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UNITED STATES NUCLEAR REGULATORY COMMISSION'S

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

October 31, 2006

The contents of this transcript of the proceeding of the United States Nuclear Regulatory Commission Advisory Committee on Reactor Safeguards, taken on October 31, 2006, as reported herein, is a record of the discussions recorded at the meeting held on the above date.

This transcript has not been reviewed, corrected and edited and it may contain inaccuracies.

1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

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4 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACRS)

5 PLANT OPERATIONS AND FIRE PROTECTION SUBCOMMITTEE

6 MEETING

7 + + + + +

8 TUESDAY,

9 OCTOBER 31, 2006

10 + + + + +

11 The meeting was convened in Room T-2B3

12 of Two White Flint North, 11545 Rockville Pike,

13 Rockville, Maryland, at 1:30 p.m., Dr. John Sieber,

14 Chairman, presiding.

15 MEMBERS PRESENT:

16 JOHN D. SIEBER Chairman

17 GRAHAM B. WALLIS Member

18 OTTO L. MAYNARD Member

19 THOMAS S. KRESS Member

20 WILLIAM J. SHACK Member

21 SAM ARMIJO Member

22 SANJOY BANERJEE Member

23 ACRS STAFF PRESENT:

24 MICHAEL JUNGE Designated Federal Officer

25

1 NRR STAFF PRESENT:

2 BOB RADLINSKI

3 CORNELIUS HOLDEN

4 SUNIL WEERAKKODY

5 PHIL QUALLS

6 DAN FRUMKIN

7 JOHN RIDGELY

8 NEI REPRESENTATIVE PRESENT:

9 JIM RILEY

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Sunil Weerakkody

Bob Radlinski

Phil Qualls

Dan Frumkin

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

2 2:00 p.m.

3 CHAIRMAN SIEBER: The meeting will now
4 come to order.

5 This is a meeting of the Plant Operations
6 and Fire Protection Subcommittee. I'm John D. Sieber,
7 Chairman of the Plant Operations and Fire Protection
8 Subcommittee.

9 ACRS members in attendance are: Otto
10 Maynard, Bill Shack, Tom Kress, and myself. And
11 Graham Wallis is also here.

12 The purpose of this meeting is to discuss
13 draft regulatory Guide DG-1170 Fire Protection for
14 Nuclear Power Plants. We will hear presentations from
15 representatives of the Office of Nuclear Reactor
16 Regulation.

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

21 The rules for participation in today's
22 meeting were announced as part of the notice of this
23 meeting previously published the *Federal Register*.

24 We have receive no written comments or
25 requests for time to make oral statements from members

1 of the public regarding today's meeting.

2 A transcript of the meeting is being kept

3 and will be made available as stated in the *Federal*

4 *Register* notice. Therefore, we request that

5 participants in this meeting use the microphones

6 located throughout the meeting room when addressing

7 the Subcommittee. Participants should first identify

8 themselves and speak with sufficient clarity and

9 volume so that they may be readily heard.

10 Now, we do have a member of the public on

11 the telephone? Okay. Why don't you ask them if they

12 can hear us to make sure the circuit is good.

13 PARTICIPANT: Can you hear us on the

14 telephone?

15 PARTICIPANT: Yes, I can.

16 PARTICIPANT Okay. Thank you.

17 CHAIRMAN SIEBER: Okay. What I'd like to

18 do is this regulatory guide we all got at least a CD

19 version of it. It's 134 pages in length. And it

20 makes very pleasant reading, if you're into that kind

21 of thing. And it's sort of interesting to note that

22 it contains basically a historical account of the

23 evolution of fire protection from the earliest days of

24 light water reactors until today. And in this version

25 of the regulatory guide it looks forward to the new

1 reactors.

2 The stage of approval that this document
3 is in right now is that it is ready to go out for
4 public comments. Is that not correct? And after the
5 public comment period to the extent that there are
6 comments, they will be resolved by the staff. We will
7 then have an opportunity to review it again before it
8 can be issued as final.

9 This guide is complex in that it has 174
10 references to other documents. Seventy-two of those
11 references are to codes and standards which are either
12 referenced or endorsed herein. Eleven of them are
13 right out of 10 CFR. And it includes two appendices,
14 Appendix R and references an Appendix A. Eleven
15 regulatory guides in addition to this one, 14 new
16 regs, 4 branch technical positions, 5 SECY papers, 15
17 Generic Letters, 22 information notices, 4 regulatory
18 issue summaries, 8 memoranda of one sort or another
19 and 8 miscellaneous documents including bulletins,
20 inspection manual chapters and so forth.

21 So there is a lot of background. And
22 while I did not look up each and every one of the 174
23 references, I'm familiar with a lot. I did look up
24 quite a few of them to make sure that the guide that
25 they are proposing to issue for comments is consistent

1 with the references that they cite. And I have found
2 that that in fact the case.
3 There are 134 pages in this guide, typed
4 pages. And that's in the strikeout markup copy of
5 that. Four of the pages, the equivalent of four pages
6 of text have been deleted. That's about 3 percent of
7 the document. Twenty pages of the text were added,
8 and that's about 13 percent. And if I take the net of
9 that, that's about 16 pages of new text. And there's
10 basically just a couple of new subjects. One of those
11 is the reference to new reactors and the second one is
12 the use of risk information, which is Appendix B of
13 this guide. It's the very last page.
14 When I was doing my review I went through
15 and identified a number of issues that I think needs
16 some discussion during this meeting. I provided a list
17 of those issues to the Staff and asked them to work
18 them into their presentation. And rather than me read
19 you my list, I'm sure that you'll have questions of
20 your own as we go through. And the Staff has promised
21 one way or another to address my questions.
22 What I would like to do now is move
23 forward and introduce Cornelius Holden, who is in the
24 third day of his new position with the NRC.
25 MR. HOLDEN: Actually it's a day and a

1 half.

2 CHAIRMAN SIEBER: Day and a half. I

3 always double it, and that gives me insurance that

4 you've met at least the minimum standard.

5 MR. HOLDEN: Thank you.

6 CHAIRMAN SIEBER: And, obviously from the

7 Staff we have familiar friends who are associated with

8 fire protection that we see on a regular basis. And

9 therefore, I welcome all of you. And Corny, if you'd

10 like to introduce your folks for me, please.

11 MR. HOLDEN: Thank you. I think that the

12 ACRS would be better served by hearing from the Staff

13 than from myself. So Sunil is here. He's the branch

14 chief associated with fire protection, along with his

15 staff. So I'll just turn it over to Sunil.

16 MR. WEERAKKODY: Yes. My name is Sunil

17 Weerakkody. I'm the branch chief fire protection

18 division of risk assessment, NRR.

19 To the match 1709 reg. guide we have a 28

20 page presentation for you for this afternoon. Bob

21 Radlinski sitting there with me over the last several

22 months did nothing but, you know, update the reg.

23 guide and the standard review plan new fire protection

24 by compiling all the relevant information.

25 With that, I'm simply going to turn it

1 over to Bob because he's going to walk you through,
2 you know, how we updated the reg. guide and what the
3 important points are.
4 MR. RADLINSKI: Okay. As we've discussed,
5 the objective of the presentation this morning or this
6 afternoon is to describe the changes that have been
7 made to the Reg. Guide 1.189. We're also including a
8 discussion or presentation on the changes to the SRP
9 section, 9.5.1 for fire protection.
10 You may notice that the title of the reg.
11 guide has changed. We've dropped the word "operating"
12 because now it applies to new reactors.
13 And as Sunil mentioned to me earlier,
14 another objective of the presentation is to get the
15 Subcommittee acceptance for issuing the reg. guide,
16 anyway at least, for public comment.
17 Okay. As the Chairman mentioned, he
18 provided us with a list of topics that he wanted us to
19 address today. This outline represents that initial
20 list that he sent us.
21 The first item is to talk about the
22 applicability of the various documents related to fire
23 protection, Appendix R, the Standard Review Plan and
24 the branch technical positions.
25 The second bullet is to provide a brief

1 history of fire protection regulations, if that's
2 possible. The term "brief" and "history" of fire
3 protection don't really go together very well, but
4 I'll do my best on that.
5 And then the main objective is to describe
6 the significant changes that have been made to the
7 reg. guide. And then, again, the significant changes
8 that are being made to the SRP Section 9.5.1. I'll
9 also talk about whether or not there are any backfit
10 implications and what our basis is for that. I'll
11 also talk about why we don't need to do a backfit
12 analysis or go through CRGR review. I'll talk about
13 the guidance that we've added for the use of risk-
14 informed methods for non-805 plants. And I'll talk
15 about what our compliance expectations are for
16 licensees for the new guidance.
17 And finally talk about the impact on
18 inspections of the new guidance and the updates.
19 I'll also mention that for the second list
20 of objectives that you sent us, I do have a set of
21 slides for those. So it's not 28 slides, it's 42
22 slides. We'll get to those, time permitting, I guess.
23 CHAIRMAN SIEBER: Okay.
24 MR. RADLINSKI: Okay. Getting into the
25 details. Appendix R, as I'm sure most of you know,

1 are a set of fire protection regulatory requirements
2 for plants that were licensed to operate prior to
3 January 1, 1979. The qualifications associated with
4 that regulation are in 10 CFR 50-48(b). 48(b) notes
5 that not everything in Appendix R applies to the pre-
6 '79 plants. There are specific portions of Appendix
7 R that do apply as regulations. I don't know if you
8 want to go into that level of --
9 CHAIRMAN SIEBER: There are three out of
10 15 do apply.
11 MR. RADLINSKI: Right.
12 CHAIRMAN SIEBER: One is emergency
13 lighting, the other one --
14 MR. RADLINSKI: Boil containment. And the
15 other one is the post-fire safe shutdown referred to
16 here described in section III.G.
17 CHAIRMAN SIEBER: And so you don't have to
18 mention this.
19 MR. RADLINSKI: Okay. Okay. So that
20 Appendix R.
21 The SRP is for the plants licensed to
22 operate after January 1, 1979. In case anybody's
23 wondering, no plants were licensed on January 1, 1979.
24 The SRP actually includes the same
25 criteria that are in Appendix R, however they are not

1 regulatory requirements. They're used as guidance for
2 review of license applications for the post-'79 plants
3 and for subsequent submittals from licensees.
4 And finally, there have been a series of
5 branch technical positions following the Browns Ferry
6 fire. Up until this latest update of the SRP the
7 branch technical position was included as part of the
8 Standard Review Plan section 9.5.1. We've decided
9 that since the reg. guide has already included most or
10 a lot of the information that's in the branch
11 technical position, that we would just combine the two
12 and remove the branch technical position from the
13 Standard Review Plan and incorporate that into the
14 update of the reg. guide. So now everything that was
15 in the branch technical position is covered in the
16 reg. guide update.
17 CHAIRMAN SIEBER: Now just so I understand
18 it, the Standard Review Plan is not a regulation.
19 MR. RADLINSKI: That's correct.
20 CHAIRMAN SIEBER: And it does not even
21 have the status of a reg. guide. This is for the
22 Staff to use to review the fire protection program for
23 an individual licensee, is that correct?
24 MR. RADLINSKI: That's correct. It's
25 primarily an internal document. But, of course, the

1 licensees get it, they see it and hopefully they fall
2 in line with the guidance or whatever.
3 CHAIRMAN SIEBER: Well, a smart licensee
4 would follow the Standard Review Plan to make the
5 review easy.
6 MR. RADLINSKI: Right. In addition, part
7 of the Standard Review Plan are the acceptance
8 criteria for ding a review. And one of the acceptance
9 criterion is the Reg. Guide 1.189. So indirectly the
10 guidance in Reg. Guide 1.189 is applied to a licensee.
11 CHAIRMAN SIEBER: Now Appendix R at its
12 time did represent a backfit, right? You didn't have
13 lube oil protection at the time?
14 MR. RADLINSKI: Right. Right.
15 CHAIRMAN SIEBER: On the other hand, the
16 backfit rule wasn't in force then either, right?
17 MR. RADLINSKI: I don't know.
18 CHAIRMAN SIEBER: And so once you make a
19 finding that it's in the interest of the public health
20 and safety, then you can impose that by regulation.
21 And so everything that we have today is merely
22 suggesting one way to comply with things that are
23 already on the books with a couple of exceptions?
24 MR. RADLINSKI: Right.
25 CHAIRMAN SIEBER: Okay.

1 MR. RADLINSKI: That we consider to be
2 acceptable.
3 CHAIRMAN SIEBER: Okay.
4 MR. RADLINSKI: That was all I was going
5 to say about the applicability of those three
6 different documents. Are there any questions.
7 MEMBER SHACK: Branch technical position,
8 what is it, it's legal status?
9 CHAIRMAN SIEBER: Nothing.
10 MEMBER SHACK: Nothing. It's less than a
11 SRP.
12 MR. RADLINSKI: Well, it's about the same
13 level of an SRP, I'd say. Maybe we've elevated the
14 status of it by relegating it to the reg. guide. But
15 it's still not a regulation. It's not a requirement.
16 MEMBER MAYNARD: I think we'll probably
17 get into more discussion on that in a little bit. But
18 by wrapping those into the reg. guide, it is --
19 CHAIRMAN SIEBER: Well, this is one reason
20 why I went through the litany of what's referenced and
21 what's endorsed. Because by using this reg. guide
22 they have wrapped in a lot of documents that have
23 detailed instructions as to how to do things,
24 including underwriters' laboratory standards, believe
25 it or not.

1 MR. RADLINSKI:

2 MEMBER MAYNARD: Now I'll attempt a brief
3 history of fire protection regulatory.

4 In the beginning there was GDC 3 in
5 Appendix A of 10 CFR 50. It's very high level
6 requirements, regulatory requirements for a nuclear
7 plant fire protection program. It said that
8 structure, systems and components important to safety
9 must be designed and located to minimize the
10 probability and effects of fire explosions. It also
11 said that noncombustible and heat resistent materials
12 shall be used wherever practical. And that fire
13 detection and suppression systems shall be provided to
14 minimize the adverse effects of fires for structures,
15 systems and components important to safety.

16 VICE CHAIRMAN WALLIS: When you do these
17 slides in the future, would you not have this shadowy
18 bluey NRC thing in the background? It's distracting.

19 MR. RADLINSKI: Oh, the watermark you
20 mean?

21 VICE CHAIRMAN WALLIS: Yes.

22 MR. RADLINSKI: Every time we do these
23 presentations we use a different format, so it'll
24 probably not be there next time anyway.

25 VICE CHAIRMAN WALLIS: Okay.

1 MR. RADLINSKI: All right. And important
2 to safety, by the way, is one of the issues on your
3 second list, Dr. Sieber. So we'll be talking about
4 that later.
5 Also for the last bullet when GDC 3 was
6 issued there were no instructions or detailed
7 implementation guidance provided with that.
8 Then in 1075 with the Browns Ferry fire
9 everything changed, of course. That fire demonstrated
10 that there was a need for more specific fire
11 protection requirements and guidance from the Staff,
12 as well as a need for a detailed reassessment of every
13 plant's fire protection program.
14 In May of 1976 as a result of the Browns
15 Ferry fire NRC issued the first branch technical
16 position. It was Conversion System Branch, 9.5.1. And
17 that provided technical guidance for plant's fire
18 protection programs and also requested plants to
19 perform a fire hazards analysis and post-fire safe
20 shutdown analysis.
21 That particular branch position was
22 applied to plants that were issued a construction
23 permit after July 1, 1976.
24 And then in 1980 the NRC issued the fire
25 protection rule, 10 CFR 50.48 for the first time as

1 well as Appendix R, which was 48(b), as I mentioned
2 before. And that was to address a number of
3 contentious issues related to fire protection that had
4 been identified up to that point.
5 Now the fire protection rule applies to
6 all plants. But as I noted previously, Appendix R
7 only applied to plants with construction licenses
8 prior to January 1, '79, and then only three of the 15
9 major items that were in Appendix R were requirements
10 for those pre-'79 plants. And we've identified those
11 three.
12 So next slide.
13 Then in April of 1986 the Staff issued
14 Generic Letter 86-10 which provided Staff positions
15 for compliance with Appendix R. It's kind of an
16 interpretation of what we really meant by Appendix R.
17 Also 86.10 introduced a new concept of
18 standard license condition for fire protection. And
19 what the standard license condition did for any plant
20 that chose to adopt it, is give them the flexibility
21 to self-approve changes to their fire protection
22 programs based on an acceptance criteria of no adverse
23 effect on safe shutdown.
24 Moving along to the late '90s, the Staff
25 began to see a lot of LERs associated with circuit

1 issues, post-fire and safe shutdown circuits. They
2 became a focal point and was an issue and around 1997.
3 And as a result of discussions with the industry and
4 a recognition that there was not a clear understanding
5 of what the requirements were and there appeared to be
6 a lot of different approaches used by different
7 plants, the Staff or the NRC decided to implement
8 enforcement discretion. And then ultimately they
9 suspended inspections, fire protection inspections of
10 circuit related issues.
11 MEMBER MAYNARD: One thing I think needs
12 to be clarified a little bit. You talk about a number
13 of LERs being submitted. As I recall, most of those
14 LERs were submitted after some generic letters and
15 other communications came out about what the NRC's
16 expectations were that required some reviews and
17 licensees, a number of them reported things to make
18 sure they didn't get put into a position where they
19 may have a failure to report on something.
20 I don't think they necessarily found or
21 identified new things, but a lot of that resulted from
22 reviews related to generic communications coming out
23 from the NRC.
24 So, it's just a little perspective on why
25 the LERs came out.

