go back and read
21 what each expert did, as well as what the technical
22 integrator concluded from the whole exercise.

23 There was a concept that was originally
24 introduced by Sandia in some of their earlier work of
25 considering a base case and then looking for the

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1 effects of variations from the base case, and that is
2 what we did, what the expert panel did.

3 The base case was considered to have the
4 parameters that you see listed on the slide there:
5 thermoset control cables, unarmored, single layer, in
6 the tray; target cables in a hot gas layer versus the
7 plume of the fire; the fact that the motor starter
8 circuit included a control power transformer -- there
9 was some variation of that parameter during the
10 testing, and that configuration represents our normal
11 plant configuration -- and gradual heatup of cables
12 rather than an instantaneous elevation to a high
13 temperature.

14 The variants that were looked at in the
15 expert panel results were thermoplastic and armored
16 cable versus thermoset cable, cable in conduit versus
17 cable in tray, and circuits that did not include a
18 control power transformer, which, as I said, were also
19 tested. And there were separate probabilities listed
20 in the results for that.

21 There is another slide mixed in that I
22 shouldn't have.

23 Okay, I am providing this information with
24 permission from EPRI. This is directly taken from the
25 report.

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1 What this is is the probability of getting
2 cable damage. It is a fragility curve. It is based
3 on the temperature of the cable versus the -- and a
4 probability that was developed that was independent on
5 the temperature that the cable saw. It does not
6 reflect the length of time it took to achieve that
7 temperature but just the temperature itself.

8 These results indicate, it shows the
9 relative fragility of the types of cable. Now there
10 are some considerations here that don't necessarily
11 reflect everything that we tested, but at least in the
12 case of the thermoset and the thermoplastic cable, I
13 think it is fairly accurate in portraying the
14 difference in fragility because the thermoset cable
15 was clearly more robust in terms of resisting spurious
16 actuations than thermoplastic is.

17 MR. KRESS: What's the triangles?

18 MR. EMERSON: The triangles?

19 MR. SIEBER: Armored.

20 MR. EMERSON: Armored cable, yes.

21 MR. KRESS: Yes, it doesn't show up on that
22 slide.

23 MR. EMERSON: Yes, sorry.

24 CHAIRMAN ROSEN: Now would you say that
25 again, that thing you said before you identified the

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1 armored cables? You said the thermosetting -- put
2 that slide back up. Those thermosetting cables are --

3 MR. EMERSON: Are more --

4 CHAIRMAN ROSEN: The ones on my right.

5 MR. EMERSON: Let me make sure I get this
6 right. Yes, that's correct.

7 CHAIRMAN ROSEN: They are more robust
8 because, yes, they go to higher temperature before
9 they --

10 MR. EMERSON: Yes, their probabilities of
11 failure are lower at the same temperature. Again,
12 that was clearly indicated in watching the tests. The
13 failures for thermoplastic cable tended to take place
14 sooner than they did for thermoset cable.

15 MR. KRESS: That .5 probability there, there
16 seems to be a change in the --

17 MR. SIEBER: Slope.

18 MR. KRESS: -- the phenomena.

19 MR. EMERSON: Right, and what happened
20 there, the technical integrator came up with 5
21 percent, 50 percent, and 95 percent probabilities.

22 MR. KRESS: I see. Okay.

23 MR. EMERSON: And those are the three
24 datapoints, and then we interpolated the lines between
25 those three datapoints.

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1 The reason why the cables were given those
2 probabilities is elaborated on in the report. I am
3 not going to try to do that. I am not going to try to
4 repeat what the technical integrator said to justify
5 them here.

6 The base case probabilities, and this is
7 just a subset of the probabilities that were
8 developed, in this case, the base case parameter was
9 the probability of spurious actuations, given severely
10 damaged cable. It is not the piece of SA which is the
11 overall probability of spurious actuation.

12 So given the fact that the cable is badly
13 damaged, this is the probability that it would
14 actuate. This is not the probability that you would
15 get a spurious actuation starting from scratch with
16 fresh cable that was undamaged, which is a different
17 parameter, and for which you would have -- the
18 probability of cable damage would also factor in.

19 For this base case parameter, there are four
20 datapoints here, reflecting different types of
21 interactions between cables. The first type is in a
22 multiconductor cable, and it is the probability that
23 you would get spurious actuations in this badly
24 damaged cable among conductors within that single
25 multiconductor cable. The multiconductor cables we

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1 tested were seven conductor cables, so we were looking
2 for interactions between any of the seven conductors
3 in those cables. So the probability is listed and the
4 confidence range is listed for the best estimate.

5 We also used single conductor cables in the
6 test to test the likelihood that you would get
7 interactions between a multiconductor cable and a
8 separate single conductor. That probability is
9 somewhat lower, as you might expect, given the fact
10 that it is a cable-to-cable interaction, not a
11 conductor-to-conductor interaction.

12 The third one has to do with -- I'm sorry,
13 I misspoke. The second one is interactions between
14 two single conductor cables, two separate single
15 conductor cables. The third one is interactions
16 between a multiconductor cable and a single conductor
17 cable, and the fourth one is interactions between two
18 multiconductor cables.

19 You can see the hierarchy of how the
20 probabilities rank among those cases. It kind of
21 backs up the observation that we made that cable-to-
22 cable interactions are less likely than conductor-to-
23 conductor interactions within a cable.

24 I think the reason that you don't see a high
25 confidence range for the last category is that the

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1 technical integrator felt that there was insufficient
2 data on which to base an uncertain confidence range,
3 but he wanted to capture the data which reflected
4 cable-to-cable interactions among multiconductor
5 cables, since there were only two tests that tested
6 that specifically.