1 MR. RADLINSKI: Okay. Based on
2 discussions that the Staff had with the industry, the
3 industry agreed to work with the NRC to try to resolve
4 these issues and come to some sort of agreement on how
5 the plant should proceed. As part of that program,
6 the industry decided to perform live cable fire tests
7 to determine the likelihood or probability of hot
8 shorts causing multiple spurious actuations.
9 Up until that point before they performed
10 these tests, the industry had the belief that these
11 were basically incredible events. That multiple
12 spurious actuations probably had such a low
13 probability that they didn't need to be considered for
14 safety. However, the tests which the report came in
15 2001 showed it just the opposite. There actually is
16 under certain circumstances certain types of materials
17 of cable jacketing and cable insulation, multiple
18 spurious actuations could in fact occur. They could
19 occur in high probability and also more importantly,
20 they could occur in rapid succession. Okay. It was
21 not the long period of such a time in between
22 actuations.
23 So as a result of those tests and as a
24 result of the plan to restart circuit analysis, the
25 Staff issued a number generic communications to

1 reflect both the test results and also to clarify what
2 our expectations were with respect to post-fire safe
3 shutdown circuit analyses.
4 CHAIRMAN SIEBER:
5 MEMBER MAYNARD: When I read the draft
6 reg. guide, I got the impression that the rules as
7 they evolved in the guidance documents and so forth
8 really came about because of three factors. One of
9 them a few events, a few fire events, Browns Ferry the
10 most significant of those. And secondly the tests.
11 And there's a wide variety of tests like thermal=lag,
12 there's a variety of barrier tests where barriers were
13 found to not perform as advertized. And also the
14 circuit testing that actually just finished last year,
15 to my knowledge, right?
16 MR. RADLINSKI: Which they're probably
17 doing additional cable fire testing --
18 CHAIRMAN SIEBER: Yes, right. Well, you'll
19 never be done testing, as I see it.
20 MR. RADLINSKI: Right.
21 CHAIRMAN SIEBER: Everything that fails
22 there comes a new substitute and then you test that,
23 and some of those pass, some fail. And we'll be doing
24 this for the rest of our lives.
25 And I guess the third factor that

1 influenced where the regulations went were analysis
2 that were done. There's been a lot of improvement in
3 analytical capability, fire modeling, that didn't
4 exist 20 years ago. And because of that we know more
5 about the conditions inside fire zones and fire areas
6 than we ever did before. And that shapes some of the
7 rules.
8 So that's really what the background of
9 all of this seems to me to be, that's where it came
10 from.
11 MR. RADLINSKI: Yes.
12 CHAIRMAN SIEBER: And every time you would
13 come out with an unexpected result, here comes another
14 LER, right? And so that's basically how the process
15 worked. And unfortunately what happens is that you
16 make the rule before you experience the phenomenon and
17 then the phenomenon doesn't trip the rule, you got to
18 change the rule and come up with new guidance.
19 MR. WEERAKKODY: Just because it's an
20 important point, let me clarify it a little bit.
21 When the rule is written we don't know all
22 the physical phonomania and details, but if you look
23 at the rules who is good enough to cover all that? In
24 fact, if you look at the rule it says the licensee
25 should consider open circuits, hot shorts, you know

1 things that aren't even in critical.

2 CHAIRMAN SIEBER: Right.

3 MR. WEERAKKODY: So it does give us the

4 envelop. So the question was, you know, how important

5 some of these things are. And that's what the 2001

6 tests revealed.

7 I don't want to come across as if we are

8 the changing rule with new information. The rule is

9 there, the rule is steady. But our focus of

10 inspections, that type of thing, does change.

11 CHAIRMAN SIEBER: Okay. And I do have a

12 specific question that I would like to ask. In the

13 guide we all know that mitigating systems are classed

14 as category 1A in the QA program and they keep all

15 kind of documents, you're required to perform tests,

16 you're required to surveil it, it has to meet certain

17 standards. And the regulatory guide and the rule calls

18 out instances where safety regs systems structures and

19 components are involved. But also in the guide you use

20 the term "important to safety." Both safety related

21 and important to safety are defined in the glossary.

22 But if you would read the definition of what important

23 to safety is, it's something related to the

24 protection of the health and safety of the public,

25 which I don't recall in any plant that I've been in

1 where you had a QA category of important to safety.

2 And so how do you pick out what's

3 important to safety? Is that just in the eye of the

4 inspector or the eye of the licensee? It's not in any

5 list. The first time it was used was by Harold Denton

6 back right after TMI.

7 MR. WEERAKKODY: I want if Phil Qualls of

8 the Fire Protection Staff, he's one person who has

9 been with the agency for 30 years, most of his time on

10 fire protection as an inspector. So he kind of lived

11 through this history. So let me ask Phil to answer

12 that question.

13 CHAIRMAN SIEBER: Okay.

14 MR. QUALLS: Yes, I went through a lot of

15 this history.

16 Can you hear me?

17 CHAIRMAN SIEBER: Yes.

18 MR. QUALLS: Okay. The terms important to

19 safety, safety related. If you start with the

20 regulation, Regulation 50-48(a) requires plants to

21 have a program that satisfies criterion 3 of Appendix

22 A.

23 CHAIRMAN SIEBER: Right.

24 MR. QUALLS: Of GDC 3. GDC 3 is an effect

25 to minimize the effects of fires and explosions on

1 systems structure and components important to safety.
2 CHAIRMAN SIEBER: Right.
3 MR. QUALLS: So the next layer, 10 CFR
4 50.48(b) defines Appendix R as one such program to
5 satisfy GDC 3.
6 CHAIRMAN SIEBER: Right.
7 MR. QUALLS: But if you go to Appendix R
8 it discusses safety related and important to safety
9 and it defines them as used in Appendix R as applying
10 to all safety functions. And then it refers to safe
11 shutdown applies to hot shutdown and cold shutdown
12 functions.
13 CHAIRMAN SIEBER: Yes.
14 MR. QUALLS: So it applies to all safety
15 functions, not limited to safe shutdown function per
16 Appendix R, but to let's say radioactive release or
17 containment functions would be other safety functions.
18 And that's why when you look at the way an Appendix A
19 -- an Appendix R program combined the old program or
20 the Standard Review Plan, what you'll find is a
21 program that satisfies. Does more than just protect
22 your capability to achieve shutdown. You'll see
23 protection for diesels. You might see sprinkler system
24 in a rad waste building, which has no effect on safe
25 shutdown. Because they're important to safety in that

1 they're protecting other safety functions.

2 CHAIRMAN SIEBER: Well, but that to me

3 seems pretty loose.

4 MR. QUALLS: It is pretty loose.

5 CHAIRMAN SIEBER: Yes. And for example,

6 if you go to look at most plants program, they do have

7 a safety related list, a Q list that says special

8 treatment requirements apply to each and every

9 component in that test.

10 In addition to that, every plant that I've

11 been at had a Category F list which was fire

12 protection related equipment; stand pipes, division

13 valves, hoses and nozzles and diesel fire pump, and

14 you know --

15 MR. QUALLS: That's very true. Because

16 Category --

17 CHAIRMAN SIEBER: But neither one of those

18 is important to safety. Important to safety is another

19 category that I don't recall being on any list

20 anyplace, nor having any special treatment

21 requirements.

22 MR. QUALLS: I have to agree with you.

23 The only place I know of a definition actually is in

24 the Appendix R verbiage, which says it applies to all

25 safety functions. But that's a general and loose use

1 of a term.

2 CHAIRMAN SIEBER: Well, the difficulty is

3 you now have regulatory guidance that says you got to

4 do things for components, structure systems and

5 components that are important to safety and you don't

6 know what they are. Or the plant doesn't know what

7 they are.

8 MEMBER MAYNARD: I think there's a comment

9 behind you there.

10 MR. RILEY: Jim Riley from NEI.

11 Just a quick statement regarding this

12 fire, this cable fire testing.

13 The industry would like to request that we

14 use some caution when we use the results of those

15 tests to come up with conclusions. It's our position

16 that that test was conducted specifically to look for

17 spurious actuations, and therefore may not really

18 represent actual plant conditions.

19 We raised this a letter we sent regarding

20 potential generic letter on circuit analysis. And I

21 don't want to go into details right now on the thing,

22 but just since the point came up, I think it's worth

23 mentioning that there are some question about how you

24 might want to use the results of that test come up

25 with conclusions in this regard.

1 And we'd like to point to what we heard
2 you guys say regarding, I believe it's called the
3 cable fire tests -- CARROLL fire test, excuse me, that
4 will be going into some evaluations of what happens to
5 cables in fire conditions. And we ought to make sure
6 we know exactly what we're dealing with from a
7 realistic point of view before we make any strong
8 conclusions.
9 MR. RADLINSKI: Okay. Thank you.
10 CHAIRMAN SIEBER: Okay. Thank you. Your
11 point is duly noted.
12 MR. WEERAKKODY: And I think the
13 Subcommittee has, we got at a later time give you the
14 factual information about whether the tests were
15 representative or not. So I suggest we move.
16 CHAIRMAN SIEBER: Well, in any event
17 getting back to the importance of safety you can see
18 why I have a concern, you know.
19 MR. QUALLS: It's not well defined.
20 CHAIRMAN SIEBER: Yes, it's not well
21 defined. And so what is and what isn't important to
22 safety is sort of in the eye of the beholder. You
23 know, it's like Reg. Guide 1.197 if it's in your
24 SAMGs, then it's part of the system.
25 MR. QUALLS: Excuse me. Those were the

words we were kind of stuck with in criterion 3.

CHAIRMAN SIEBER: I know, and that's unfortunate because that's not the only thing that's like that in this fire protection business.

MR. QUALLS: Well most of the people I work with have been reluctant to establish new definitions for terms like that. So it's still relatively undefined. But what we did and actually what does exhibit is a program where we might not define equipment important to safety, we have defined a program to protect the fire areas for things like diesels, you know, what the program requirements for fire barriers, for fire doors. And, you know, we have defined fire areas and a program to protect such equipment while we may not know what that equipment is.

CHAIRMAN SIEBER: Yes. But I keep thinking in terms of the inspector who has the regulation and who is looking at the plant and its records trying to reconcile does this plant meet the regulations, and it's not clear.

MR. QUALLS: What I can speak clearly from is an inspection standpoint, because I did that for a lot of years.

CHAIRMAN SIEBER: Yes.

1 MR. QUALLS: What an inspector will do is
2 look at the approved program. What all licensees have
3 is a licensed condition that says you shall implement
4 and maintain the approve fire protection program, and
5 then it references the letters and such that
6 constitute that approved program.
7 And what an inspector will do will look at
8 the approved program and compare it to what he sees in
9 the plant. And if what he sees in the plant does not
10 meet the approved program, that's where we start
11 getting into violations and the like.
12 CHAIRMAN SIEBER: Right.
13 MR. QUALLS: But he looks at the program,
14 not necessarily at the equipment in the field.
15 CHAIRMAN SIEBER: I'm pretty well
16 convinced we aren't going to solve this problem here.
17 MR. FRUMKIN: Well, this is Dan Frumkin of
18 the Staff.
19 I think in Appendix R 3(f) is a discretion
20 of detection. And in that section it says -- it
21 doesn't use the words important to safety. IT says
22 safety related equipment, which is well defined, and
23 fire safe shutdown equipment, which is also well
24 defined.
25 CHAIRMAN SIEBER: Right.

1 MR. FRUMKIN: And I think if you take
2 those two pieces of safety shutdown and safety
3 related, at least for practical purposes that is a
4 good bounding of what is important to safety.
5 CHAIRMAN SIEBER: I would tend to agree
6 with you, but it's not written down anyplace, right?
7 And that's the issue.
8 On the hand, we're not going to solve this
9 today. I just wanted to let you know that it's an area
10 of confusion for me. Next time you go and revise this
11 you may want to think a little bit more about it and
12 make a change. But I don't see it as holding us up
13 from getting public comments, if that's the only
14 issue.
15 So thank you. And go ahead with your
16 presentation.
17 MR. RADLINSKI: Okay. In addition to the
18 circuit issues that were being addressed, in the late
19 '90s the Staff or the Commission actually encouraged
20 the Staff to start looking risk-informed approached to
21 fire protection.
22 In March of '98 the NRC proposed to the
23 Commission that the Staff would work with NFPA and the
24 industry in general to develop to a performance-based
25 risk-informed consensus standard for fire protection

1 for nuclear plants. And if that worked out and the
2 standard acceptable, then we would write a rule to
3 endorse it.
4 So that work. And the NRC published 50-
5 48(c) in 2004 which endorsed NFPA 805, which allowed
6 licensees to voluntarily adopt the risk-informed
7 performance-based fire protection program.
8 In addition, following that we issued Reg.
9 Guide 1.205 which essentially endorsed the industry
10 guidance document for transitioning to 805 and
11 maintaining an 705 type program in the IO 402. And
12 the reg. guide, as I mentioned, the reg. guide endorse
13 that with some qualifiers.
14 And I think that's it. Yes. Next slide.
15 Okay. So that was the history, brief as
16 I could make it. Any questions about any other aspects
17 of the history of fire protection? Anything that I
18 missed that someone wants to talk about. Okay.
19 Again, as you mentioned, there's a very
20 detailed history in the reg. guide. It's still there.
21 It's been brought up to date. So you like that sort
22 of thing, it's good reading.
23 CHAIRMAN SIEBER: Yes. Good reading,
24 actually.
25 It's actually as part of the reg. guide as

1 well.

2 MR. RADLINSKI: Yes. Okay.

3 So now let's get into talking about the

4 changes that are being made to the reg. guide for this

5 latest revision. I'm going to summarize the changes

6 in this list and then I'll go into more detail of each

7 of the bullet items in subsequent slides.

8 First of all, we've had a guidance, an

9 acceptance criteria for new reactor fire protection

10 programs. We've added new guidance based on recently

11 issue generic communications. Two in particular are

12 two RISs, one having to do with a safe shutdown

13 circuit issues and the other having to do with

14 operator manual actions.

15 In addition to that, we've added new

16 guidance on post- fire safe shutdown circuit analysis

17 and multiple spurious actuations. And this bullet

18 refers to the generic letter that has not been issued

19 yet. It's with the Commission right now for a notation

20 vote. But in the meantime, the guidance that's

21 included in that generic letter is in this revised

22 draft of the reg. guide.

23 We also replaced 86.10. We're proposing to

24 replace 86.10 evaluation for new reactors with

25 reverting back to density 50.59 as the appropriate

1 process for licensees to evaluate changes to their
2 programs and to determine whether they can be self-
3 approved or not.
4 We've added guidance on the use of fire
5 PRA and fire modeling. This pretty much follows the
6 same guidance that's in Reg. Guide 1.205 for 805
7 plants.
8 And finally, we've added and clarified and
9 reclarified some of the fire protection terms, term
10 definitions in the glossary to the reg. guide.
11 MEMBER MAYNARD: Could we go about the
12 third from the last bullet there.
13 MR. RADLINSKI: I'm going to go into all
14 these in more detail if you want to wait. But that's
15 --
16 MEMBER MAYNARD: Okay. I just want to
17 bring out significant changes for new reactors versus
18 the operating reactors. Are you going to get into
19 that?
20 MR. RADLINSKI: Yes.
21 MEMBER MAYNARD: Okay.
22 MR. RADLINSKI: Okay. The guidance that we
23 added for new reactors: fire protection programs
24 included enhanced fire protection criteria approved by
25 the Commission. There are like three SECYs, I

1 believe, that describe what they refer to as enhanced
2 fire protection that they expect all the new reactors
3 to comply with.
4 Two major components of that. One is that
5 they must postulate a fire that wipes out an entire
6 redundant train in a given fire area, assuming no
7 access to the area during or after the fire and then
8 being able to demonstrate that the plant can be safety
9 shutdown as a result of that fire.
10 The other is to look at the potential for
11 smoke and heat migration from one fire area to another
12 and the potential impacts on the redundant train. And
13 prevent any adverse effects on safe shutdown.
14 We also added a discussion on the
15 applicability of industry codes. There area number of
16 NFPA codes out there right now, some of which are
17 issued, some not. There's an NFPA 804 which is a
18 deterministic-based fire protection program code. And
19 it has been issued. It has been referred to as a basis
20 for design for ES BWR and possibly AP 1000. I'm not
21 sure.
22 But NFPA 806 is in preparation, it hasn't
23 been issued yet. We've seen it and made comments on
24 it. But it's not final. And that is going to be
25 applied to a risk-informed performance-based fire

1 protection program for new reactors.

2 We've also included a discussion for new

3 reactors passive plant shutdown definition. Okay. And

4 I'll talk about that in more detail in a later slide.

5 Fire protection program implementation as

6 well, just basically the schedule for a new reactor as

7 it goes through construction and start-up, at what

8 point we would anticipate or expect the programmatic

9 aspects of the fire protection program to be

10 implemented.

11 Okay. In the update to the reg. guide we

12 make some recommendations for new reactors since the

13 new reactors are being designed from scratch. It's not

14 the same situation we had back in '75/'76 after the

15 Browns Ferry fire where lots of the plants were

16 already well under construction, had been designed,

17 some were operating. This is a case where we're

18 starting with a clean slate. The industry knows what

19 are expectations are for fire protection. So in that

20 vein we make recommendations that

21 alternative/dedicated shutdown systems should not be

22 used to any great degree. Obviously for a control room

23 fire you'd have to have some provisions for that. But

24 outside of the control fire, we would not expect to

25 see the use of that 3G3 type approach for new

1 reactors.

2 Another feature of current plant fire

3 protection programs, operator manual actions. We

4 would expect that there would be a minimal reliance on

5 the use of operator manual actions both during and

6 after a fire.

7 And finally, what we call local raceway

8 fire barrier systems, fire wraps for a cable tray in

9 a fire area to claim that it's separated from its

10 redundant train.

11 What we've seen so far in the design

12 certifications are complete separation by a 3 hour

13 firewall, so we really don't expect to see much of

14 this. There may be situations where they just can't

15 provide a complete separation.

16 CHAIRMAN SIEBER: Yes. I think there's a

17 point that should be noted at this time. We're now in

18 the process of issuing this regulatory guide and

19 probably in a few months it will be in effect. On the

20 other hand, we've certified a couple of reactor

21 designs already. And basically what you're saying is

22 rather than rely on fire barriers for a cable raceway

23 systems, you want architectural provisions. In other

24 words, stationary walls and things like that that are

25 permanent, but the designs for the AP 1000 and the AP

1 600 certified designed, ES BWR, all the architectural
2 drawings are done. And this seems to be to me like a
3 number of things. You know, you had trouble with
4 Appendix R because the plant was built before the
5 rules were made. And had problems with the various
6 technical position the same way. And now we're
7 starting it again. They're designing plants. The
8 plants are designed, they're certified, you can't
9 change them. And now we're writing the rules for them.
10 And to me we got it backwards.
11 MR. RADLINSKI: Well, I guess, now I don't
12 see that as a particular problem.
13 What I've seen, I reviewed the ES BWR. I
14 didn't review AP 1000. And they're committed to having
15 their four trains and are committed to separating
16 those four trains by hour fire barrier walls.
17 CHAIRMAN SIEBER: Okay.
18 MR. RADLINSKI: The use of fire -- a wrap
19 around a cable tray is more an issue of how you route
20 your raceway.
21 CHAIRMAN SIEBER: Yes.
22 MR. RADLINSKI: Okay? And I don't think
23 anybody has routed raceway to that detail yet. So I
24 don't think that's going to be a backfit. I mean --
25 CHAIRMAN SIEBER: That's probably true,

1 but it's not guaranteed, you know. We don't know
2 where they are in the state of the design really,
3 unless you work for that organization.
4 MR. RADLINSKI: Right.
5 CHAIRMAN SIEBER: And it seemed to me
6 that's how things got messed up, you know, 30 years
7 ago.
8 MR. RADLINSKI: Right.
9 CHAIRMAN SIEBER: The same kinds of issue.
10 MR. RADLINSKI: Okay. I worked with
11 Bechtel for 35 years and based on my experience they
12 haven't routed the cable yet.
13 CHAIRMAN SIEBER: Yes. Let's hope it's
14 not tripping the field.
15 MR. WEERAKKODY: One of the things I
16 wanted these, even though we're updating the reg.
17 guide now on this scale, several years ago, I think
18 about 4 or 5 years ago, we did an update to the
19 Standard Review Plan to basically incorporate the in-
20 house guidance that the Commission SECYs basically
21 came out and said they should be more separated. So
22 really even AP 1000 I don't know if there's anybody in
23 the Staff who has reviewed the AP 1000, I think they
24 meet all these separation requirements that we are
25 talking about today.

1 MEMBER ARMIJO: Yes. What about the ABWR?
2 That was certified many, many years ago.
3 MR. WEERAKKODY: I don't know. Does
4 anybody here -- Dan, do you happen to know anything on
5 BWR?
6 MR. FRUMKIN: Yes, this is Dan Frumkin
7 again.
8 What we're doing with this update to the
9 reg. guide and the SRP is basically documenting the
10 SECYs that were published in the early '90s. So the
11 first SECY was SECY-90-016 and approved the ABWR, I
12 believe, in 1994. So this high level guidance was in
13 place and those separation of trains without raceway
14 barriers and so forth was basically how it was being
15 designed. To use the words of the SECY it had to be
16 designed in accordance with III.G.1, which is separate
17 trains and separate areas.
18 I'll give you the CE-80+, the ABWR and I
19 think 600, AP 600 will all quote this SECY. They all
20 include that statement about III.G.1. So this
21 architectural separation was included in all of those
22 designs.
23 CHAIRMAN SIEBER: Well, I guess at this
24 date there isn't anything we can do about it, other
25 than I'm motivated to keep this moving forward because

1 I think that the time is either close or past when it
2 should have been on the street.
3 MR. RADLINSKI: And they'll have an
4 opportunity when they apply for their COL, if they
5 don't comply with this, to comply through mediation.
6 CHAIRMAN SIEBER: Yes. The later you wait,
7 you know, you can say well after they start up and run
8 a couple of years, then we'll sock it to them. I
9 don't think that works well either.
10 MEMBER MAYNARD: Well, you could run into
11 some issues with a certified design that that comes in
12 at the COL and now you expect something different. I
13 think that's analogous, yes.
14 CHAIRMAN SIEBER: You can't do that.
15 Because even the licensee isn't allowed to change
16 anything or the certification's null and void and you
17 start all over again.
18 MEMBER MAYNARD: Right. But raceway
19 routing is not part of the certified design. That's
20 not --
21 CHAIRMAN SIEBER: Well, in the AP 1000
22 they haven't decided where the pipes were going to go
23 yet, and that usually gets firmed up before the
24 routers get firmed up.
25 MEMBER MAYNARD: That's right. Exactly.

1 Yes. Yes.

2 CHAIRMAN SIEBER: Well, something to think

3 about.

4 MEMBER MAYNARD: Well, there's other thing

5 in this reg. guide, though, that go beyond just

6 architectural separation type issues, too.

7 CHAIRMAN SIEBER: Yes.

8 MEMBER MAYNARD: So we're talking about

9 that, but there's other things that might have an

10 impact.

11 CHAIRMAN SIEBER: Okay.

12 MR. RADLINSKI: Okay. Another methodology

13 that's used by current plants, some current plants to

14 avoid the possible problems with hot shorts and

15 spurious actuations is to go to a self-induced station

16 blackout.

17 CHAIRMAN SIEBER: Yes.

18 MR. RADLINSKI: So that your possibility

19 of hot shorts is minimized or reduced dramatically.

20 Again, that's something we're recommending in the --

21 CHAIRMAN SIEBER: You'd like not to do

22 that?

23 MR. RADLINSKI: Not to do it, right. We

24 wouldn't expect a new reactor to need to do that.

25 CHAIRMAN SIEBER: It's like a passive

1 plant; how do you get gravity to be the strongest
2 force?
3 MR. RADLINSKI: Right.
4 CHAIRMAN SIEBER: You blow down everything
5 else, right?
6 MR. RADLINSKI: And also we address fire
7 protection for nonpower operations, which has not been
8 a big issue for existing plants. But during plant
9 outage, maintenance. This is mainly fire prevention.
10 Okay.
11 And as I mentioned before, we're
12 incorporating the guidance that's already been issued
13 under generic communications. The first one is RIS
14 2005-30, which clarified some circuit issues,
15 terminologies, any and all it refers to and what's
16 associated circuits that terminology, how that should
17 be used. So that guidance just taken right out of the
18 RIS and rolled into the reg. guide.
19 Another one of the generic communications
20 that we're incorporating in the reg. guide update is
21 2006-10. Again, as I mentioned before, that's
22 operator manual actions. That was issued recently. It
23 basically says that you can't credit operator manual
24 action as a substitute for III.G.2 protection where
25 you have redundant trains in the same fire area

1 without an exemption, obviously.

2 CHAIRMAN SIEBER: Now, you had an operator

3 manual action rulemaking in progress. That's been

4 withdrawn, right?

5 MR. RADLINSKI: That's correct. Right. The

6 RIS was a response to the elimination of the

7 rulemaking or the cancellation of the rulemaking.

8 CHAIRMAN SIEBER: All right.

9 MR. RADLINSKI: All right. As I mentioned

10 before, the generic letter on multiple spurious

11 actuations is with the Commission for a notation vote.

12 And it was reviewed by the ACRS. It was reviewed by

13 CRGR. They agreed that it was not a new staff

14 position. Therefore, we felt it was appropriate to

15 include the guidance from that generic letter in the

16 reg. guide update whether or not the generic letter is

17 issued ultimately.

18 MEMBER MAYNARD: A clarification. CRGR.

19 The ACRS did not address the backfit issue. The ACRS

20 said that since it had been reviewed by CRGR that the

21 ACRS didn't review it?

22 MR. WEERAKKODY: That's correct. Yes.

23 MEMBER MAYNARD: Okay.

24 MR. RADLINSKI: Okay. This next issue is

25 probably the only thing that I can consider to be

1 somewhat controversial or that will be of real
2 interest to the Committee. But 50.59. As I mentioned
3 before, or as you all know, it's the regulation that
4 applies to plant changes and --
5 CHAIRMAN SIEBER: Changes and experiments.
6 MR. RADLINSKI: -- whether or not you
7 self-approve a change. 86.10, as I mentioned before,
8 introduces concept of an acceptance criteria of no
9 adverse effect on safe shutdown. Okay. But initially
10 when 86.10 was published it also said that it has to
11 be in accordance with 50.59 as well.
12 CHAIRMAN SIEBER: Yes.
13 MR. RADLINSKI: Okay. So you have this new
14 acceptance criteria plus 50.59. Well, the industry
15 wasn't real happy with that and they were successful
16 in persuading the NRC to exclude fire protection from
17 the 50.59 rule in 2000. So as we go into the new
18 phase, the new reactors the Staff believes that we
19 should go back to 50.59. We think it's appropriate.
20 We always thought it was appropriate that the fire
21 protection branch was not in favor of separating from
22 fire protection from 50.59 when it was done originally
23 in 2000.
24 This would apply to new reactors only.
25 We're not trying to backfit this to existing reactors.

1 I guess you call it a new staff position in one sense,
2 but since there's no backfit implication, no one's
3 licensed a plant yet, no one, obviously, has a plant
4 change process on the books. So it's-
5 DR. BANERJEE: So what does this imply,
6 50.-59 conforming? What would it do?
7 MR. RADLINSKI: Well, first of all, it
8 benefits. It brings the fire station back in line
9 with everything else. Okay. There now is no special
10 category, separate category that applies just to fire
11 protection.
12 DR. BANERJEE: But why did the industry
13 object at that time to it?
14 MR. WEERAKKODY: Let me.
15 MR. RADLINSKI: If someone else wants to
16 comment on that, though.
17 MR. WEERAKKODY: If you look at the fire
18 protection the license condition 86-10, it basically
19 tells the licensee that they could make changes to
20 their program as long as they show that that
21 particular change does not pose an adverse effect.
22 Okay. And when you look at the 50.59 language it's
23 somewhat similar. You know, you basically say you
24 could make changes to your plant procedures designs as
25 long as the-- you know, I can't remember the rest of

1 the terms.

2 So there was apparent redundancy in the

3 two things. So I would say NRC was easily persuaded

4 to drop the application of 50.59 because we have this

5 other oversight capability through the license

6 commission.

7 Now the reason we are proposing this, you

8 know, to put this in context, you know, we've been

9 managing fire protection changes with the license

10 conditions when the rest of the program are managing

11 50.59. So we are kind of going forward treating the

12 license condition for 50.59. So it's not like we are

13 saying for the new reactors you got to have the

14 license condition with the word adverse effect and

15 50.59.

16 What the Commission said was when the

17 Commission came back and said recently that if the

18 license condition is important to you guys, put it

19 into the rule, qualify it. And we're going back to

20 the Commission and saying, you know, as opposed to

21 putting the new license condition for fire protection,

22 we would much rather be treated like any other program

23 under 50.59.

24 DR. BANERJEE: Well, I don't still

25 understand why NEI objected to it at that time.

1 MR. WEERAKKODY: They objected because
2 NEI--
3 DR. BANERJEE: Just for redundancy?
4 MR. WEERAKKODY: Yes. Redundancy.
5 MEMBER MAYNARD: You know, why do two?
6 Why do two evaluations of two different programs for
7 the same thing.
8 MR. WEERAKKODY: You know there are
9 reasons--
10 DR. BANERJEE: So they eliminated the
11 other one, right?
12 MR. RADLINSKI: Well, they felt that the
13 new adverse effect was much more flexible and give
14 them much more flexibility for self-approving. That's
15 my own personal opinion. 50.59 is much more specific.
16 CHAIRMAN SIEBER: Yes.
17 MR. RADLINSKI: You have a whole list of
18 criteria and it replaces a new -- not greater than
19 minimal impact whereas new adverse effect on safe
20 shutdown has never really been clearly defined, okay.
21 So the industry has the flexibility to come up with
22 their own definition of that and apply it to each
23 license as they determine security. It's more
24 flexibility.
25 MR. WEERAKKODY: Yes. And I would

1 slightly couch it differently. The word "adverse
2 effect," it's not also, just like "important to
3 safety," is defining regulation. So on one hand it
4 gives flexibility, on the other hand it creates
5 uncertainty.
6 MEMBER MAYNARD: Actually it gives
7 flexibility to both the regulator and the licensee and
8 in the end the regulator wins out on that flexibility.
9 MR. WEERAKKODY: True.
10 CHAIRMAN SIEBER: Let me ask a question.
11 Now for new reactors you're going to revert to 50.59.
12 Does that mean that you will not use the Generic
13 Letter 86.10 for new reactors?
14 MR. RADLINSKI: That's correct.
15 CHAIRMAN SIEBER: Okay.
16 MEMBER MAYNARD: They would not to the
17 standard license condition aspect of it.
18 MR. RADLINSKI: Right.
19 MR. WEERAKKODY: Yes, we would not -- we
20 are proposing to get rid of the license condition,
21 yes.
22 CHAIRMAN SIEBER: Well, 50.59 asks three
23 basic questions. It's more complicated now than it
24 used to be. But, you know, as you create a new
25 accident there's a probability of an accident

1 increase, you know those kinds of questions. And they
2 really don't match fire very well, in my view. I
3 mean, you have to be creative in order to put a fire
4 issue into 50.59. You can do it, but there is an
5 advantage of using just one system for changes to the
6 plant, you know. Because you already have an
7 organizational structure to do it, you have people
8 assigned that know how to write these things and how
9 to do the analysis. And I guess it really doesn't
10 make a lot of difference what system you use. But two
11 is clearly not good. Two systems.
12 MR. RADLINSKI: And for what it's worth,
13 this is going out for public comment. Depending upon
14 the comments we get, we may change our position.
15 MR. WEERAKKODY: Yes. We are very open to
16 constructive dialogue on this with the industry.
17 CHAIRMAN SIEBER: Yes. Well, okay.
18 Moving on.
19 MR. RADLINSKI: All right. Okay.
20 Use of fire PRA and fire modeling. There
21 was quite a bit of guidance in Reg. Guide 1.205 for
22 plants that are adopting an 805 license. There's no
23 reason why that same guidance shouldn't apply to
24 plants that are not about doing 805, but want to use
25 the methodologies that we've allowed as part of 1.205.

1 DR. BANERJEE: Is that reg. guide issued
2 at the moment?
3 MR. RADLINSKI: 1.205?
4 DR. BANERJEE: Yes.
5 MR. RADLINSKI: Yes, that's been issued.
6 DR. BANERJEE: There are approvement
7 methodologies?
8 MR. RADLINSKI: Yes. I'm sorry two
9 methodologies?
10 DR. BANERJEE: Approved methodologies.
11 MR. RADLINSKI: Approved. Yes. Right.
12 Well, I should qualify that. We've
13 identified a list of fire models, okay, that we
14 consider to be acceptable.
15 DR. BANERJEE: Yes. I was at this meeting
16 which I heard them -- I thought we hadn't approved
17 that yet.
18 MR. RADLINSKI: Well, but for the fire PRA
19 we are saying that we want to see what your fire PRA
20 methodology is. The NRC wants to be able to review
21 that. Okay.
22 We're also saying it should go through a
23 peer review, okay, based on the current level and
24 different standards that the industry has in place for
25 peer reviews. And if those standards aren't adequate

1 and the NRC has the option of doing the peer review
2 itself.
3 So that's the type of guidance that,
4 again, there's no reason why it shouldn't apply to a
5 license who hasn't adopted 805 but yet wants to use
6 the same methodologies.
7 DR. BANERJEE: These are for the
8 environmental effects of fire, it's not for the
9 propagation of the fire, right?
10 MR. RADLINSKI: Well, the fire modeling
11 would be for both. But --
12 DR. BANERJEE: Well, if I understood it
13 the propagation was based on an experimental database
14 because it couldn't be predicted by models. And only
15 the affect of the fire on concentration fields,
16 temperatures and so on were predicted by the models.
17 So the actual propagation, say the panel fire,
18 whatever it is, came out of just an experimental
19 database at some point.
20 If I'm wrong --
21 MR. WEERAKKODY: No.
22 CHAIRMAN SIEBER: No. The fire PRA does
23 different things.
24 DR. BANERJEE: Yes.
25 CHAIRMAN SIEBER: Actually fire modeling

presumes you already have an ignition source --

DR. BANERJEE: Right.

CHAIRMAN SIEBER: -- and combustible material and you have a defined space with a certain ventilation factor.