7 Now, as I indicated earlier, there are other
8 parameters that affect the probabilities that we end
9 up with. They may not necessarily be reflected in the
10 expert panel results, but they, I think, are
11 significant enough so that we want to try to capture
12 the insights from these tests in the NEI document,
13 even if we don't directly in the probabilities. These
14 are the parameters that I have listed here.

15 When I say "circuit parameters," what I mean
16 is the way the circuit is set up, you know, whether
17 you have an instrument circuit versus a control power
18 circuit, whether you have a control power transformer
19 in the circuit or not, what the size of the motor
20 starter is. There are a number of different effects
21 that the type of circuit will have on the likelihood
22 that we think we can make use of when the reporting is
23 done and when we finished our report on the testing.

24 Next week the Circuit Failures Issues Task
25 Force is going to meet to address a number of things.

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1 One of the principal things is the comments that we
2 got from the staff. We're going to try to address all
3 of those and put those together and prepare a response
4 for the staff.

5 We are also going to be looking at how to
6 use the expert panel results that have been newly
7 issued and how to address the test observations that
8 I just mentioned that were not necessarily reflected
9 in the expert panel results.

10 Now I would like to shift gears --

11 CHAIRMAN ROSEN: If you use those
12 observations, are you going to feed that back to the
13 expert panel and get a read from them as to the
14 appropriateness of using them to change their answers?

15 MR. EMERSON: I don't know that we will use
16 it to change their answers. I think, because there
17 are other elements in the probabilistic equation other
18 than piece of SA, we may use those insights to affect
19 other probabilities in that equation, but probably not
20 the probability of spurious actuation per se. I don't
21 think we are planning to try to adjust their numbers
22 because that is what we had a panel of experts for.

23 Okay, now I would like to move from
24 discussion of the expert panel to another task that we
25 did, and that was to conduct pilot evaluations of the

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1 NEI document to see how easy it was to use and how
2 useful it might be for determining the risk
3 significance of circuit failures.

4 We conducted this at two plants, one a PWR,
5 one a BWR. McGuire representatives are here and can
6 elaborate to some degree on the pilots that were
7 conducted there. They can state their own
8 conclusions, but I am going to try to summarize it.

9 We have a final report in preparation for
10 these two pilot activities. Overall, as I said, this
11 was intended to determine how useful is this document
12 and feed it back into the process in time that we
13 could make use of it before it gets submitted to the
14 staff in final form.

15 I think overall we concluded that it was a
16 useful process and it did generally achieve the goals
17 that we set out for it. It does require some
18 manipulation, though. It requires some adjustment to
19 optimize its use.

20 Okay, I want to spend the next few slides
21 going over what happened in the McGuire pilot. I am
22 going to depend on Dennis and Doug to chime in if I
23 mischaracterize what they did, because they were both
24 heavily involved in the McGuire pilot for Duke.

25 There were three types of circuit failure

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1 scenarios that were considered. The purpose of this
2 document is primarily to evaluate previously-
3 identified circuit failure scenarios rather than
4 identify and set out a methodology for making sure
5 you've got all possible scenarios identified.
6 However, we tested both of those during the pilot
7 evaluations.

8 In order to do this, the McGuire staff, with
9 assistance from a contractor team, reviewed their fire
10 hazards analysis and the design basis documents. They
11 have a set of logic diagrams which were very useful.
12 What I am talking about here is the extra step we put
13 in for the pilots in determining whether the circuit
14 failures that I identified needed to be supplemented
15 by other failures that they may not have previously
16 considered.

17 So in that step, they went through the logic
18 diagrams. They conducted and reviewed their PSA to
19 try to identify additional scenarios that might be
20 something they would have to consider.

21 Typically, for each scenario they identified
22 there were three to five fire areas involved. It
23 wasn't just a single area. Scenarios included
24 multiple components and subscenarios, and we
25 considered generally there were two to three separate

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1 failures required for each scenario to unfold. In
2 other words, you needed at least two or three
3 simultaneous circuit failures for that scenario to
4 carry out the unintended action.

5 The next figure is maybe kind of hard to
6 read in the handout, but this is an example of the
7 McGuire logic diagram that helped identify from a
8 deterministic standpoint what scenarios might be
9 considered. Again, an analysis was also done using
10 their PSA to supplement this, again to try to identify
11 other scenarios that are potentially of interest.

12 In carrying out the PSA input to selecting
13 these scenarios, first, you would have to consider the
14 types of components and basic events that are in your
15 internal events PRA model that are subject to spurious
16 actuations. Now which MOVs, which PORVs, perhaps
17 which pumps, et cetera, that in combination could
18 cause an unintended or unacceptable consequence.

19 Then, in order to manipulate the model, once
20 you have identified those types of components, you
21 look for PRA results that use those combinations of
22 components and you run cases using your model with
23 basic events set to one. For PSA practitioners, that
24 may mean more than to non-PSA practitioners, but that
25 is the method by which the PSA helped to identify the

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1 scenarios that needed to be considered further.
2 Again, so far, we are just in the scenario
3 identification process.

4 Now in doing this PSA review --

5 CHAIRMAN ROSEN: I think for the non-PRA
6 people in the audience, I think that means that PRA
7 basic events set to one means guaranteed failure.

8 MR. EMERSON: Yes.

9 CHAIRMAN ROSEN: The device will not do what
10 you intend it to do. You set it in the configuration
11 in the PRA analysis, so that it does not end up doing
12 what you designed it do to, if it is open and it stays
13 open if it was intended to go closed, or it is closed
14 and stays closed if you intended it to go open.

15 MR. EMERSON: Right. The purpose of setting
16 it to one is, when you finish a PRA analysis, it gives
17 you a lot of cut sets that involve combinations of
18 failures. The purpose of setting these basic events
19 to one is to elevate the probability so scenarios
20 involving these particular components will rise to the
21 top, and you can see to what extent they cause a
22 problem. Then you select the ones that rise the
23 farthest to the top for further consideration.

24 As this slide indicates, given the number of
25 components in the plan, you can identify quite a few

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1 possible combinations. You have to temper that fact
2 with if the cables for those components are rooted in
3 the same area, so you have to apply some knowledge of
4 the locations of those cables in your plant to
5 determine whether those combinations are really a
6 factor in certain fire areas. As I say, you need to
7 temper these scenarios with actual knowledge of cable
8 locations in your plant to see whether that scenario
9 will exist in one or more fire areas.

10 The last bullet was used to select the
11 scenarios that were to be considered. If you have
12 questions about that, I am going to defer to Dennis,
13 since he's the one who did these analyses at McGuire.

14 The results of the McGuire pilot show that
15 deterministically all these scenarios were okay.
16 Thirty of them --

17 CHAIRMAN ROSEN: What do you mean by that?
18 Do you mean a single failure point deterministically
19 or --

20 MR. EMERSON: Dennis, you had better step up
21 to the microphone.

22 MR. HENNEKE: Yes, this is Dennis Henneke at
23 Duke Power.

24 The Duke plants all have a standby shutdown
25 facility, an external facility, a bunker facility. So

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1 the spurious actuation scenario we looked at all had
2 some way to perform the function free of fire damage.

3 CHAIRMAN ROSEN: Because of the bunker?

4 MR. HENNEKE: Some of them might have
5 included manual actions or something of the sort,
6 where you have to kind of go through it and make sure
7 from a legalistic and licensing basis that will be
8 okay, but deterministically we had a way to shut down
9 the plant, either with manual actions or with an
10 entire train separate, sometimes even two or three
11 train separates.

12 MR. EMERSON: Putting that aside and
13 pretending that they did not have this facility, we
14 then applied the NEI method to see to what extent
15 these scenarios would screen out using the methods in
16 NEI 00-01. That process has a two-step process. One
17 is a qualitative screen with a quantitative technical
18 basis, and the other is a more detailed quantitative
19 screen.

20 As the slide indicates, 30 percent of the
21 scenarios screened out as being low significance using
22 the qualitative screen; 50 percent more screened out
23 using the first four steps of the quantitative screen.
24 In the quantitative screen, I haven't made an effort
25 to try to explain that here because we have covered

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1 that in other briefings, but, basically, that involves
2 application of several of the parameters in the risk
3 equation, short of the calculation of conditional core
4 damage frequency.

5 So 80 percent of the scenarios screened out
6 either qualitatively or quantitatively using steps one
7 through four, the quantitative screen. And when you
8 went a step farther and step five of the detailed
9 analysis, and actually calculated the core damage
10 frequency, 70 percent of those scenarios screened out
11 as being lower than 1E-07 core damage frequency.
12 Again, this is pretending that this bunkered train
13 does not exist. It is for the purpose of testing the
14 method.

15 MR. KRESS: How many scenarios are we
16 talking about?

17 MR. EMERSON: Ten I think were looked at all
18 together. We didn't look at hundreds of them. We
19 selected 10 just to test the value of --

20 MR. KRESS: Are you talking about 30
21 percent, 50 percent, and 70 percent --

22 MR. EMERSON: Right.

23 MR. KRESS: -- for the steps of those teams?

24 MR. EMERSON: Right.

25 MR. KRESS: Okay.

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1 MR. EMERSON: Now, Dennis, maybe you had
2 better --

3 MR. HENNEKE: Yes. Of the scenarios, there
4 were 10 scenarios, but they averaged about four, four-
5 and-a-half rooms each. So you were physically running
6 four -- we ran 45 scenarios in 10 groups, basically.
7 So you're talking about 70 percent screening of the
8 remaining rooms.

9 MR. EMERSON: And the last bullet indicates
10 where the scenarios that didn't screen out were, the
11 location, were all in the control room.

12 MR. KRESS: This methodology doesn't deal
13 with smoke, I guess?

14 MR. EMERSON: Not directly, no.

15 MR. KRESS: Because it wouldn't affects
16 cables, and we're just talking about cables.

17 MR. EMERSON: Yes, we are talking about
18 something that happens, spurious actuations resulting
19 from physical damage to the cables, rather than from
20 smoke effects to electronic equipment.

21 CHAIRMAN ROSEN: When you took into account
22 the human error probabilities in these steps, did you
23 use human error probabilities based on traditional
24 methods, aeroforcing contexts and that sort of thing,
25 or did you modify them in some way to take into

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1 account the additional confusion that might be
2 engendered by spurious actuations, multiple spurious
3 actuations?

4 MR. EMERSON: In carrying out the manual
5 actions needed to respond to a spurious actuation, is
6 that what you are referring to?

7 CHAIRMAN ROSEN: Yes, you've got manual
8 actions clearly, and you've got indications. When you
9 get multiple hot shorts, the indications in the
10 control room could get very ambiguous for the
11 operations crew.

12 MR. HENNEKE: Yes, this is Dennis Henneke
13 again.

14 Understand that the difference between what
15 we analyzed here and a typical fire PRA is that we are
16 typically failing multiple barriers beyond what a
17 typical fire PRA would analyze. So we're typically,
18 in these scenarios, we're typically left with one way
19 to shut down the plant. In most cases that was our
20 SSF, and the analysis in the fire PRA already has
21 considered abandoning the control room, going to the
22 SSF and operating it under the worst of circumstances.

23 So the only additional human actions we had
24 were, for example, a fire in the aux. feed-water pump
25 room that failed all aux. feed-water, and now you had

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1 to shut down the plant with main feed-water or
2 condensate, given that no aux. feed-water is
3 available. There wouldn't be a lot of controls or
4 indication or spurious alarms in the control room for
5 something like that. So it is either the worst of
6 cases where you abandon the control room or there's
7 really little left to do. So it's not that
8 complicated of an action.