DR. BANERJEE: It has a heat related--

CHAIRMAN SIEBER: And that tells you how hot it's going to get, how fast it's going to spread, what happens to the oxygen level, you know, we'll say megawatt hour energy generation rate. Whereas as the fire PRA says what's the chance of me even getting an ignition source? What's the chance of having a transient combustible here? You know, and looks at all these things as probabilities without necessarily -- or what's the probability that my sprinkler system is going to work, or the detectors will respond in time. That's something you can calculate. But those are the kinds of things you're modeling in a fire PRA. And that tells you where you ought to put your attention.

MR. RADLINSKI: And also if you remember the discussions we had before. The first modeling is more of an input to the PRA, the risk analysis. And fire modeling by itself is not an acceptable method of demonstrating that everything is okay.

1 Yes, you can use it, but you still could
2 do a risk analysis on top of it.
3 MEMBER SHACK: But there were two parts of
4 the fire model. And most of the things we were
5 discussing before assumes you had source term.
6 MR. RADLINSKI: Yes.
7 MEMBER SHACK: Which I think is what
8 Professor Banerjee was referring to. The source term
9 was a given and then you did the rest of the fire
10 model after that. But in the real world you have to
11 come up with the source term, too.
12 MR. RADLINSKI: Right.
13 MEMBER SHACK: And so there's errors in
14 both of those. You know, we've done a god job now with
15 the errors given the source term, but you still have
16 your other problem of the source term.
17 CHAIRMAN SIEBER: Yes. In fire modeling
18 you're really to calculate things like do the wires
19 fail or do the sprinklers go off or does the heat
20 detector work; that kind of stuff.
21 DR. BANERJEE: Now what isn't there, at
22 least from what I saw, was the interaction between
23 various things and as we call up the source term,
24 because that's in some way fixed. And it's emulated
25 by, say, setting fires in validation. I mean, people

1 have used fuel, for example, of some sort, burn
2 something and got the source term. But it's not
3 really, say, a cable fire that's providing the source.
4 You know, that's not the sort of experiment that's
5 been done.
6 That's been done quite separately. So
7 there are no interactions like with the ventilation,
8 sprinkler or whatever.
9 Did you understand --
10 MR. WEERAKKODY: I understand, Professor
11 Banerjee. I feel like I don't want to relive the
12 presentation on NUREG- 18.24.
13 DR. BANERJEE: Yes. I don't want to get
14 into the--
15 MR. WEERAKKODY: Yes, because it's going
16 to exceed my technical capabilities.
17 DR. BANERJEE: This seems sort of a
18 sideline too.
19 MR. WEERAKKODY: Yes. But I think we rely
20 on the
21 Office of Research to deal with those tools. And they
22 keep improving them. And the question is at any given
23 time are we comfortable enough with the knowledge of
24 uncertainties to go forward.
25 And I know I was here for the 18.24 and

1 what I said at that time was that yes, these have
2 uncertainties. There's a number of unknowns,
3 questions. But we can manage to make reasonable
4 decisions.
5 DR. BANERJEE: Yes. I think that's a true
6 statement.
7 MR. WEERAKKODY: Yes. Okay.
8 MR. RADLINSKI: All right. I think we've
9 covered all the bullets on this except perhaps the
10 last one. And we did add a reference to NUREG/CR-6850
11 and also to the draft ANS standard on fire PRA as
12 being acceptable for PRA methodologies.
13 CHAIRMAN SIEBER: I had a question about
14 fire models. We had a presentation where we went
15 through a bunch of fire models. It was a new reg and
16 it was a V&V program.
17 MR. WEERAKKODY: Yes. Yes.
18 CHAIRMAN SIEBER: This standard says you
19 can use those within it's prescribed ranges and
20 applicability and claim credit for the V&V that the
21 agency and its partner, EPRI, has done or you can do
22 your own. You can have your own model.
23 What will the agency do to validate any
24 attempt by a licensee or a group of licensees or
25 anybody to validate and verify new modeling techniques

1 that aren't in that group of five that the agency has
2 already done? What will you do?
3 MR. WEERAKKODY: I don't --
4 CHAIRMAN SIEBER: You say that it's
5 permissible provided you meet all these constraints.
6 I wondered how you could do it?
7 MR. WEERAKKODY: I got to start by saying
8 it's highly unlikely that when we have five V&V
9 modeled out there, the industry is going to the sixth
10 one. But let me answer the question.
11 If they do, the regulations tell us that
12 it may not be acceptable to us and we may not accept
13 it.
14 I can talk in general. The typical process
15 we do to approving methods is using the topical
16 courses, okay. They could submit the method, pay us to
17 review it and get it reviewed and accepted.
18 So that's why I said why would anybody
19 want to go that expensive uncertain route when there's
20 five certain routes.
21 CHAIRMAN SIEBER: Well, maybe they don't
22 like the answer they got out of the five models they
23 have.
24 MR. WEERAKKODY: Well --
25 CHAIRMAN SIEBER: That's why you go to the

1 sixth.

2 MR. WEERAKKODY: Well, I think in fire

3 protection if you have to, at least from a regulatory,

4 NRR's perspective, if you're at a point where you have

5 sharpened your pencil with five models and you need a

6 sixth model, we would take the position that we don't

7 have reasonable assurance that you are better of being

8 a -- I mean, we see -- I mean what we do on the NRR is

9 we have in the fire protection program a couple of

10 fire modeling experts. So when the inspectors have

11 issues like this and they are in that challenging

12 border they come to us, and we give them guidance on

13 a case specific basis.

14 CHAIRMAN SIEBER: But I could see why

15 somebody would want to come up with a model of their

16 own. You know, if you had a room full of thermal

17 plastic cable insulation, for example, and your fire

18 model said the temperature got too high and this stuff

19 comes to mush and you get all kinds of shorts and

20 grounds, you would like to have either not have the

21 fire or have a model that says temperature never gets

22 that high.

23 MR. WEERAKKODY: It could be an expensive,

24 risky proposition for the licensee to go that route.

25 CHAIRMAN SIEBER: Yes.

1 MR. WEERAKKODY: But they might in fact
2 based on the popular experiences. Those are the
3 circumstances where they would basically withdraw
4 their request and do a MOD.
5 DR. BANERJEE: In any case I suppose you
6 could turn to NIST who seems to be supplying you with
7 a lot of the expertise in this area.
8 CHAIRMAN SIEBER: Yes, that's one of the
9 model sets.
10 MR. WEERAKKODY: We would go to the Office
11 of Research, who might in turn go to NIST, yes.
12 DR. BANERJEE: Yes.
13 MR. WEERAKKODY: Yes, we wouldn't on
14 complex issues like that, NRR will basically ask
15 Office of Research to support us.
16 CHAIRMAN SIEBER: All right. Any other
17 questions on this? If not, why don't we move on.
18 MR. RADLINSKI: Okay. And then the last
19 significant change we made to the reg. guide was to
20 add some additional definitions and clarify some of
21 the existing definitions for clarification terms that
22 we consider not to be well defined currently. Those
23 definitions are based on regulatory requirements,
24 staff positions and common usage.
25 Now, I say "common usage," they also have

1 to be in accordance with regulatory requirements.
2 Something that's just in common usage by the industry
3 that the NRC doesn't agree with would not become a
4 definition that we would include in the reg. guide.
5 Some of the newly defined or clarified
6 terms include any and all that related to circuit
7 analyses, emergency control stations, fire protection
8 system, mitigate, one at a time, operation manual
9 action, post-fire safe shutdown circuits, redundant
10 train system and success path.
11 CHAIRMAN SIEBER: When you talk about
12 mitigate in terms of fire protection you're really
13 talking about putting the fire out?
14 MR. RADLINSKI: No. Actually it's more of
15 looking at spurious actuations that cause some
16 function to occur that you don't want to occur.
17 CHAIRMAN SIEBER: Yes.
18 MR. RADLINSKI: So that you have to go out
19 and mitigate the possible consequences of that.
20 CHAIRMAN SIEBER: Like cut off the power
21 supply?
22 MR. RADLINSKI: Right.
23 CHAIRMAN SIEBER: Okay.
24 MR. RADLINSKI: Yes.
25 CHAIRMAN SIEBER: Yes. I wondered a little

1 bit about that because, you know, when you look
2 through all these fire models there isn't any model
3 that I know of anyplace that tells you how many
4 sprinklers will put the fire out.
5 MR. RADLINSKI: Yes.
6 MEMBER MAYNARD: Mitigation is aimed more
7 at protecting the plant transient from getting out of
8 hand.
9 MR. RADLINSKI: Right. Mitigate the bad
10 things that happen in the event of the fire so that
11 you can safely shut the plant down.
12 CHAIRMAN SIEBER: Okay.
13 MR. RADLINSKI: Okay. Now let's move on to
14 the Standard Review Plan. As I mentioned earlier, we
15 took the branch technical position detailed guidance
16 out of the SRP and put it into Reg. Guide 1.189.
17 We expanded the review guidance for new
18 reactors.
19 We had reference to there's going to a new
20 SRP section for 805 plants that's in preparation right
21 now. The review guidance for 805 plants is not
22 currently in this update that we've been discussing
23 today, the SRP section.
24 We provided very similar guidance to
25 what's in the reg. guide for fire modeling and PRA

1 methodologies.

2 We expanded review guidance for license

3 renewal applications. There was already some guidance

4 in the SRP. We've just added onto that. And also

5 added, brought up to the date the reference section to

6 include any new references that were included in the

7 last version.

8 MEMBER MAYNARD: A quick question. I need

9 to go back. Reg. Guide 1.189, if and when it gets

10 issued, does that become a requirement for existing

11 plants?

12 MR. RADLINSKI: No.

13 MEMBER MAYNARD: The leading branch

14 technical position and incorporating it into 1.189,

15 where does that leave some of the current plants that

16 would not have --

17 MR. RADLINSKI: Well their standard, their

18 fire protection license basis could include compliance

19 with that branch technical position or a commitment --

20 MEMBER MAYNARD: I guess it's more of a

21 legal questions than anything else.

22 MR. RADLINSKI: Right.

23 MEMBER MAYNARD: If you delete a branch

24 technical position --

25 MR. RADLINSKI: We're not deleting it from

1 the plant license basis.

2 MEMBER MAYNARD: Okay.

3 MR. RADLINSKI: It's still there.

4 MEMBER MAYNARD: Okay.

5 MR. RADLINSKI: And they still have to

6 comply with it.

7 MEMBER MAYNARD: So you're not deleting it

8 as much as no longer apply --

9 MR. RADLINSKI: Moving it from one place

10 to another and it still applies.

11 MEMBER MAYNARD: Okay

12 MR. RADLINSKI: We wouldn't be that nice.

13 What to say about this? I've already

14 said. We deleted the branch technical position. A lot

15 of the guidance that was in the branch technical

16 position was overlapping with what was in the Reg.

17 Guide 1.189. So we just made it simpler so that

18 everything is one place. And most of the other SRPs

19 don't have branch technical positions with them. So

20 it's bringing the fire protection SRP more in line

21 with the others.

22 New review guidance for new reactors. We

23 provide risk insights for new reactor fire protection

24 programs. There's a section on a bulletized list of

25 features of new reactors that make them a lot less

1 risky from the standpoint of fire and how the fire
2 contributes to the overall plant safety then existing
3 plants. So we added that to the SRP, which is for
4 reviewer guidance so that the reviewer can keep that
5 in mind as they do their reviews.
6 We also added additional guidance for
7 review of ITAAC, the combined license applications and
8 the programmatic features of the fire protection
9 program.
10 We added review interfaces within NRC
11 between the fire protection branch and other related
12 branches.
13 We referenced the current draft guide, the
14 1145 which is for COL applications as applicable.
15 And we expanded the guidance for reporting
16 evaluation findings, which is the standard section in
17 the SRP sections. We just elaborate on what's required
18 in those sections.
19 We also added the new references that are
20 now applicable to new reactors that weren't included
21 in the last version of the review plan. We added
22 guidance for fire protection systems that provide
23 backup to safety related systems. Okay. These are
24 just like any SPWR where the fire protection is relied
25 upon to provide a backup source of make up water to

1 the shutdown cooling systems. Okay. It's fairly high
2 level guidance, but we identified the potential there
3 and provide some guidance.
4 We've identified alternative designs that
5 have been accepted by the Staff. AP 1000, NES PWR
6 both took some exception to the guidance or the
7 criteria in Reg. Guide 1.189. For example, for the
8 fire protection provided in the main control room.
9 1.189 says you should provide fire suppression
10 protection underneath the raised floor of the control
11 room. Both of these standard designs took exception to
12 that and the Staff accepted that exception with the
13 proviso that it be based ont he fire hazard analysis.
14 meaning that if it turns out that there a lot of
15 combustibles under that floor, then they've got to
16 reconsider that exception. But based on what we know
17 of new reactors versus current reactors, we don't
18 anticipate a lot of cabling underneath the control
19 room floor. So we felt that suppression systems were
20 not all that important.
21 CHAIRMAN SIEBER: It would be a gaseous
22 suppression system?
23 MR. RADLINSKI: Well the licensees are
24 reluctant to use that where you have an occupied area.
25 It's --

1 CHAIRMAN SIEBER: I don't understand that.
2 You got to ring the bell.
3 MR. RADLINSKI: I would think they would
4 use a mist system, which would probably be better.
5 CHAIRMAN SIEBER: Maybe it's in the
6 control room.
7 DR. BANERJEE: Mist or halon, or what
8 would they --
9 MR. RADLINSKI: No, water mist.
10 DR. BANERJEE: Water mist.
11 MR. RADLINSKI: A very fine high pressure-
12 -
13 CHAIRMAN SIEBER: Wear your boots.
14 VICE CHAIRMAN WALLIS: They have shorter
15 raincoats everywhere.
16 CHAIRMAN SIEBER: Right.
17 MR. RADLINSKI: It shouldn't be any
18 terminations there, it should just be cable.
19 And provide guidance review of fire
20 protection systems protecting areas that do not
21 contain safety related structure systems and
22 components. ES PWR, the diesel generators they say
23 they're not safety related, they're not required for
24 safe shutdown. Okay. But yet they're a significant
25 fire hazard. So we felt it was appropriate to have

1 some sort of guidance for the reviewer to look at what
2 level of fire protection is provided in those areas.
3 CHAIRMAN SIEBER: Well, generally
4 nonsafety related areas of the plant you end up with
5 fire protection features in those areas anyway because
6 the insurance company makes you put them in.
7 MR. RADLINSKI: Right. Right.
8 CHAIRMAN SIEBER: And they have their own
9 inspector.
10 MR. RADLINSKI: Right.
11 CHAIRMAN SIEBER: And their inspector is
12 just as tough as your inspector.
13 MR. RADLINSKI: True.
14 CHAIRMAN SIEBER: Yes, because they do
15 work together.
16 MR. RADLINSKI: Right. But we didn't want
17 to rely on that, assume that that was necessarily the
18 case.
19 CHAIRMAN SIEBER: Yes. But you should not
20 care if somebody's warehouse burns down. Insurance
21 companies should care and the licensee should care.
22 MR. RADLINSKI: Right. But we only care if
23 that fire could cause an exposure fire that could
24 affect adjacent and make shutdown.
25 CHAIRMAN SIEBER: Right.

1 MR. RADLINSKI: I mean that's basically
2 what the guide does. That's all.
3 There was an Appendix A that addressed
4 supplemental fire protection review criteria for
5 shutdown, decommissioned reactors. We took that out
6 because it's covered in Reg. Guide 1.191. There's no
7 reason to have it in both places. So that was
8 eliminated.
9 CHAIRMAN SIEBER: Yes, but you have a
10 section in here that talks about shutdown and
11 decommissioning?
12 MR. RADLINSKI: Yes, we do. There's a
13 whole--
14 CHAIRMAN SIEBER: But it's woven into the
15 text.
16 MR. RADLINSKI: Yes. But there was a whole
17 appendix that just basically repeated everything that
18 was in the reg. guide. So we took that out.
19 Again, updated the guidance on the use of
20 fire modeling and probabilistic methodologies for non-
21 NFPA 805 plants. It's a lot of repetition. It's in
22 both places, really, the reg. guide and the SRP
23 because we felt it's quite important. You know, an
24 important feature to --
25 CHAIRMAN SIEBER: You're going to deal

1 with that appendix on PRA, fire PRAs later?

2 MR. RADLINSKI: Yes.

3 CHAIRMAN SIEBER: Go into detail and talk

4 about it?

5 MR. RADLINSKI: I'll talk about that

6 later.

7 And in reference to the new SRP section

8 that I mentioned before, that's going to be for 805

9 plants and we expanded a review guidance for license

10 renewal applications. There was already an appendix

11 for that, we just added some additional guidance based

12 on what we've learned from the last time we issued the

13 SRP.

14 CHAIRMAN SIEBER: Okay.

15 MR. RADLINSKI: Okay. That ends the

16 discussion on the changes, identifying the changes to

17 both the reg. guide and the SRP. Back to the list of

18 issues that Dr. Sieber wanted to talk about. Wanted to

19 talk about, the first one being backfit implications.

20 Okay.

21 From our perspective there are no new

22 staff positions applicable to existing reactors

23 included in the update of either the SRP or the reg.

24 guide. Okay.

25 I,mentioned adding the clarifications, the

1 regulatory clarifications for circuit issues and
2 things like that. Those have all been issued before.
3 They've all gone through the CRGR. So we're not
4 adding anything that would be a backfit, would have
5 backfit implications to an existing plant or a new
6 staff position.
7 CHAIRMAN SIEBER: Let me ask a question in
8 general. I agree with you that I really didn't see
9 any backfits in there. But if you write a regulation
10 that's very general in nature, sort of a generic
11 regulation, then you write some kind of a regulatory
12 guide or other guidance document that says here's the
13 way you should interpret this regulation and here's
14 the kind of things you should do. And then after you
15 issue that, comes an event. And the event looks like
16 it's covered by the regulation, but it's different
17 than what you described in the last regulatory
18 guidance that you issued.
19 If you revise the regulatory guidance to
20 include issues that arose in the new event and
21 therefore result in a broader interpretation of the
22 regulation, is that a backfit or not?
23 MR. WEERAKKODY: It is.
24 MR. RADLINSKI: Yes. Yes, it is.
25 MR. WEERAKKODY: If a plant has committed

1 to comply with the regulation using a particular reg.
2 guide, and if in that reg. guide a particular term is
3 defined such-and-such, and then you change it to give
4 a different meaning, it is a backfit. But there's
5 another case.
6 Sometimes the regulations are kept very
7 general and some issues are not specifically designed
8 in the reg. guide. Okay. Now some new information
9 comes in and the Staff goes out and say, you know,
10 clarifies something that has not been committed to by
11 a licensee. Then it doesn't necessarily considered a
12 backfit.
13 CHAIRMAN SIEBER: Well, let me give you an
14 example just to make sure I got it right.
15 MR. WEERAKKODY: Yes.
16 CHAIRMAN SIEBER: Let's say that you have
17 a regulation that says you have to consider hot shorts
18 and grounds and open circuits. But you haven't really
19 done any testing yet and you have a fire someplace
20 that you got a couple of spurious actuations, you
21 know, one here and then 10 minutes later another one
22 over here. And so you wrote regulatory guidance that
23 says you got to analyze this and have a way to
24 mitigate it.
25 And then you go and do some cable testing.

1 And you find out the whole cable tray goes bad on you,
2 it cracks, the insulation melts, you got hot shorts,
3 grounds, open circuits coming out your ears all at the
4 same time. And you say I got a change to the
5 regulations, I got to change the way of analysis, I
6 got to change the way to interpret this in order to
7 have it match the situation that evolved when I was
8 testing it. Is that a backfit?
9 MR. RADLINSKI: But you're not changing
10 the regulation. You're adding more --
11 CHAIRMAN SIEBER: No, you aren't.
12 MR. RADLINSKI: -- detail to it and you're
13 adding another level of detail to the regulation.
14 CHAIRMAN SIEBER: So that's not a backfit?
15 MR. WEERAKKODY: No.
16 MR. RADLINSKI: You haven't changed the
17 regulation.
18 MEMBER MAYNARD: I would disagree with
19 that. And it really depends on some of the specific
20 examples. That most of the regulations are not as
21 clear. I mean, there's a little bit of bigger picture
22 in the regulations.
23 CHAIRMAN SIEBER: Yes.epoxy
24 MEMBER MAYNARD: The bottom line if you
25 take a look at the history on the backfit, take a look

1 at the justification for it and take a look at the
2 rule itself, it says that basically even though it's
3 something that is covered by the regulations, that if
4 later you find out that something had previously been
5 considered less than credible is now credible, you
6 still have to go through the backfit analysis.
7 CHAIRMAN SIEBER: You do?
8 MEMBER MAYNARD: Yes.
9 MR. WEERAKKODY: I -- let me --
10 CHAIRMAN SIEBER: Well, the Staff says
11 you're done.
12 MR. WEERAKKODY: No. I gave you a kind of
13 -- let me stay away from -- because if there is an
14 issue, that's under Commission deliberation right now.
15 And I could repeat some of the stuff we said at the
16 CRGR meeting if you want us to. But--
17 CHAIRMAN SIEBER: No. All I want to do is
18 to have you answer the question. Would you go do a
19 backfit analysis or not based on those circumstances
20 as I told you and you know?
21 MR. WEERAKKODY: The specific
22 circumstances you described first, under those
23 constraints, yes it is a backfit. And I want to make
24 it clear. The rule there. There is a reg. guide and
25 it defines particular terms.

1 CHAIRMAN SIEBER: Yes.

2 MR. WEERAKKODY: And a licensee says I

3 plan to meet your rule using this reg. guide.

4 CHAIRMAN SIEBER: Yes, operator manual

5 actions he's going to --

6 MR. WEERAKKODY: Now if we go and

7 redefine, it's a clear backfit. And I could go into

8 this discussion because I've been following issue and

9 listen to presentations by Vincent & Straun.

10 Really, you know, you get into the legal

11 question now what is a Staff position. Okay. And

12 that's not defined.

13 CHAIRMAN SIEBER: Yes. Yes. That's right.

14 MR. WEERAKKODY: Because no regulation

15 defines what a Staff position is. And even if you

16 speak to a lawyer from the industry, they would say

17 that, yes, that's an issue. You know, the fact that

18 it's not will define it's an issue. But because the

19 Staff has the oversight responsibility, eventually

20 when there are questions on that, the Staff can

21 basically say, you know, make some judgments on that.

22 And then that's in general where things are.

23 But, again, I would much rather, you know,

24 because really we are waiting for some feedback from

25 the Commission. So I would rather not, you know.

1 MEMBER MAYNARD: And I think, you know,
2 there will be debates over what is and what's not a
3 backfit for some. But I think the Staff is too
4 reluctant to do a backfit analysis. Rather than
5 argument about it, I think it would be better to do
6 one. Because if you can't pass the criteria for it, if
7 it's really not of significant benefit to justify
8 doing the change and stuff, you probably shouldn't be
9 doing it.
10 CHAIRMAN SIEBER: Well, the backfit rules
11 to me is pretty clear as to the burden the Staff has
12 to meet. In order to impose a backfit where the cost
13 benefit doesn't show it effective, cost effective.
14 MR. WEERAKKODY: Again, the OGC lawyer is
15 not here. But if you look at the compliance exemption
16 of the backfit rule, if a particular issue needs to be
17 applied to comply with the regulation, then that
18 should be proceeded. Because while the final -- that
19 legal folks tell us is if you have regulatory
20 requirements you can't say well it's a regulatory
21 requirement but the licensee doesn't have to meet it
22 because it doesn't add value to safety. Okay.
23 Now, there are judgments made in terms of
24 how you want to -- what we going to pursue, what we
25 want to enforce. But there is no lawyer who tells me

1 hey open circuits don't happen, so therefore you don't
2 have to consider it because that's spelled out in the
3 regulation.
4 It's a dilemma, but I don't think they
5 are-- you say that at every instance that the Staff
6 has to go and do core damage frequency calculation and
7 show a great than 10 to the minus 5 benefit, that
8 would not be a correct interpretation of the -- I'll
9 just leave it at that. This is not area expertise.
10 I've been learning it from the lawyers.
11 CHAIRMAN SIEBER: Generally speaking we do
12 not spend a lot of our time doing backfit analysis or
13 checking on the Staff's backfit analysis. On the
14 other hand, occasionally there comes an issue where it
15 becomes of interest to us because it determines
16 whether you issue a rule or a reg. guide or something
17 like that or not.
18 MEMBER MAYNARD: Agreed. Well, it also
19 impacts where both the Staff --
20 CHAIRMAN SIEBER: I would like something
21 more clear cut than the issues that seem to be coming
22 up --
23 MEMBER MAYNARD: It also depends on where
24 the staff and the licensee end up spending their
25 management and money and stuff. A lot of times there

1 are better things from a safety standpoint to be done.
2 So I think the backfit process is important.
3 I think NEI I think has probably a comment
4 behind you.
5 MR. RILEY: Thank you. Jim Riley again.
6 And I'll keep this short, too.
7 Let's just suffice it to say the industry
8 does not agree with the Staff's position on whether
9 this is a backfit or not. And we're looking forward
10 to a chance to comment on this reg. guide and engage
11 the Staff on a relative position on whether this is or
12 isn't.
13 But you're right. This isn't the venue to
14 discuss it right now, but we would really like an
15 opportunity to do so in the future.
16 CHAIRMAN SIEBER: Yes. Actually, I wanted
17 to discuss it to the extent that I understand what's
18 happening. And I think we've done that in this area.
19 And that gives us plenty of motivation to put the rule
20 out for comment.
21 MR. RIDGELY: John Ridgely, from the
22 Office of Research.
23 I'd like to go back to basics.
24 CHAIRMAN SIEBER: Okay.
25 MR. RIDGELY: The basics is licensees have

1 to meet the regulation. A regulatory guide is one
2 means that have been found acceptable by the Staff to
3 meet those regulations. If a reg. guide now is found
4 at some future date to be inappropriate, for whatever
5 reason, and a now licensee has relied upon that reg.
6 guide to meet the regulation, then the general
7 practice is to go back to the license and say well,
8 you know, this regulation is no longer an acceptable
9 way of meeting -- I mean, this reg. guide is no long
10 an acceptable way of meeting the regulation. So how do
11 you meet the regulation if you are not going to rely
12 on that reg. guide?
13 CHAIRMAN SIEBER: Go withdraw the reg.
14 guide.
15 MR. RIDGELY: Well, that would be the
16 precursor to withdrawing the reg. guide, for example.
17 But if something were to be changed and you needed
18 added to it because of new information, then you could
19 follow the same process again. So the reg. guide
20 would then would not necessarily be a backfit or
21 changing it because it's just one acceptable means of
22 meeting the regulation.
23 CHAIRMAN SIEBER: Okay. Thank you.
24 Moving on.
25 MR. RADLINSKI: Okay. The third bullet

1 we're still in backfit implication. The third bullet
2 area, as I've said before, that existing plants do not
3 need to comply with the updated reg. guide. It would
4 be strictly voluntary.
5 The imposition of 50.59 on new reactors,
6 even though you might consider it a new Staff
7 position, it's not a backfit as we've said since no
8 licenses have been issued as yet.
9 Okay. Backfit analysis and CRGR review.
10 Let's see, we probably covered all this. No backfit
11 analysis has been performed.
12 The original Reg. Guide 1.189 took the
13 similar approach, again, since it was a voluntary
14 implementation. Licensees had the option of
15 voluntarily implementing it or complying with it. It
16 wasn't considered appropriate or necessary to have a
17 backfit analysis.
18 And then I've just quoted what statements
19 were made in the original reg. guide with respect to
20 the backfit analysis.
21 CHAIRMAN SIEBER: Okay. I think this is
22 would be a, since we're changing subjects right here,
23 this would be a time to take a short break. I think
24 15 minutes would be good. If we can come back at 10
25 minutes until 4:00 and we'll start right here on page

1 25.

2 And we're more than halfway done.

3 (Whereupon, at 3:38 p.m. off the record

4 until 3:54 p.m.)

5 CHAIRMAN SIEBER: I think we'll all now

6 come to order.

7 MR. RADLINSKI: All right. The next topic

8 is use of risk-informed methods for non-805 plants.

9 Remember that the SRP updates that we're talking about

10 today and the reg. guide both refer to non-805 plants

11 only. Okay. There's a separate reg. guide for 805

12 plants, there will be a separate SRP section for 805

13 plants.

14 Other that, these three bullets that we've

15 already talked about that made the reference to reg.

16 guide 1.174 we identify the acceptance criteria and

17 the guidance that plants should use, should follow in

18 the event that they want to use risk-informed methods

19 for an exemption request or whatever.

20 Was there something additional that you

21 wanted to talk about?

22 CHAIRMAN SIEBER: I think you ought to go

23 through things like qualifying the -- you don't have

24 to full fire PRA in order to use risk information to

25 support specific applications under this regulatory

1 guide.

2 MR. RADLINSKI: That's true.

3 CHAIRMAN SIEBER: On the other hand, you

4 have to have pieces of the fire PRA in order to take

5 advantage of this and those pieces require some

6 qualifications of your method. I think you could

7 discuss what those qualifications of methods are.

8 MR. RADLINSKI: Okay. And I do that in one

9 of my later slides.

10 CHAIRMAN SIEBER: All right.

11 MR. RADLINSKI: All right. Next slide.

12 Okay. Compliance expectations. I think

13 we've talked about most of these. Again, it's a

14 voluntary acceptance for the guidance. For an existing

15 plants there's no requirement that they comply.

16 MEMBER MAYNARD: Real quick on that. Were

17 plants going for extended power or not extended power

18 but for --

19 CHAIRMAN SIEBER: License renewal.

20 MEMBER MAYNARD: -- license renewal

21 MR. RADLINSKI: Yes.

22 MEMBER MAYNARD: How does this impact

23 those going for license renewal?

24 MR. RADLINSKI: It will be used as a basis

25 for the review, okay. We can't impose it. We can't

1 say it's a requirement that you must meet. But we can
2 question why they are not meeting the guidance, the
3 acceptance criteria in these documents.
4 CHAIRMAN SIEBER: I guess the most
5 important thing in the section that you wrote is the
6 fact that you have to include items structure systems
7 and components that are not active as part of the
8 scoping for the license renewal process.
9 MR. RADLINSKI: Right. Subject to the
10 aging management program.
11 CHAIRMAN SIEBER: Yes. And to me that's
12 probably the key issue is to make sure that the reg
13 things are in scope and the draft regulatory guide
14 does address that. It addresses the need to do it. It
15 doesn't tell you how to do it.
16 MR. WEERAKKODY: I do agree with you said
17 they were. What they're doing, the license renewal
18 space is when you do an application, we go print out
19 the licensing basis of the plant. And that's a
20 compilation of their safety evaluation we proposing
21 fire protection. That's our guide. Not the reg. guide.
22 MEMBER MAYNARD: And one other thing in
23 reading this clearly for the existing plants it talked
24 about I think plants prior to '79 had to get an
25 exemption --

1 MR. RADLINSKI: For the three aspects of
2 Appendix R that they're required --
3 MEMBER MAYNARD: And with this they would
4 still be required to get an exemption. I'm just not
5 real clear on that.
6 MR. WEERAKKODY: That's correct. Because
7 they still be subject to the rule III.G for Appendix
8 R. They were backfits to those. That doesn't change
9 the reg. guide either.
10 MEMBER MAYNARD: Okay. But it's only if
11 they decide to adopt this Reg. Guide 1.189 that they
12 would have to ask another exemption or --
13 MR. WEERAKKODY: I don't see why anybody
14 would, okay.
15 MEMBER MAYNARD: All right.
16 MR. WEERAKKODY: In fact, you know, Phil,
17 you will correct me if I'm wrong, even become Reg.
18 Guide 1.189 I don't know of any plans we have
19 committed. So, and that's been in place in for several
20 years. But if -- a higher answer is if they're
21 changing their program and if they're effecting III.G,
22 then they need to come for an extension.
23 MEMBER MAYNARD: Okay. would you expect
24 any of the current plants now to commit to the Reg.
25 Guide 1.189?

1 MR. WEERAKKODY: I don't.

2 MEMBER MAYNARD: Or this version of it?

3 MR. WEERAKKODY: I don't know.

4 MEMBER MAYNARD: Well, basically this is

5 just being done for the new plants?

6 MR. RADLINSKI: Going forward an exemption

7 request is sent in, a license amendment request, the

8 reviewer will use this guidance if it applies for that

9 particular exemption or license amendment as just a

10 baseline for comparison, just to evaluate whether the

11 Staff believes what they're proposing is acceptable.

12 MR. WEERAKKODY: Yes. It's more like

13 raises a flag. If I'm an inspector, if I'm a reviewer

14 and if I find that a particular plant doesn't meet a

15 particular criteria, that's kind of like raising a

16 flag, you know, I should look at this a little bit

17 further. But they should not be making a final

18 determination on the compliance without looking at

19 that plant's licensing basis, which is the compilation

20 of their Safety Evaluation Reports.

21 Is that correct, Phil? Okay. Yes, Phil

22 Qualls is basically my consultant. He's been here for

23 like 25 years or so.