9 It's not like a typical fire PRA where you
10 have one train gone with a whole bunch of spurious
11 actuations. You have multiple ways to perform the
12 action, where you might have confusion.

13 MR. EMERSON: One of the points that Eric
14 brought up in his presentation that the staff is
15 concerned about is the consideration of uncertainty in
16 screening out scenarios where the uncertainty is not
17 known. We were trying to deal with that a couple of
18 ways in NEI 00-01 and in the pilots. In the pilots we
19 performed a sensitivity analysis to try to check the
20 effects of some of the parameters to see how likely it
21 was that we screened out something that we shouldn't
22 have. So we did that sort of sensitivity analysis.

23 When we did the sensitivity analysis, we
24 determined that one thing we screened out, given the
25 degree of uncertainty we might consider not screening

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1 it out under other circumstances.

2 MR. KRESS: When you say, looking at one
3 screen scenario as possibly unscreened, does that mean
4 you took all the screened ones and decided which one
5 of those would be most, having the most impact, or --

6 MR. EMERSON: Yes, we did a sensitivity
7 analysis of the -- I won't say "we" -- the Duke folks
8 did a sensitivity analysis of the parameters that went
9 into determining whether something would screen or
10 not --

11 MR. KRESS: I see.

12 MR. EMERSON: -- the different factors, and
13 determined that --

14 MR. KRESS: The ones that showed up having
15 the most --

16 MR. EMERSON: You postulate additional
17 uncertainty in the data and you determine the extent
18 to which, if you made different assumptions about the
19 data or the data were actually considerably different
20 than what you actually used, whether it would screen
21 or not. Doing that type of analysis, we determined
22 that one of the scenarios might not screen out, but
23 the rest of them still did, given that. So doing a
24 sensitivity analysis of that type is one way to
25 address the issue of whether you have screened

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1 something inappropriately or not.

2 The other thing that we have built into this
3 method for both the qualitative and the quantitative
4 screening steps is consideration of safety margins and
5 defense in-depth. The model that we have used for
6 that is the provisions in Reg. Guide 1.174. Now Eric
7 indicated that that required further discussion and
8 further development, and I would agree that it does,
9 but, again, what we have in there now is pretty
10 consistent with the Reg. Guide 1.174 method for
11 addressing those.

12 So in using the process in NEI 00-01, you
13 cannot screen something out either qualitatively or
14 quantitatively without applying the safety margins and
15 defense in-depth analysis. Assuming that we end up
16 with a scrutable method for doing those two analyses,
17 hopefully, that will go a long way toward alleviating
18 concerns of inappropriate screening out of risk-
19 significant scenarios or combinations.

20 In general, we feel that both pilot
21 applications -- I didn't discuss the one at Duane
22 Arnold, but the conclusions were very similar, even
23 though the methods that were used were somewhat
24 different. It showed that the NEI method is workable,
25 is fairly easily applied without a huge --

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1 MR. KRESS: What do you mean when you say,
2 "the method worked"?

3 MR. EMERSON: The purpose of the method is
4 to evaluate the risk significance of potential
5 combinations of circuit failures. What we wanted to
6 determine was, is the method easily enough applied so
7 that you get believable screening results with a
8 reasonable amount of effort or does it require far
9 more effort to try to screen things out than it
10 would --

11 MR. KRESS: Yes, I understand the effort
12 part, but I am trying to figure out how you decided
13 whether they were believable results or not.

14 MR. EMERSON: Well, you try to apply the
15 method to known or typical plant configurations, and
16 you go through the method and you try to take into
17 account the factors that would either dictate that
18 something is acceptable or not, and you try to apply
19 the probabilities that would dictate whether you have
20 a fire that grows to the point where you can get
21 spurious actuations and you actually have them. You
22 see whether it screens out or not.

23 MR. HENNEKE: Yes, but also what we mean on
24 this is that the NEI document is somewhat proscriptive
25 in that there are stepwise processes, and one step

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1 follows the next, and we wanted to make sure that that
2 stepwise process seemed reasonable, and that step B
3 follows step A, and so on, and it did.

4 MR. EMERSON: Good point.

5 MR. HENNEKE: We made some recommendations
6 for changes, for example, following the qualitative
7 screening where we were doing a defense in-depth and
8 safety margin review prior to going on. So we didn't
9 do PRA analysis on something that didn't meet these
10 defense in-depth and safety margin reviews.

11 It really didn't work for us because we
12 didn't have the information, so we recommended moving
13 that to the back. So once we moved that to the back,
14 then it worked fine.

15 We also tested other parts of it, like there
16 was a question on the qualitative screening. One of
17 the staff's comments was there's high uncertainty in
18 this. So we took events, sequences that screen
19 qualitatively that we were going to set aside and just
20 not worry about it, and we actually quantitatively
21 analyzed those. We found, for example, the two
22 scenarios that did screen and we followed them
23 through. One was 10 to minus 13, when you analyzed it
24 in detail, and one was 10 to minus 11. That would
25 give you some feeling that, if you would screen it

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1 with all the conservatisms in the qualitative
2 screening, then it is probably going to show a
3 quantitatively low probability.

4 MR. KRESS: Yes, that was the answer I was
5 searching for.

6 MR. EMERSON: Okay.

7 MR. KRESS: How did you actually come to
8 that conclusion.

9 MR. EMERSON: Okay, the conclusions that we
10 got from the pilots, as I said, our Task Force will be
11 considering and factoring in to make sure that the
12 method is optimized to take advantage of those
13 insights.

14 I am going to shift gears now and spend a
15 little time talking about the NRC's comments on the
16 NEI document, if you are ready to move on.

17 As I indicated, there were 170 comments.
18 This was based on a very detailed staff review of
19 Draft Revision C of the document. We had received
20 some less formal comments on earlier versions. This
21 was a fairly rigorous review and comment process that,
22 assuming that we can respond in a manner that the
23 staff accepts, will go a long way toward completing
24 this document in a timely way.