24 MR. RADLINSKI: And the last bullet with

25 respect to new reactor, we do expect them to comply

1 with the updated versions of the SPR and the reg.
2 guide. But, again, it's not a regulation. It's just
3 one acceptable approach. But it'll be used as our
4 basis for whether or not we consider their program
5 acceptable.
6 CHAIRMAN SIEBER: One of the areas that I
7 suspect that you might discuss when we talk about your
8 compliance expectations is the area of exemptions.
9 For example, when you initiated the operator manual
10 action rulemaking, the idea there was to provide a
11 codified rule that would allow one to judge when,
12 where and to what extent operator manual actions would
13 be allowed, thus avoiding the requirement to seek
14 exemptions.
15 MR. WEERAKKODY: That's correct.
16 CHAIRMAN SIEBER: Now the rule is
17 withdrawn and so exemptions are required.
18 MR. WEERAKKODY: That's correct.
19 CHAIRMAN SIEBER: And then there's
20 statements in this regulatory guide to the effect that
21 if you have a fire protection program that has been
22 reviewed by the Staff and the Staff wrote an SER. And
23 in the FPP licensee or an applicant identified areas
24 where an exemption from a rule is required and the
25 Staff in their SER agrees with it, that's not good

1 enough to be considered the exemption. They have to
2 turn around again and apply for the exemption, but can
3 state that the SER says it's okay as their basis that
4 it is okay. And could you tell us a little bit more
5 about that process? Because my impression during the
6 operator manual action exercise is that we had was
7 that you were anticipating literally hundreds of
8 requests for exemption, and that's why you wanted to
9 put in the rule. And so now the rule's withdrawn and
10 you're not again anticipating lots of exemption
11 requests?
12 MR. WEERAKKODY: Yes. Anticipating I have
13 one in-house, okay. And, you know, we might get more
14 but --
15 CHAIRMAN SIEBER: Well, when the
16 inspectors get out there and start tramping things
17 down, you'd be surprised how many you might get.
18 MR. WEERAKKODY: Actually, you know, we
19 basically said to the licensee this, I think 2½ years
20 or so to sort of get well, so to speak.
21 CHAIRMAN SIEBER: Right.
22 MR. WEERAKKODY: So they are in the stage
23 of, you know, planning their corrective action. So we
24 would get some exemptions.
25 MR. RADLINSKI: But just clarification on

1 operator manual action that's mentioned in an SER
2 requiring exemption did not come from the fire
3 protection branch. This came up in a public meeting
4 back in March.
5 CHAIRMAN SIEBER: Okay.
6 MR. RADLINSKI: An OE stood up and OGC
7 concurred and said if it's not in compliance, it
8 doesn't matter what it says in your SER, it has to go
9 through the exemption process. Submitting an SER or an
10 SAR and writing an SER is not the same process. It's
11 not to the same level as the exemption process,
12 therefore it doesn't count. But --
13 CHAIRMAN SIEBER: So it's filed in a
14 different place. So if you want to know what the
15 basis, the licensing basis is, usually you don't go to
16 the SERs, you go to all the applications and exemption
17 requests and things like that.
18 So I sort of figured out what was going on
19 there. On the other hand, the licensee gets to do
20 everything twice.
21 MR. RADLINSKI: Well, we did say in the
22 RIS that we wrote for operator manual actions that it
23 would probably be like a pass-through. If you had to
24 --
25 CHAIRMAN SIEBER: Yes, I gathered that.

1 That's the way it's written up.

2 MR. RADLINSKI: If you have an SER that

3 says your operator manual operations are okay, all we

4 have to do is refer to that that SER --

5 CHAIRMAN SIEBER: Right.

6 MR. RADLINSKI: -- and typically, you

7 know, the Staff is more like --

8 CHAIRMAN SIEBER: Yes. The basis?

9 MR. RADLINSKI: Right.

10 CHAIRMAN SIEBER: Just for the basis part

11 of it?

12 MR. WEERAKKODY: Yes.

13 MR. RADLINSKI: Right. They still have to

14 go through --

15 CHAIRMAN SIEBER: Okay. That's basically

16 what I wanted to get on the record with regard to

17 that. Okay. Thank you.

18 MR. WEERAKKODY: May I go to the next one?

19 MR. RADLINSKI: Yes, the next one.

20 Not much to say about the inspection plan.

21 These updates are not going to change the inspection

22 interval. They're going to have time, resources spent

23 on fire protection inspections. The current

24 inspection plans are adequate. They'll cover the

25 updates as well as the current versions.

1 So was there something in particular you
2 wanted to ask about the inspection?
3 CHAIRMAN SIEBER: No.
4 MR. RADLINSKI: Other than that, okay.
5 And that brings us to the conclusion of
6 the first set of bullets. So basically the updates
7 provide guidance for new reactor fire protection
8 programs. We feel none of the changes have backfit
9 implications. Risk=informed methods can be used for
10 both existing and new reactors. Compliance is
11 expected for the new reactors. Updates provide
12 guidance for inspectors and Staff reviews for future
13 submittals. And there's no change to current
14 inspection plans.
15 CHAIRMAN SIEBER: All right.
16 MR. RADLINSKI: I'd also like to point out
17 that as part of the process of getting the documents
18 prepared, at least the reg. guide prepared for public
19 comments, they've gone through OGC. Both of them, the
20 SRP and the reg. guide have now been reviewed by OGC.
21 And we got a whole raft of comments, but they're all
22 editorial, except for one. And that one has to do with
23 the use of the term "must/shall" versus "should."
24 Okay.
25 It's generally understand in a reg. guide

1 you don't say somebody shall do something or they must
2 do something, it's one acceptable approach they say
3 should.
4 We used must and shall in two different
5 cases. In some cases we used it because it was a
6 paraphrase of a regulatory requirement. And OGC
7 agreed, yes, that's okay. Okay.
8 The other case we used it is the approach
9 that we used in Reg. Guide 1.205 for 805 plants. And
10 it had to do with our review of PRA methodologies and
11 use of acceptable or NRC accepted fire models. We say
12 you must use an NRC accepted fire model or if you
13 don't, you need to submit it. You must submit a PRA
14 and it must be submitted to a PRA review. Okay?
15 OGC feels that we don't have a regulatory
16 basis or a legal basis for using must and should in
17 those cases.
18 CHAIRMAN SIEBER: Okay.
19 MR. RADLINSKI: It's still under
20 discussion.
21 CHAIRMAN SIEBER: Okay.
22 MR. RADLINSKI: But other than that, it
23 was all editorial from OGC.
24 Okay.
25 CHAIRMAN SIEBER: Well, the old saying is

1 that lawyers are the ones who know how to spell and
2 engineers are the ones who know how to add and
3 subtract.
4 MR. RADLINSKI: The first bullet item on
5 your second list was safety related versus important
6 to safety. I think Phil covered pretty much what
7 Appendix R says. IT says important to safety and
8 safety related apply to all safety functions. Okay.
9 So either one apply to all the safety functions
10 including radiological safety, safe shutdown. Okay.
11 Appendix R also says the phrase "safe
12 shutdown" applies to both hot and cold shutdown
13 functions. In this case it would be post-fire
14 shutdown.
15 In the context of fire protection
16 shutdown, safe shutdown applies to functions that are
17 required to be performed during and after postulated
18 fires to achieve and maintain safe shutdown.
19 And finally, the systems required for
20 mitigation of consequences following a design basis
21 accident that are not required for post-fire safe
22 shutdown need not be protected from exposure fire
23 damage. That's in Appendix R.
24 CHAIRMAN SIEBER: In other words, you
25 don't have to assume that you had a design basis

1 accident and a fire at the same time.

2 MR. RADLINSKI: Right. Correct.

3 CHAIRMAN SIEBER: Okay.

4 MR. RADLINSKI: And protect against both.

5 CHAIRMAN SIEBER: Now this is a pretty

6 good slide, but when I look at your glossary in the

7 reg. guide and the definition that's there, I think it

8 would help if that definition referred to Appendix R

9 where there's additional detail as to what important

10 to safety really means. Because I'm not aware of a

11 list of equipment where you can say these are

12 important to safety in the context of fire protection.

13 MR. RADLINSKI: I think we agree there

14 isn't one.

15 CHAIRMAN SIEBER: There is not one?

16 MR. RADLINSKI: Yes.

17 CHAIRMAN SIEBER: Okay. And so to me

18 that's an area of confusion. I think that you either

19 should define it better or refer to a place in the

20 regulations where it is defined so that everybody ends

21 up knowing what SCCs you're talking about and

22 everybody comes up with the same list.

23 MEMBER MAYNARD: Well it's better to

24 define it and get that resolved up front. Because it

25 is going to be an issue in a front end getting

1 resolved after the fact and probably in a less
2 controlled manner.
3 CHAIRMAN SIEBER: Well, you're going to
4 resolve it at every licensee.
5 MEMBER MAYNARD: That's right. And it may
6 not be consistent either.
7 CHAIRMAN SIEBER: That's right. And that
8 would be a recommendation.
9 MR. WEERAKKODY: Yes. I think going
10 forward like especially in applications with new
11 reactors, I do agree. I think we have to careful is
12 if something has not been defined clearly up to date,
13 now if you try to define it, you know, that correct
14 some implications of, you know, backfit. But going
15 forward, yes.
16 DR. BANERJEE: But these would be
17 different for different reactor concepts, right?
18 CHAIRMAN SIEBER: It depends on the
19 definition.
20 DR. BANERJEE: Yes. ES BWR or EPR or AP
21 1000, they'd be different.
22 MR. WEERAKKODY: That's correct. But,
23 again, I think that is a good idea and I don't know,
24 Bob, since we are putting this reg. guide for public
25 comment, you know, for new reactors if you can make

1 more specific and get public feedback? Have you
2 defined --
3 MR. RADLINSKI: To identify a list of them
4 --
5 MR. WEERAKKODY: Not to sort -- that would
6 be trying to be too specific. But I think we ought to
7 take back as an action.
8 CHAIRMAN SIEBER: I would suggest that the
9 alternatives that I have is to write you a letter and
10 say don't issue this for public comment until you fix
11 that.
12 The other thing we could do is you could
13 take it as an action item and consider along with
14 public comments and then when you incorporate all this
15 stuff, all the public comments and --
16 MR. WEERAKKODY: And come back to you.
17 Yes, we would much highly appreciate it because --
18 CHAIRMAN SIEBER: Well, I see some sense
19 of urgency, at least in my own mind as to why you want
20 to get this work done.
21 MR. WEERAKKODY: Yes.
22 CHAIRMAN SIEBER: And to add a couple of
23 months of playing around to me is not accomplishing
24 that goal. On the other hand, I think it's something
25 that needs to be resolved. And a convenient way to do

1 it is treat it when you're treating the public
2 comments. And when you come back --
3 MR. WEERAKKODY: That's right.
4 CHAIRMAN SIEBER: -- we can look at what
5 it is you've done, see if it satisfies our concerns
6 and provided the rest of us have a concern.
7 MR. RADLINSKI: Okay.
8 CHAIRMAN SIEBER: And do it that way.
9 MR. WEERAKKODY: Yes.
10 CHAIRMAN SIEBER: That's most efficient,
11 least amount of paper and at the same time likely to
12 get a good result.
13 DR. BANERJEE: I guess it's going to be
14 important to define the boundaries of what you mean by
15 important to safety and safety related. So first
16 thing needs to be to say how do you set these
17 boundaries as to what you consider important to safety
18 and what you don't. Because no explicit definition
19 needed in that.
20 MR. WEERAKKODY: Okay.
21 DR. BANERJEE: Because it's so vague right
22 now.
23 MR. WEERAKKODY: Okay. We will.
24 MR. RILEY: Just a word on this important
25 to safety issue. I think there's a lot of us in here

1 with gray hair that probably remember going through
2 this issue, what, 20 years ago, I think. And I guess
3 my mind's failing me and I don't remember where we
4 ended up on it. But I would suggest we go back and
5 look at where we ended up on it and not try and
6 recreate the wheel here. Because, boy, this one a lot
7 of angst was spread out on this issue before. And we
8 ought to start off where we ended up there. And I
9 wish I could remember where, but I'm going to be
10 looking for.
11 CHAIRMAN SIEBER: It's at least 25 years
12 ago.
13 MEMBER MAYNARD: Yes. Early mid-'80s I
14 know for sure it was.
15 CHAIRMAN SIEBER: IT was before TMI. But
16 I think the first mention before TMI.
17 MR. WEERAKKODY: Okay.
18 CHAIRMAN SIEBER: Thank you.
19 And as part of your fire protection
20 program each licensee has a description of how they
21 plan to do the safe shutdown, what equipment they're
22 going to use, what systems.
23 MR. WEERAKKODY: Right.
24 CHAIRMAN SIEBER: And that's part of the
25 plan because if you don't have that, you don't know

1 what to protect, how to deal with it. So that gives
2 you a start as to what important to safety is. But
3 the definition right now and its use in this reg.
4 guide doesn't take you by the hand to that point, and
5 it should.
6 Okay. What's the next one besides
7 important to safety?
8 MR. RADLINSKI: Alternative shutdown.
9 CHAIRMAN SIEBER: Okay.
10 MR. RADLINSKI: I've just repeated the
11 definition that's in the reg. guide update here.
12 Basically what it's saying is if it's not feasible to
13 provide the separation required by III.G.2 in Appendix
14 R, then you go to III.G.3.
15 CHAIRMAN SIEBER: Right.
16 MR. RADLINSKI: And you go on alternate
17 shutdown.
18 CHAIRMAN SIEBER: Okay.
19 MR. RADLINSKI: Dedicated shutdown is the
20 subtle difference. That's a system that you actually
21 install separate from your normal plant systems.
22 That's dedicated to providing that train-- fire
23 damage, again, where you don't comply with III.G.2 or
24 can't comply with III.G.2.
25 CHAIRMAN SIEBER: Yes. I think an example

1 of that is the installation of yet another train of
2 auxiliary feedwater for PWRs.
3 MR. RADLINSKI: Right.
4 CHAIRMAN SIEBER: Which in some plants is
5 known as your Appendix R pump.
6 MR. RADLINSKI: And in general, the
7 regulatory requirements and the guidance for both
8 alternative and dedicated shutdown are the same.
9 CHAIRMAN SIEBER: But they're two
10 different concepts, alternative and dedicated are two
11 different things.
12 MR. RADLINSKI: They are. But -- well, I
13 can describe the system here. Once you install the
14 system, then it's become a permanent part of the
15 plant, you know, you can still dedicate it.
16 CHAIRMAN SIEBER: Yes, right.
17 MR. RADLINSKI: I have no trouble with it.
18 CHAIRMAN SIEBER: Yes, you can use it for
19 something else.
20 MR. RADLINSKI: I think, Phil, do you want
21 to--
22 MR. QUALLS: Well, I'm not sure. This is
23 Phil Qualls.
24 I'm not sure I understand if there's a
25 question or what --

1 CHAIRMAN SIEBER: No. I don't think
2 there's anything that we need to redefine here. It's
3 just that there is a subtle difference between the two
4 concepts.
5 MR. RADLINSKI: Right. And I'm not sure
6 it makes a difference. Like you say, it --
7 CHAIRMAN SIEBER: It doesn't in --
8 MR. RADLINSKI: The regulations and the
9 guidance apply to both --
10 CHAIRMAN SIEBER: As far as treatment is
11 concerned, it makes no difference.
12 MR. RADLINSKI: Right. Right.
13 MR. QUALLS: Right. It's just the
14 regulation defines them a little bit. You know, there
15 is a definition in Appendix R that discusses
16 alternative and dedicated shutdown.
17 CHAIRMAN SIEBER: Yes. And I don't think
18 that we need to put additional words here in order to
19 clarify that, because it won't change the way it's
20 treated. Okay.
21 MR. RADLINSKI: Okay. The next slide,
22 electrical circuit failure analysis. The fundamental
23 requirement for safe shutdown as a result of a fire is
24 that any electrical circuit whose fire induced failure
25 to prevent safe shutdown you could directly or

1 indirectly, for example by spurious actuation, should
2 be addressed in the post-fire safe shutdown circuit
3 analyses to be protected if it needs to be protected
4 or not. Okay.
5 Protection should be provided in
6 accordance with the regulatory requirements to provide
7 reasonable assurance and safe shutdown, i.e, III.G.2,
8 III.G.3.
9 I did want to point out that there is an
10 industry guidance document, NEI 0001 which is a very
11 extensive description or set of guidance criteria for
12 doing a post-fire shutdown analysis. The Staff has
13 reviewed the document. We've accepted it as
14 appropriate for doing a safe shutdown analyses for
15 both deterministic licenses and risk-informed
16 licenses.
17 Was there anything else on that issue?
18 Success path. We have a definition for
19 that. The minimum set of structures, systems
20 including power, instrument and control circuit and
21 instrument sensing lines and components that must
22 remain free of fire damage and were to achieve and
23 maintain safe shutdown in the event of a fire. It's
24 synonymous with the post-fire safe shutdown train free
25 of fire damage. It includes electrical circuits, again

1 whose fire induced failure could prevent safe
2 shutdown, either directly or indirectly.
3 Okay. Spurious actuations. If we define
4 spurious operation as the undesired operation of
5 equipment resulting from a fire that could effect the
6 capability to achieve and maintain safe shutdown.
7 This is the original definition that's in Reg. Guide
8 1.189 right now. We haven't changed that. It be
9 provided additional guidance based on a generic
10 communications that any and all must be considered to
11 occur and they may occur in rapid succession.
12 The assumption that there will be
13 sufficient time to mitigate individual spurious
14 actuations before another occurs does not meet
15 regulatory requirements. It is in the generic letter,
16 and must be demonstrated by a licensee who claims that
17 this is the case.
18 So if your analysis is based on the
19 assumption that one happens at a time, I'm going to go
20 out and fix it, I'm going to mitigate the consequences
21 of that spurious actuation before I need to look at
22 the next one, that does not meet regulatory
23 requirements. It's not supported by the cable fire
24 testing that was done by the industry.
25 CHAIRMAN SIEBER: One of the things that's

1 important in this regard which the reg. guide does
2 cover is the proper coordination of breakers and
3 fuses. You have fire damage to cables, you would
4 prefer that the coordinating scheme be such that you
5 trip off that cable as opposed to tripping off a whole
6 division of equipment.
7 MR. RADLINSKI: Right.
8 CHAIRMAN SIEBER: And that's adequately
9 covered in here, but it's an important aspect of this
10 analysis to me.
11 MR. RADLINSKI: Okay. Operator manual
12 actions. Actions performed by operators to manipulate
13 components and equipment from outside the main control
14 room to achieve and maintain post-fire safe shutdown
15 and hot shutdown not including repairs. We've added
16 the clarifier than manual operation of valves,
17 switches, circuit breakers is allowed to operate
18 equipment and isolate systems as an operator manual
19 action.
20 CHAIRMAN SIEBER: Yes. There is additional
21 requirements in the rules about the operator's ability
22 to get there and to see something after he gets there.
23 In other words, that's where Appendix R's reference to
24 emergency lighting really has an important piece to
25 it.