25 We expect to finish our response to the

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1 staff within about six weeks, and hopefully sooner
2 than that.

3 Instead of trying to go through it comment
4 by comment, what I am going to try to do is to address
5 some broad considerations relative to the comments.
6 The staff provided comments, general comments, that
7 applied to the method as a whole, comments on the
8 deterministic portions of the NEI document, which we
9 haven't talked much about, comments on the
10 probabilistic methods, and Eric discussed the
11 uncertainty concern they have about that, and comments
12 on the safety margins and defense in-depth analysis.
13 So what I am going to do in the next few slides is to
14 try to address some of the themes of those comments.

15 Now this slide may be fairly trivial, but
16 our possible responses are going to be that we either
17 agree with the staff, and there are many cases where
18 we do agree with their comment, and we will make
19 changes to the document, or we disagree with the
20 staff's position and we will provide a justification
21 for ours in our response, or we agree that some
22 clarification is needed to make the process clearer in
23 certain cases.

24 The issues that we see arising from the
25 staff comments that we need to address, the document

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1 that we have is a melding of deterministic and risk-
2 informed methods for addressing circuit analysis. Any
3 time you have two dissimilar types of methods like
4 that, the process for creating a useful synergy is
5 somewhat difficult, and the staff comments reflected
6 that to some degree.

7 Again, as I said, the staff commented on the
8 deterministic piece and the probablistic piece, and
9 then in some cases there were some comments that
10 reflected the whole enchilada together rather than on
11 the two pieces separately.

12 That is one thing that I would propose, is
13 that we need to consider the document, the overall
14 purpose of the document and the two methods together
15 and what they are intended to resolve, rather than
16 individually in isolation, although you want to get
17 the individual pieces right as well.

18 In addressing the deterministic side of it,
19 the deterministic methods that are reflected in this
20 document are typical of methods and assumptions that
21 have been in use in plant safe shutdown analyses for
22 many years. What we have in the document as a
23 deterministic method does not reflect a change from
24 the way plants have been doing these types of
25 analyses. So there was no attempt to try to break new

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1 ground.

2 So on the staff comments on the
3 deterministic method, it is basically a discussion or
4 a rediscussion of issues that we have been dealing
5 with for several years on differences in interpreting
6 how the regulations should be applied to safe shutdown
7 analyses. That was the reason that led to the
8 development of the NEI method in the first place, was
9 to try to address using risk information of these
10 differences in interpretations.

11 In general, how you apply risk significance
12 tools to a deterministic analysis is a fairly
13 sensitive issue. It involves things like, questions
14 like, are you going to use risk arguments to justify
15 a noncompliance with the regulations. And the answer
16 to that is, no, we are not.

17 But where interpretative differences exist,
18 where the licensing basis is not clear, risk can be a
19 useful tool in determining how much effort you need to
20 spend in resolving or arguing over the issue, and that
21 is really the purpose of this document. In cases
22 where there are clear-cut compliance issues, the risk
23 tools can be used to support an exemption or deviation
24 request, again where the compliance or the
25 noncompliance is clear-cut, if there is one.

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1 So the risk has a role in resolving
2 deterministic issues, and the role is different
3 depending on whether the issue clearly involves
4 compliance or whether it involves merely a difference
5 in interpreting the regulations.

6 This is not going to be an easy thing to
7 work out, and I look forward to more discussions with
8 the staff so that everyone is clear on how these risk
9 tools will be used.

10 Another issue that was raised in the staff
11 comments is the degree to which we should be going out
12 and looking for more combinations other than those
13 that have been previously identified in inspections.
14 We created a method in the NEI document that we
15 intended specifically for testing during the pilot to
16 determine the extent to which we needed to do this.
17 The method was intended to be applied to known issues,
18 things that may have been identified in previous staff
19 inspections or been identified in plant self-
20 assessments, known issues involving either more than
21 one spurious actuation the plant should take a look
22 at.

23 Some of the staff comments indicated that we
24 should perhaps identify additional -- we should
25 perform a systematic search for additional such

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1 combinations as had not been previously considered.
2 Our general response to that is that basically is a
3 vulnerability search. You are looking for additional
4 vulnerabilities that you might not have considered
5 before.

6 One of the purposes for testing that
7 vulnerability search method was to see to what extent
8 in these pilot plants we uncovered combinations that
9 turned out to be significant, and we basically didn't.
10 There may have been one case where we found one, and
11 that will be made very clear in the final report for
12 the pilots.

13 But, in general, the vulnerability searches
14 have been done. That is what we had the IPEEE for.
15 At this point we don't see a driving need, based on
16 the pilot results, to go out and look for new
17 potential combinations of circuit failures.

18 The number of combinations of circuit
19 failures is potentially unlimited. In order to
20 address the issue properly, you want to be able to
21 focus on those that -- you want to be able to cut
22 fairly quickly to those that are safety-significant.
23 You want to be able to decide which, among these
24 hundreds of millions of possible combinations of
25 spurious actuations, are the likeliest to happen and

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1 the ones you have to deal with. That is what we came
2 up with this method for, was to help you sort through
3 that.

4 There are some issues that were mentioned in
5 a number of the comments that relate to an issue that
6 has recently surfaced with regard to manual actions
7 and spurious actuations, and our overall response to
8 that is going to be that is an issue that we are going
9 to resolve in a separate forum with the staff. We
10 didn't think that the comment resolution process for
11 NEI 00-01 -- it needs to follow that separate
12 resolution process rather than being the vehicle for
13 resolving that issue.

14 That concludes my presentation.

15 CHAIRMAN ROSEN: Thank you very much.

16 Do members of the Committee have any
17 questions? Any questions from the staff? The public?

18 MR. KALANTARI: I have a question.

19 CHAIRMAN ROSEN: Please step up to the
20 microphone and identify yourself.

21 MR. KALANTARI: My name is Bob Kalantari.
22 I'm with EPM.

23 CHAIRMAN ROSEN: EPM?

24 MR. KALANTARI: EPM, Engineering, Planning
25 and Management.

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1 I have one comment and a question. You
2 mentioned that open circuits did not occur during
3 testing. I don't think that should have been a
4 surprise that copper doesn't melt at those
5 temperatures that you tested. Open circuits will
6 occur in real life when you have fire and things are
7 falling, objects, on the cable trays. That is how you
8 are going to get open circuits.

9 Having said that, in general, open circuits
10 should not cause problems, but because you have tested
11 and shown open circuits, you know, it is because of
12 copper characteristics it doesn't melt at those
13 temperatures.

14 But my question is really, last year during
15 this Subcommittee meeting I had a presentation given
16 with regard to using the techniques of NFPA 805, doing
17 such analysis minus the PRA portion of it. The ACRS
18 Subcommittee liked it, but there was a question. They
19 asked me if we should do any testing, and I said
20 testing would give you some information, but I think
21 you would be surprised to learn that, when you put
22 cables in the fire, the insulation somehow melts and
23 conductors melt, the insulation melts and conductors
24 connect.

25 Your test right now shows 20 percent

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1 external, 80 percent internal. To me, that is as good
2 as saying, one, every time you put cables in fire,
3 they are going to melt either internally or externally
4 and give you problems.

5 I am an analyst. I have done probably 20-
6 plus analyses, Appendix R type, and reviewed another
7 probably 10-20. When I have this test result, right
8 now, let's say, real life in this room I have 10
9 cables associated with 10 valves, and they could
10 spuriously operate. The test result says between 20
11 and 80 percent of these valves could spuriously
12 operate, could have a hot short and potentially
13 spuriously operate.

14 What do I do with that information? Which
15 valve is going to operate first? What good is all
16 this test to me as an analyst when I have 10 and I
17 don't know which one is going to happen first, and
18 whether it is 20 percent or 80 percent, what do I tell
19 my operator? Is the result of this to put this
20 information and figure out if you are going to have a
21 CDF of less than 10 to the minus 7 or to do an
22 analysis and to show that you have one train for your
23 fire damage?

24 So that is my concern. I don't think this
25 test really -- the test I think proved that failures

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1 are going to occur and spurious operations are going
2 to occur. So I am still confused after all these
3 years because I am still doing safe shutdown analysis
4 for plants, updating their analysis, and they always
5 challenge me, you know: Do we take one hot shorts,
6 two hot shorts, how many hot shorts, how many spurious
7 ops.? We are not there yet.

8 MR. EMERSON: Okay, was that a question or
9 a comment?

10 MR. KALANTARI: That was a question.

11 MR. EMERSON: Okay.

12 MR. KALANTARI: What do I do with the
13 information? How would I take five components in this
14 area, associated -- you have five cables in this room.
15 They all could have hot shorts. Your tests showed you
16 can have hot shorts. What do I do with that
17 information? Which one of the five valves are going
18 to fail? You are saying 20 to 80 percent of them
19 could fail. A cable could fail potentially and a
20 spurious op. So which one do I assume is going to
21 fail, the first valve, the second valve, the shutdown
22 cooling valve, or the PORV valve? What good is that
23 information right now to an analyst who is doing
24 Appendix R-type analysis, a safe shutdown analysis?
25 That is my question.

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1 MR. EMERSON: Okay, I will try to address
2 that. First, as I indicated at the start of the
3 discussion, the purpose of the testing was to provide
4 information that could lead to probability
5 developments, and the probabilities of spurious
6 actuation are going to vary depending on cable
7 parameters; it is going to vary depending on the cable
8 location, cable fill, types of cable, et cetera, et
9 cetera, et cetera. There's a number of parameters.

10 The expert panel made an effort to weed
11 through the test results and try to come up with
12 probabilities that could apply to different set of
13 plant circumstances, so that the analyst, when he is
14 doing an analysis of the significance of certain
15 combinations of spurious actuations, can pick out the
16 piece of SAs that are the most applicable, given his
17 particular arrangement, his cables, his trays, his
18 location with respect to the fire.

19 He takes that number and applies that, along
20 with the other probabilities that are in the risk
21 equation, the probabilities that tell him the
22 likelihood that a fire will get to the point of
23 causing damage in the first place, and the likelihood
24 that the fire, once having grown to that size, having
25 caused a spurious actuation, the likelihood that that

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1 spurious actuation will cause core damage. All of
2 those factors weigh into the overall likelihood that
3 you have undesirable consequences from a spurious
4 actuation.

5 So to try to summarize what I just said, the
6 purpose of the testing and the expert panel was to
7 come up with different probabilities that the analyst
8 can apply in different circumstances, depending on his
9 own cable layouts, to try to assess whether specific
10 combinations are more or less risk-significant.

11 CHAIRMAN ROSEN: Okay. Well, thank you very
12 much. It has been a very useful discussion.

13 We are, according to this schedule, going to
14 have you come back after lunch, Fred, to talk about
15 the resolution of the staff's comments in more detail.
16 Is that correct?

17 MR. EMERSON: Actually, I have covered it in
18 as much detail as we have. Since we have not
19 completed resolving the comments, I thought it would
20 just address the broad themes that have been raised in
21 the comments, but I am not in a position to address
22 detailed comments at this time.

23 CHAIRMAN ROSEN: Okay, so then we will start
24 after lunch with the Subcommittee comments and a
25 discussion, but --

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1 MR. KRESS: I think we could finish that
2 before lunch and not have to have people come back.