1 MR. RADLINSKI: Right.

2 CHAIRMAN SIEBER: And if the fire is

3 blocking access to the equipment you have to operate,

4 then that equipment is not operable, can't be used as

5 part of the safe shutdown path.

6 MR. RADLINSKI: Right.

7 Next slide is also an operator manual

8 actions. It's repeating what's in the RIS on operator

9 manual actions, accrediting operator manual actions

10 with III.G.2 protection, must be approved via an

11 exemption process. It's not acceptable unless it's

12 approved.

13 You mentioned detection suppression. Use

14 of operator manual actions does not necessarily

15 obviate detection and suppression. Okay. I don't

16 think there's any question among the Staff or the

17 industry that protection is essential.

18 CHAIRMAN SIEBER: Yes. Otherwise you don't

19 know which is going to work.

20 MR. RADLINSKI: And you got to know you

21 got a fire. Okay.

22 CHAIRMAN SIEBER: Yes. You don't know it's

23 not going to work.

24 MR. RADLINSKI: Suppression detection is

25 a no= brainier.

1 Suppression has been highly contested. The
2 Staff considers that to be part of the defense-in-
3 depth. Okay. Even though you've got an operator manual
4 action, even though we might accept it as an exemption
5 -- if it's appropriate. I mean, if you have the
6 amount of combustibles that would justify having a
7 suppression system, it's part of your defense-in-depth
8 and therefore it should be there.
9 CHAIRMAN SIEBER: Okay.
10 MR. RADLINSKI: Okay. Well, let's see,
11 fire protection for license renewal. We talked a
12 little bit about this. The ones I've seen, most of
13 them with everything in the fire protection system has
14 been identified as being in scope, but yet you're only
15 looking at the passive components, the long-lived
16 components that aren't typically part of your
17 maintenance program. Examples of a fire protection
18 components which are passive and long-lived include
19 fire barrier assemblies, sprinkler heads, fire
20 suppression system piping and valve bodies, fire
21 protection tanks, pump casings and fire hydrant
22 casings.
23 Just one point of clarification. The smoke
24 and heat detector would not be considered -- they are
25 considered action components and therefore they're not

1 considered a part of the AMR.

2 CHAIRMAN SIEBER: You discuss the use of

3 elevated tanks as a means of providing fire water. It

4 seemed to me that it said that you had to have two

5 sources, two tanks, is that correct?

6 MR. RADLINSKI: If you have tanks, you

7 need to -- right.

8 CHAIRMAN SIEBER: And at a half million

9 gallons each?

10 MR. RADLINSKI: Two 100 percent, right.

11 CHAIRMAN SIEBER: That's why people buy

12 pumps instead? It's a lot of money to spend on tanks.

13 MR. RADLINSKI: Whether they're elevated

14 or not, you would still need two.

15 CHAIRMAN SIEBER: Yes, I know.

16 MR. RADLINSKI: Yes, it's a lot of water.

17 CHAIRMAN SIEBER: They're big tanks, yes.

18 MR. RADLINSKI: The passive shutdown

19 plants are using that water for other purposes,

20 though.

21 CHAIRMAN SIEBER: Yes.

22 MR. RADLINSKI: Anything else on license

23 renewal?

24 CHAIRMAN SIEBER: No.

25 MR. RADLINSKI: That's pretty

1 straightforward. Okay.

2 New versus existing, which regulations,

3 which guidance apply to each. The first category

4 there is for regulations and guidance that's

5 applicable to both new and existing reactors. 10 CFR

6 50.48(a) the fire protection rule that applies to

7 both. The new reg. guide will apply to both existing

8 and new reactors. When I say apply to existing

9 reactors, that's we'll apply it to exemption requests

10 as we've discussed. But it will not be backfit to

11 existing reactors.

12 SRP 9.5.1, as I've said, that's going to

13 cover both existing and new reactors. And I mentioned

14 Generic Letter 86-10, even though there are other

15 generic letters that are applicable, but 8-10 is a big

16 one that provides a lot of clarification for Appendix

17 R implementation of fire protection requirements. So

18 that's still going to be applicable to both new

19 reactors and existing reactors.

20 Regulations and guidance that are

21 applicable only to new reactors, of course 10 CFR 50

22 Part 52. Part 52 for ESPs and sign verification and

23 COLs.

24 CHAIRMAN SIEBER: Yes. What's the ESP

25 permitting process that relates to fire?

1 MR. RADLINSKI: I don't think there's
2 anything in there.
3 CHAIRMAN SIEBER: I wondered why it was on
4 your slide.
5 MR. RADLINSKI: Just because that's what
6 52 is about.
7 CHAIRMAN SIEBER: Oh, okay. You don't
8 even need a water source because if you don't have
9 fire water, you can't cool the reactor anyway. So you
10 wouldn't build one there.
11 MR. RADLINSKI: Yes. I don't believe
12 there's anything in the ESP relating to --
13 CHAIRMAN SIEBER: Well, the other thing
14 that I can think of is the provisions that you had for
15 wild fires. The regulations speak to don't have your
16 plant built where you have wild fires around your
17 plant because it has an impact on the plant.
18 MR. RADLINSKI: Right. But that's part of
19 your construction fire protection.
20 MR. WEERAKKODY: We don't really do ESP.
21 The fire protection program only looks at PCDs and
22 COLs.
23 CHAIRMAN SIEBER: Okay.
24 MR. RADLINSKI: All right. The second
25 bullet is just referring to the enhanced fire

1 protection that we talked about for new reactors. And
2 as we talked earlier, 50.59 we're proposing to apply
3 that to new reactors only.
4 I've got some notes here. Let's see, new
5 reactors must meet current relations for post-'70
6 plants plus the enhanced fire protection requirements.
7 NFPA 804 is the deterministic fire
8 protection program standard NFPA. ES PWRs have
9 committed to that. I'm not sure about AP 1000. That
10 standard has been issued, by the way.
11 Regulations guidance have not been
12 developed for performance-based risk-informed fire
13 protection program for new reactors yet. Okay. NFPA
14 806 in preparation. That will cover new reactors that
15 want to use the risk-informed performance-based
16 program.
17 And finally -- or finally, but the
18 regulations that apply only to existing plants
19 50.48(b), which was the Appendix R portion of the fire
20 protection role, that's still applicable to pre-'79
21 plants to the extent that we discussed before.
22 48(c) the NFPA 805 role, again, that's
23 voluntary, so that will apply to some and not to
24 others.
25 The new SRP section that's being developed

1 for future or for 805 plants is going to be a future
2 SRP. That does not apply to new reactors.
3 Right, Dan?
4 MR. FRUMKIN: That's good. Yes.
5 MR. RADLINSKI: Yes. And then, of course,
6 805 is tied in with 50.48(c), so if the licensee
7 adopts 48(c), then they'll comply with 805.
8 And then finally the regulations for
9 decommissioned plants, it's still the same. It's 10
10 CFR 50.48(f).
11 Okay. You wanted to talk about passive
12 plant safe shutdown. As I guess everyone's aware that
13 the design conditions for safe shutdown for a passive
14 plant are not the same as they are for other plants.
15 They're required to achieve a maintain a reactor
16 coolant temperature of 420 degrees or below for non-
17 LOCA events. So fire to non-LOCA events, so that would
18 be the criteria for post-fire.
19 Now any systems that are required to
20 achieve and maintain that level of safe shutdown would
21 be protected by the fire protection program.
22 And then systems that bring the reactor to
23 cold shutdown or to refueling condition are not safety
24 related. However, as we've mentioned some plants are
25 using the fire protection system as backup to provide

1 cooling water to maintain the plant in safe shutdown.

2 VICE CHAIRMAN WALLIS: Can you explain the

3 first bullet here?

4 MR. RADLINSKI: First bullet.

5 VICE CHAIRMAN WALLIS: This boiling point

6 of water. Is that on which side and --

7 MR. RADLINSKI: First bullet or second

8 bullet?

9 VICE CHAIRMAN WALLIS: First bullet. The

10 boiling point of water business in the top there.

11 MR. RADLINSKI: Yes.

12 VICE CHAIRMAN WALLIS: Cannot produce

13 temperature radical below the boiling point of water.

14 MR. RADLINSKI: At pressure.

15 VICE CHAIRMAN WALLIS: At the pressure on

16 the primary side?

17 MR. RADLINSKI: Right.

18 VICE CHAIRMAN WALLIS: So it's got to be

19 boiling on the primary side?

20 CHAIRMAN SIEBER: That's how you get the

21 movement of heat, just boiling it off, right.

22 MR. RADLINSKI: Yes. I mean, that's the

23 principle of the passive cooling.

24 CHAIRMAN SIEBER: Convection won't do it.

25 Boiling convection.

1 VICE CHAIRMAN WALLIS: And the heat sink
2 is where?
3 MR. RADLINSKI: It's a closed system with
4 the heat sink. It's circulating through a heat
5 exchanger.
6 VICE CHAIRMAN WALLIS: Because usually
7 when you make the water colder you get better heat
8 transfer. So it's going to be more than mysterious
9 thing. But presumably it has to do with how the whole
10 system works and circulates and all that stuff.
11 MR. RADLINSKI: Yes, I don't -- I can't --
12 VICE CHAIRMAN WALLIS: Too big
13 explanation for you and for me to understand.
14 MEMBER MAYNARD: I think the heat sink is
15 basically to protect the current design with the sumps
16 and stuff. You know, you're basically as it steams
17 out of the core --
18 VICE CHAIRMAN WALLIS: You're boiling it
19 off.
20 MEMBER MAYNARD: -- yet it condenses in
21 containment and that you're pumping that water back
22 in.
23 VICE CHAIRMAN WALLIS: Well, that's not
24 really heat transfer occurring. It's boiling it off.
25 CHAIRMAN SIEBER: And you're actually

1 cooling the water that's in that loop.

2 VICE CHAIRMAN WALLIS: But you're boiling

3 it off. It's not as if you're doing it in order to

4 get a heat transfer. That's what's strange. It's for

5 heat transfer to occur, it has to boil. That's really

6 strange.

7 CHAIRMAN SIEBER: Well, you have no mode

8 of power.

9 CHAIRMAN SIEBER: You boil it off, right?

10 CHAIRMAN SIEBER: So you boil it off.

11 VICE CHAIRMAN WALLIS: Well, it isn't heat

12 transfer that's occurring. You're just boiling it off

13 and condensing it somewhere else.

14 MEMBER SHACK: Heat is being transferred

15 in the process.

16 VICE CHAIRMAN WALLIS: It's not. It's

17 steam that's being transferred.

18 CHAIRMAN SIEBER: Well, heat and steam.

19 MEMBER MAYNARD: You've transferred heat.

20 VICE CHAIRMAN WALLIS: But the point is

21 it's being boiled off, is that right? It's being

22 boiled off. It's not a heat exchange, per se.

23 CHAIRMAN SIEBER: It is.

24 MR. FRUMKIN: This is Dan Frumkin. And

25 I've just been following some of these designs a

1 little bit.

2 The heat exchange is going on at the top

3 of the containment for the AP 1000 and the ES BWR. So

4 the steam is boiling off. And then as it hits the top

5 of the containment--

6 VICE CHAIRMAN WALLIS: This is as it comes

7 back around again.

8 MR. FRUMKIN: -- it either condenses with

9 the ABWR based on atmosphere of the big tank on the

10 top or through heat exchanger with the ES BWR.

11 VICE CHAIRMAN WALLIS: Right. And then

12 comes back around.

13 MR. FRUMKIN: But we do need the driving

14 heat in order to get to the top of containment.

15 VICE CHAIRMAN WALLIS: Okay.

16 CHAIRMAN SIEBER: Okay. Thank you.

17 MR. RADLINSKI: All right. Moving on to

18 risk information, which I think is probably the last

19 topic.

20 As we've said before, licensees have not

21 adopted 50.48(c) the 805 rule. And licensees preparing

22 new reactor fire protection programs may apply the

23 methodologies PRA and fire modeling to evaluations of

24 a fire protection program change.

25 CHAIRMAN SIEBER: How many licensees have

1 committed to 805 at this point?

2 MR. RADLINSKI: Forty-two.

3 MR. WEERAKKODY: Forty-two reactor units,

4 not licensees. Forty-two reactor units. Forty-two

5 out of 103.

6 CHAIRMAN SIEBER: Almost half.

7 MR. WEERAKKODY: Close to half, yes.

8 MR. RADLINSKI: And we've said the NRC

9 should review and approve the proposed methodologies,

10 should or must, and that's not resolved yet, including

11 acceptance criteria before the implementation of any

12 plant change based on this methodology.

13 VICE CHAIRMAN WALLIS: There's something

14 wrong with, I'm sorry, the thing you were saying

15 before. If you reduced it below the boiling point of

16 water, then you've cooled it and you don't need to

17 cool it anymore. So the whole thing is really sort of

18 peculiar.

19 MR. RADLINSKI: I just cut and pasted

20 that. I apologize.

21 VICE CHAIRMAN WALLIS: Not much to do with

22 fire, anyway.

23 MR. RADLINSKI: No. Okay. According to 10

24 CFR 52.47(a)(v) a new reactor application must include

25 a design specific PRA. Okay. That's overall plant.

1 The point is that the regulation says that it's an
2 overall plant PRA, okay.
3 So going to the next page detailed fire
4 PRA are not necessarily required for new reactor.
5 Okay. However, if the CRL references a certified
6 design and that certified design does have a detailed
7 fire PRA, then that licensee must adopt that fire PRA,
8 make it its own and maintain it and proceed on that
9 basis. Okay.
10 CHAIRMAN SIEBER: He has no choice?
11 MR. RADLINSKI: Right.
12 MEMBER ARMIJO: Is there any certified
13 design that has such a fire PRA.
14 MR. RADLINSKI: That was my next. You
15 didn't give me a chance.
16 MEMBER ARMIJO: Okay.
17 MR. RADLINSKI: So so far the ones that
18 I'm aware of, AP 1000, ES BWR both have detailed fire
19 PRAs. Okay. So any COL that's based on AP 1000
20 certified design or ES BWR certified design is going
21 to have a fire PRA and they must maintain it. And as
22 we --
23 MEMBER MAYNARD: That's almost an
24 incentive to not have a fire PRA for a new design.
25 VICE CHAIRMAN WALLIS: That's right.

1 MEMBER MAYNARD: You know, I understand
2 the desire to do this, but I'm not sure I understand
3 why it's okay to not have one to start with, but once
4 -- you have to maintain -- it's almost a disincentive.
5 You don't have to answer that. It seems
6 to odd to me.
7 MEMBER KRESS: I don't think we're going
8 to certify it unless it's got a fire PRA.
9 VICE CHAIRMAN WALLIS: If that's the case,
10 then it's a moot point.
11 CHAIRMAN SIEBER: Turns it into an
12 incentive.
13 MR. RADLINSKI: Okay. The third bullet is
14 right out of Reg. Guide 1.205 when we talk about what
15 constitutes a fire PRA. It encompasses all levels and
16 types of PRAS ranging from a simplified bounding
17 analysis to a detailed analysis that would be in
18 accordance with NUREG-68.50. Okay.
19 VICE CHAIRMAN WALLIS: As long as you
20 don't use the word "qualitative," you're okay.
21 MEMBER SHACK: Well, yes. I would say that
22 seems like Catch 22. You're just not going to get out
23 of it. But you're going to have to have at least
24 five, and that's a fire PRA.
25 MEMBER KRESS: That's right.

1 MEMBER SHACK: It's got the first bullet.
2 But I guess a detailed fire PRA.
3 MEMBER KRESS: Yes. That's different.
4 MEMBER SHACK: That gets you --
5 CHAIRMAN SIEBER: Right.
6 MR. RADLINSKI: And again --
7 MEMBER KRESS: It's not necessarily
8 required.
9 MR. RADLINSKI: Carry over from 205 is
10 that a fire PRA should receive a peer review.
11 VICE CHAIRMAN WALLIS: Oh, yes.
12 CHAIRMAN SIEBER: Okay. That looks like
13 you've come to the end of your slides.
14 MR. RILEY: It's the NEI guy again, Jim
15 Riley.
16 Just a couple of final thoughts if I can
17 leave them with you and thank you for the opportunity
18 to share some of these with you.
19 I've already expressed some of this with
20 you guys, so I'm not going to go into any kind of
21 detail, but we still have some concerns about what the
22 backfit analysis says about manual actions and circuit
23 analysis.
24 One thing that strikes me as we kind of
25 look at how this presentation went on, you can say

1 that a reg. guide has one acceptable way to meet a
2 regulation and therefore putting in that doesn't
3 necessarily mean it's a backfit. But the problem is
4 that when you don't use it, you have to justify what
5 you're doing as being roughly equivalent to what's in
6 the reg. guide. So it's kind of round about way to
7 still require -- to still put a requirement out there
8 even though it isn't. So just a thought on that.
9 A concern that -- when I'm looking at the
10 new reg. guide, I'm not sure exactly what it's doing
11 with respect to fire PRA and NFPA 805 plants. But
12 since Sunil and his folks are way involved in what's
13 going on with the pilot plants, I don't think there
14 will be a problem there. But I wasn't sure from the
15 way it was presented exactly how this reg. guide was
16 going to start laying out expectation for fire PRAs,
17 et cetera. Because we don't want to get ahead of
18 what's going on with NFPA 805 transition in the power
19 plants. And I'm assuming that the reg. guide isn't
20 going to put us into that kind of position where it
21 lays out expectations before we've had a chance to
22 work them through in the power plant process. So --
23 CHAIRMAN SIEBER: One page.
24 MR. RILEY: Okay.
25 CHAIRMAN SIEBER: And if everybody does

1 their job right, you'll get to read it pretty soon.