3 MR. EMERSON: That's up to you.

4 MR. KRESS: We can finish that in 15-20
5 minutes, I would think.

6 MR. EMERSON: I'll be happy to come back, if
7 it is of assistance to the Committee.

8 CHAIRMAN ROSEN: Well, I'm prepared to try
9 it, if you would like, Tom. I think what we need to
10 do is to give some guidance to the staff and to NEI
11 for the Friday, for the full committee which is on
12 Friday, right?

13 MR. ELLIOTT: NEI 00-01 is not covered.

14 CHAIRMAN ROSEN: No, but it seems like it
15 needs to be at least, the full Committee needs to be
16 aware that we heard a briefing on it and the role of
17 NEI 00-01 in the overall implementation of NFPA 805.

18 MR. KRESS: Yes, I think that is a technical
19 underpinning for NFPA 805.

20 CHAIRMAN ROSEN: Right.

21 MR. KRESS: And, further, I think we ought
22 to hear something about that.

23 CHAIRMAN ROSEN: Now did I understand, Fred,
24 that from Rob's comment that you are not planning to
25 be here on Friday?

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1 MR. EMERSON: Yes, I am.

2 CHAIRMAN ROSEN: Oh, you are going to be
3 here?

4 MR. EMERSON: For the 805 discussion.

5 CHAIRMAN ROSEN: Oh, for the 805 discussion.
6 Well, just having you here in case questions come up
7 on 00-01, I am sure you--

8 MR. EMERSON: I would be happy to try to
9 answer them.

10 CHAIRMAN ROSEN: Yes.

11 MR. SIEBER: Well, that is part of how you
12 apply the risk-informed part of 805.

13 CHAIRMAN ROSEN: Well, sure.

14 MR. SIEBER: So I think that, as a minimum,
15 we ought to say something about it. One thing is that
16 we are on the third draft, that there's still a lot of
17 comments, and since the rulemaking itself will take 18
18 months, I guess --

19 MR. KRESS: I thought it was quite
20 interesting to know how extensive the testing was and
21 the variables. I would even go to that extent, I
22 think.

23 CHAIRMAN ROSEN: Well, I think it is a
24 particularly useful demonstration of cooperation
25 between the staff and the industry, and I think the

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1 testing was well-done; in fact, had a Sandia
2 participation to at least part of the test matrix, to
3 try to make the test matrix more robust.

4 MR. KRESS: At the full Committee level,
5 what, an hour-and-a-half?

6 CHAIRMAN ROSEN: I have it right here. Yes,
7 it is just about an hour-and-a-half, yes.

8 MR. SIEBER: Well, I am sure the staff wants
9 a letter because the rulemaking is imminent.

10 CHAIRMAN ROSEN: Right, and our staff will
11 certainly get a letter on it.

12 MR. SIEBER: On the rulemaking.

13 CHAIRMAN ROSEN: On the rulemaking, but I
14 think part of the letter, as creation of the letter,
15 the full Committee will want to understand 00-01's
16 role in NFPA 805.

17 MR. KRESS: Well, we had better concentrate
18 on the rulemaking aspect in our full Committee meeting
19 if that is what the letter is supposed to address.

20 CHAIRMAN ROSEN: Yes, but we can't do that
21 absent the discussion, albeit brief, of 00-01.

22 MR. KRESS: Yes.

23 CHAIRMAN ROSEN: Now one of the --

24 MR. HANNON: Excuse me. Could I interject
25 something? This is John Hannon.

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1 Be aware, recognize there is a scheduler
2 issue here because we are on a path to attempt to come
3 to resolution on the circuit analysis issue in the
4 spring of next year, which will precede the ultimate
5 adoption of risk-informed, performance-based rule. So
6 this circuit analysis resolution that Fred has
7 described, yes, there is a nexus with potential risk-
8 informed, performance-based rule, but it would come
9 much later. But we want to try to resume the
10 inspection activity in this arena before the rule will
11 be adopted.

12 So to the extent that you all can help us
13 resolve issues associated with the implementation of
14 this NEI 00-01, it would be useful. For example, one
15 of the things that our staff has had a great deal of
16 difficulty with is screening out something that might
17 have a CDF of one. That causes us great pause, and
18 that potentially could happen with the application of
19 the methodology the way it is currently being
20 generated. So there are some issues there, and we
21 want to try to work through them, but recognize
22 there's this scheduler conflict.

23 MR. SIEBER: I'm not exactly sure in my own
24 mind how that would work. You know, up until the time
25 a rule becomes final, you are under the old rule,

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1 which is Appendix R or the technical position or the
2 old 50.48. So if you want to inspect, you would
3 inspect against the requirements that exist right now.

4 Now you may temper or use some of this
5 probablistic circuit analysis information for the
6 purpose of coloring the findings in the SBP process.
7 I am not sure that you can say, "Well, here's Appendix
8 R. Here are the requirements. Here's separation.
9 It's got to be free of fire, and I found a lack of a
10 fire barrier of less than 20 feet" or "the barrier's
11 two hours instead of three hours," or maybe your
12 detection and suppression doesn't work. It fails a
13 test or something like that.

14 So it seems to me that you have to say, you
15 know, here's a violation of the requirements of the
16 license, and here's the risk significance of it, based
17 on some of these things which I don't think are fully
18 defined yet that will come out of 00-01.

19 So I'm not exactly sure what it is you are
20 going to do, what kind of rules in training will you
21 give inspectors that will guide them as to what to
22 inspect in associated circuits? Do you know what I
23 mean? Is that clear or not?

24 CHAIRMAN ROSEN: Well, I will go back to
25 Eric's earlier presentation on the hierarchy of our

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1 potential options. The very first one is to pick the
2 low-hanging fruit from NEI 00-01, include it in a
3 NUREG which we are developing now as guidance to the
4 inspectors on how to look at circuit analysis in a
5 risk-informed approach.

6 MR. SIEBER: I think that is a good
7 objective. Actually, when I went through that list on
8 slide six, I come up with, say, in the first four are
9 things that you actually could do right now, but I
10 don't think you are far enough along to do the last
11 two, which is endorse it in the reg. guide. Until you
12 know what it is finally going to look like, you can't
13 put it in a reg. guide. It is probably better off in
14 a reg. guide than it is incorporated into the rule,
15 even though that would simplify things.

16 So you wanted advice on that. That would be
17 mine. Maybe others could give their opinion.

18 CHAIRMAN ROSEN: Well, I think I agree with
19 Jack on that, and you are really in a position to be
20 using it once it is sorted out in those first four
21 bullets, but, to me, I thought that it was a powerful
22 enough technique that it really would form the basis
23 for a lot of the thinking that could support NFPA 805,
24 and that they really work hand-in-hand. So we need to
25 continue to work together with the industry to reach

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1 common ground, and, ultimately, use it in some way
2 later on in a more formal way.

3 As far as the question of what to address to
4 the full Committee, the full Committee is going to be
5 thinking about what to say to the Commission on NFPA
6 805. That is its principal question.

7 In order to do that, and thinking back on
8 what some of the members of the full Committee know
9 and what they don't, I think you probably need to go
10 over the history of the development of 805 and what
11 the Committee said early on.

12 MR. SIEBER: Yes, in 1999.

13 CHAIRMAN ROSEN: And to express your opinion
14 about whether or not the points the Committee made in
15 1999 were addressed. I think we have a letter from
16 Suzanne Black that pertains to that subject, and some
17 of those points could be made to the full Committee,
18 and should be.

19 Also, I think you need to go over the steps
20 to the 805 rulemaking, the timing. The full Committee
21 may not be fully aware of the pace of this activity.

22 I found the discussion on the Venn diagram
23 in I think it was Eric's presentation very useful, and
24 I think the full Committee would need to see that and
25 to understand it.

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1 Finally, I think that the discussion of
2 00-01's role in the overall process, including the
3 role of the reg. guide and the kind of things we just
4 talked about, how far you can go with it, would be
5 useful, including touching on the fact that NEI used
6 an expert panel as a central part of that process,
7 because the Committee is very interested in the
8 functioning of expert panels and has some concerns
9 about that function in terms of development of useful
10 results. So I would suggest that you at least brief
11 on that process, including identifying some of the key
12 participants.

13 That one slide that shows the probabilities
14 based on the kind of cables, I found very useful, and
15 I think the full Committee might also.

16 MR. SIEBER: Well, if you don't have that,
17 then you won't have a basis to have an understanding
18 of what actually the testing was about, what the
19 results were, and how it is going to be used.

20 CHAIRMAN ROSEN: Now, Tom and Jack, I have
21 kind of rattled off some things off the top of my head
22 that I thought the full Committee might be interested.
23 Do you have anything to add?

24 MR. KRESS: Yes. I agree with what you
25 said. I think the Committee is going to be concerned

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1 about the probability equation and the fact that they
2 can take compound probabilities and get a low figure,
3 and their concern is going to be how to assure
4 yourself that each of these probabilities was
5 independent of each other, and that you arrived at the
6 right base for all of it. This discussion on the
7 expert opinion process I think would be very useful
8 there.

9 I guess that would be the one thing I think
10 I would add. The other thing I guess is, you know, I
11 didn't see in any of the presentations what might be
12 potentially likely things that plants would do as a
13 result of adopting 805. I asked the question, and I
14 got a good answer, but I don't know if I want to
15 repeat the question or whether it should maybe be part
16 of the presentation somewhere.

17 CHAIRMAN ROSEN: That is a very, very good
18 point.

19 MR. KRESS: Yes.

20 CHAIRMAN ROSEN: I think the Committee will
21 be interested in providing the Commission with the
22 answers to their questions before they ask them.

23 MR. KRESS: Yes.

24 CHAIRMAN ROSEN: And one of the questions
25 the Commission has asked over a number of times is,

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1 will anybody do this?

2 MR. KRESS: Yes, will they do it and why
3 will they do it?

4 CHAIRMAN ROSEN: That is because of the four
5 pillars, one of which is use resources appropriately,
6 use the staff's resources appropriately. If we are
7 using resources, to erect this grand edifice, but
8 nobody is going -- it is one of those "Field of
9 Dreams" things, they may not come, even if we erect
10 this grand edifice. I think we need to address, as
11 best we can, the staff needs to address, and
12 hopefully, Fred, if you were here and could address it
13 to the best you can, what do you think the industry is
14 going to do with it and how much use it is going to
15 get, and how long, maybe a timeframe, it will take
16 before we get a substantial amount of uses, just to
17 assure the Commission that the staff's resources are
18 being spent for an appropriate purpose.

19 With that, I think we have completed what we
20 set out to do in a world's record.

21 MR. KRESS: Good job. We've got to appoint
22 you Subcommittee Chairman for all the subcommittees.

23 MR. SIEBER: Yes, you've got them all.

24 (Laughter.)

25 CHAIRMAN ROSEN: No, I didn't do it.

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1 MR. KRESS: Or do we give the credit to Rob?

2 CHAIRMAN ROSEN: I think we give the credit
3 to Rob and the staff and to Fred Emerson, who did a
4 very good job, and to say how pleased I am, at least,
5 to see that this very, very difficult area is, in
6 fact, seeming to be moving in the right direction
7 quite nicely.

8 MR. KRESS: Yes, that was my impression
9 also.

10 CHAIRMAN ROSEN: So, with that, unless there
11 are other comments from any member of the staff or the
12 Committee or the public, I will -- seeing none, we are
13 adjourned.

14 (Whereupon, the foregoing matter adjourned
15 at 12:28 p.m.)

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