2 MR. RILEY: Yes. Okay. Just a thought on

3 that.

4 CHAIRMAN SIEBER: Okay.

5 MR. RILEY: Just again questions about

6 cable fire testing important to safety. You've all

7 been talking about it. We appreciate that

8 conversation and like to keep our minds open on where

9 we're going and what can be concluded out of the cable

10 fire testing, and where we're going with important to

11 safety.

12 And then one final thing, and I think it's

13 an administrative thing. At one point in your

14 discussion I thought you were saying that this new

15 reg. guide is not applicable to plants that are going

16 NFPA 805 and Reg. Guide 1.205, yet one of your bullets

17 seemed to indicate that it was for existing plants.

18 Maybe that's just my 00

19 MR. RADLINSKI: No. Reg. Guide 1.205 is

20 the applicable guide.

21 MR. RILEY: I would think so. I think the

22 slide where you talked about what was applicable to

23 existing plants listed 1.189 in there and some of the

24 existing plants will be NFPA 805. So, like I said,

25 it's just a clarification issue.

1 MR. RADLINSKI: Yes. I couldn't put all
2 the qualifiers.
3 MR. RILEY: Okay. All right.
4 Thank you for the opportunity.
5 CHAIRMAN SIEBER: Okay. Thank you. We
6 appreciate those comments.
7 I think it explicitly states in here that
8 you're either NFPA 805 plant or not.
9 MR. RADLINSKI: It does.
10 CHAIRMAN SIEBER: One or the other.
11 VICE CHAIRMAN WALLIS: Right.
12 MEMBER SHACK: But the viewgraph was
13 confusing because it said they were applicable to
14 existing plants, where they're both applicable to
15 existing plants and just not at the same time.
16 MR. RADLINSKI: Right.
17 CHAIRMAN SIEBER: Yes. One of the issues
18 is that the industry has a disadvantage. They don't
19 have this, it's pre-decisional. So they sort of have
20 to guess as to what's in it and look at the slides and
21 presume the worse.
22 Do any members have additional questions?
23 VICE CHAIRMAN WALLIS: Well, what we're
24 asked to do here to approve it for going out to public
25 comment, is that right?

1 CHAIRMAN SIEBER: Yes. I see that we have
2 ahead of us a couple of choices. We need to write a
3 letter, and the letter should either say send it out
4 for public comments and continue on with the process
5 or fix something that we think needs fixed before it
6 goes out for public comments. And those are the two
7 choices that we have.
8 What I'd like to do now is just briefly
9 have each of the members here in attendance give me
10 advice as to which way they want to go. Do you think
11 we ought to tell the Staff they ought to send it out
12 for public comments or if you want something changed
13 before it goes out, tell me what it is that you don't
14 like. And maybe I can start with Bill.
15 MEMBER SHACK: Well, I'm not a fire
16 protection person. So, you know, I think I'll defer.
17 I found it an interesting thing. To me it
18 seemed mostly a compilation of just pulling together
19 everything that had been out there as far as guidance.
20 These issues about backfit and such will be settled,
21 I think, in a different arena.
22 CHAIRMAN SIEBER: Litigation.
23 MEMBER SHACK: Litigation. And, you know,
24 so that aside, then so I see no real problem with
25 putting it out for public comment myself.

1 MEMBER ARMIJO: Yes. I see it the same
2 way, Bill, except your comment to the Staff could take
3 account of the recommendations that you were making.
4 Consider that sort of like public comment.
5 CHAIRMAN SIEBER: Yes, I think they can
6 deal it with them. Otherwise, it's going to take a
7 couple of months to--
8 MEMBER ARMIJO: Yes, do it again.
9 CHAIRMAN SIEBER: -- go through all this
10 process again. And we get a chance to check their
11 paper. And so if it isn't there, then we can make a
12 fuss.
13 Dr. Wallis?
14 VICE CHAIRMAN WALLIS: Yes, I would put it
15 out for public comment.
16 CHAIRMAN SIEBER: Okay.
17 VICE CHAIRMAN WALLIS: I think it covers
18 a lot of things, a lot of things which have been
19 covered before and as Bill said, are being pulled
20 together. I didn't see any show stopper or something
21 I wanted to change.
22 CHAIRMAN SIEBER: I think, just picking up
23 on your comment, I think it's important that this is
24 one of the most complex areas of regulation that I
25 know of. Lots and lots -- hundreds of documents apply

1 to this. Plants in different categories and different
2 kinds of treatment. And maintaining the roadmap
3 through this process is to me extremely important.
4 And I think the reg. guide does that because, you
5 know, it's complex and you need to know what category
6 you're in for a lot of different situations in order
7 to be able to run an effective program and to achieve
8 the right result.
9 Dr. Kress?
10 MEMBER KRESS: I see no reason why it
11 should go out for public comment.
12 CHAIRMAN SIEBER: Otto?
13 MEMBER MAYNARD: I think it should go out
14 for public comment. I appreciate the Staff's
15 discussion. I appreciate the comment from NEI. And I
16 think we need to highlight a couple of points that
17 you've brought up and others have brought up in here.
18 But I think the main thing it needs to go out for
19 public comment. And that we can see those and --
20 CHAIRMAN SIEBER: How about doing me a
21 favor? Write down what you think ought to be
22 highlighted. I actually have a letter that follows
23 your recommendation, for some strange reason. If you
24 want to add something to it, it would be easier to do
25 it before we start arguing about it.

1 MEMBER MAYNARD: Yes. The only thing that
2 I would necessarily highlight, maybe two things. One
3 is on the definition of important to safety. And the
4 fact that we discussed that and that's something that
5 may need clarification after public comment and stuff
6 that comes in.
7 And the other is we need to talk about
8 whether we need to make it clear or not. At this
9 point I don't think we're making a conclusion whether
10 this is or is not a backfit. And that I think could
11 be comments that receive back. I don't know if you
12 have to put that in the letter, but --
13 CHAIRMAN SIEBER: I think it's premature.
14 And, first of all, that's not our prime function.
15 And secondly, I think that everybody has
16 to really make a case that it's really almost a legal
17 case that has to be made as to whether the backfit
18 rule applies or not.
19 I would like to see the Staff and the
20 industry go through its process before we jump in
21 there and try to make decisions for everybody.
22 Because right now we don't have enough information
23 from either party to decide whether it's a backfit or
24 not.
25 MEMBER MAYNARD: I agree. And I don't

1 think it has to be in the letter. I just want to make
2 sure that we don't imply by sending the letter out
3 that we're saying it's not a backfit --
4 CHAIRMAN SIEBER: And I agree.
5 MEMBER MAYNARD: And it may not need to be
6 put in there at all. I just don't think --
7 CHAIRMAN SIEBER: Well, it's in the
8 transcript now, so I think it'll be clear enough.
9 MEMBER MAYNARD: I think that's fine. I
10 think mission accomplished there.
11 CHAIRMAN SIEBER: Okay. That sort of gives
12 the Staff an idea of where we're headed. And I will
13 work on that.
14 I certainly appreciate the effort that you
15 went to to make the presentation first. But more
16 importantly, in developing the guide in the first
17 place. It's a job pretty well done.
18 MR. RADLINSKI: Thank you.
19 CHAIRMAN SIEBER: You accomplished a lot
20 of goals that I think that were important in
21 promulgating a list. And it's a very complex issue.
22 And in order to make a complex issue relatively easy
23 to understand takes talent. And that talent shows.
24 So if there -- oh -- do you have a
25 comment?

1 DR. BANERJEE: I am just an observer.

2 VICE CHAIRMAN WALLIS: He's going to TP

3 everything now.

4 CHAIRMAN SIEBER: You could make me work

5 all night. Do you have any comment?

6 DR. BANERJEE: No.

7 CHAIRMAN SIEBER: Okay. Thank you, Dr.

8 Banerjee.

9 With that, then I would like to thank the

10 Staff for the work that you've done and your

11 presentation today.

12 When you give a presentation to the full

13 Committee it ought to be a brief version of this one.

14 I think that this covers the main points.

15 MEMBER KRESS: And leave the blue

16 background out.

17 CHAIRMAN SIEBER: Pardon?

18 MEMBER KRESS: And leave the blue --

19 CHAIRMAN SIEBER: My eyes are so bad that

20 I couldn't even see it.epoxy

21 MEMBER KRESS: You couldn't see it.

22 VICE CHAIRMAN WALLIS: Yes, leave that

23 blue out.

24 CHAIRMAN SIEBER: So in any event, I think

25 it is appropriate that we adjourn the meeting now. And

1 thank you very much.

2 (Whereupon, at 4:51 p.m. the meeting was

3 adjourned.)

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CERTIFICATE

This is to certify that the attached proceedings before the United States Nuclear Regulatory Commission in the matter of:

Name of Proceeding: Advisory Committee on Reactor Safeguards Plant Operations & Fire Protection Subcommittee

Docket Number: (Not provided)

Location: Rockville, Maryland

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission taken by me and, thereafter reduced to typewriting by me or under the direction of the court reporting company, and that the transcript is a true and accurate record of the foregoing proceedings.

Charles Morrison

Charles Morrison
Official Reporter
Neal R. Gross & Co., Inc.

DRAFT REGULATORY GUIDE DG-1170 FOR FIRE PROTECTION FOR NUCLEAR POWER PLANTS AND SRP SECTION 9.5.1 UPDATES

ADVISORY COMMITTEE FOR REACTOR SAFEGUARDS

OCTOBER 31, 2006

Bob Radlinski
Fire Protection Engineer
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
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Objective

- Describe changes to RG 1.189, "Fire Protection for Nuclear Power Plants," and SRP Section 9.5.1, "Fire Protection Program," that add guidance for new reactor fire protection programs and incorporate recent generic communications on fire protection issues

Outline

- Appendix R, SRP and BTP applicability
- Brief history of fire protection regulations
- Significant changes to Reg Guide 1.189
- Significant changes to SRP Section 9.5.1
- Backfit implications
- Backfit analysis and CRGR review
- Use of risk informed methods for non 805 plants
- Compliance expectations
- Inspection plan

Appendix R, SRP and BTP Applicability

- Appendix R is a set of fire protection regulatory requirements for plants licensed before January 1, 1979 as stated in 10 CFR 50.48(b).
- Fire Protection Programs for plants licensed after January 1, 1979 are reviewed against SRP Section 9.5.1, "Fire Protection Program," which includes the Appendix R criteria.
- Fire Protection Branch Technical Positions provided acceptance criteria for all plants.

Brief History of Fire Protection Regulations

- Initially fire protection programs (FPP's) were assessed against the high-level requirements of GDC 3 in Appendix A to 10 CFR 50
  - Structures, systems and components important to safety must be designed and located to minimize the probability and effects of fire and explosions
  - Noncombustible and heat resistant materials shall be used wherever practical
  - Fire detection and suppression systems shall be provided to minimize the adverse affects of fires on SSCs important to safety
- No detailed implementation guidance was provided

Brief History of Fire Protection Regulations (Cont)

- Browns Ferry fire of March 22, 1975 demonstrated need for more specific requirements and guidance, as well as a detailed re-assessment of every plant's FPP
- In May 1976, NRC issued BTP APCSB 9.5-1 providing technical guidance for plant FPP's and requesting plants to perform fire hazards and post-fire safe-shutdown analyses
- NRC issued 10 CFR 50.48, the "Fire Protection" rule, and Appendix R in 1980 to address a number of contentious fire protection issues.

Brief History of Fire Protection Regulations (Cont)

- Staff issued GL 86 10 in April 1986 providing staff positions on compliance with Appendix R and introducing the "standard license condition" for FPP's
- Fire induced circuit failures became focal point in late 1990's
  - Enforcement discretion allowed
  - Industry performed live fire tests of energized circuits in 2001 – multiple spurious actuations occurred
  - Staff issued generic communications to reflect cable fire test results and to clarify regulatory expectations.
  - Circuit inspections were resumed in January 2005

Brief History of Fire Protection Regulations (Cont)

- NRC published 10 CFR 50.48(c) endorsing NFPA 805 on June 16, 2004 allowing licensees to voluntarily adopt a risk-informed, performance-based FPP
- Regulatory Guide 1.205 provides staff guidance for licensees that elect to adopt a risk-informed, performance-based FPP in accordance with 10 CFR 50.48(c) and NFPA 805

Significant Changes to RG

- Guidance/acceptance criteria for new reactor FPP's
- Added new guidance based on recently issued generic communications
  - RIS 2005-30, "Clarification of Post-Fire Safe-Shutdown Circuit Regulatory Requirements"
  - RIS 2006-10, "Regulatory Expectations with Appendix R Section III.G.2 Operator Manual Actions"
- Added new guidance on post fire safe shutdown circuit analyses and multiple spurious actuations
- Replaced GL 86 10 evaluations with 50.59 for FPP changes for new reactors
- Added guidance on use of fire PRA and fire modeling
- Added/clarified fire protection term definitions

Guidance/Criteria for New Reactor FPP's

- Enhanced fire protection criteria approved by Commission
- Applicability of industry codes, including NFPA 804
- Passive plant shutdown definition
- Fire Protection Program implementation

Guidance/Criteria for New Reactor FPP's (Cont)

- Minimize reliance on the following:
  - Alternative/dedicated shutdown systems (except for control room fires)
  - Operator manual actions
  - Local electrical raceway fire barrier systems
- Should not rely of self-induced SBO for post-fire safe shutdown
- Address fire protection for non-power operations

Guidance Based on Recently Issued Generic Communications

- RIS 2005-30, "Clarification of Post-Fire Safe-Shutdown Circuit Regulatory Requirements"
  - Post-fire safe-shutdown circuit analyses must consider any-and-all hot shorts and spurious actuations
  - "Associated circuits" means all circuits that must remain free of fire damage, except with respect to alternative/dedicated shutdown systems

Guidance Based on Recently Issued Generic Communications (Cont)

- RIS 2006-10,"Regulatory Expectations with Appendix R Section III.G.2 Operator Manual Actions"
  - Operator manual actions may not be credited in lieu of required III.G.2 protection (without an approved exemption)
  - Where III.G.2 protection is provided for one redundant train, OMAs are permitted for the unprotected train

Guidance on Multiple Spurious Actuations

- Post-fire safe-shutdown circuit analyses should address multiple spurious actuations
- Spurious actuations may occur in rapid succession without time to mitigate the consequences
- A one-at-a-time approach to evaluating multiple spurious actuations does not comply with fire protection regulatory requirements

50.59 FPP Change Evaluations

- GL 86 10 allowed licensee self approval of FPP changes based on "no adverse effect on safe shutdown" and in accordance with 10 CFR 50.59
- NEI persuaded NRC to exclude fire protection from 50.59 rule in 2000
- Staff is proposing to revert to 10 CFR 50.59 as applicable to FPP changes- for new reactors only
- Reverting to 50.59 brings fire protection in line with the rest of the plant; provides a more definitive set of acceptance criteria; and provides a regulatory requirement for documenting the bases for changes.

Use of Fire PRA and Fire Modeling

- Added guidance consistent with that in RG 1.205 for NFPA 805 plants
- Proposed that PRA methodologies for use at non-805 plants should be submitted for NRC review and approval
- Fire models should be those accepted by the NRC (or submitted for review)
- Reference NUREG/CR-6850 and the draft American Nuclear Society Fire PRA Standard as the basis for review of PRA methodologies

Previously Undefined Fire Protection Terms

- Added/clarified definitions for fire protection terms that are not currently well defined in regulatory documentation
- Definitions are based on regulatory requirements, staff positions and common usage
- Newly defined or clarified terms include any-and-all, emergency control stations, fire protection system, mitigate, one-at-a-time, operator manual action, post-fire safe-shutdown circuits, redundant train/system, and success path.

Significant Changes to SRP 9.5.1

- Deleted Branch Technical Position – incorporated in RG 1.189 update
- Expanded review guidance for new reactors
- Added reference to new SRP section for NFPA 805 plants
- Provided review guidance for fire modeling and PRA methodologies in licensee submittals (non NFPA 805 plants)
- Expanded review guidance for license renewal applications
- Expanded the References section

Deleted Branch Technical Position

- Incorporated BTP guidance into RG 1.189 update
- Much of the BTP guidance was already included in the original issue of RG 1.189
- RG 1.189 is identified in SRP 9.5.1 as providing acceptance criteria for reviews

Expanded Review Guidance for New Reactors

- Provided risk insights for new reactor fire protection programs
- Added review guidance for ITAAC, COL applications, programmatic features of FPP
- Identified review interfaces
- Referenced DG-1145
- Expanded guidance for reporting evaluation findings

Expanded Review Guidance for New Reactors (Cont)

- Added new references applicable to new reactors
- Added guidance for fire protection systems that provide backup to safety related systems
- Identified alternative designs that have been accepted by the staff
- Provided guidance for review of fire protection systems protecting areas that do not contain safety-related SSCs

Other Changes to SRP 9.5.1

- Deleted Appendix A: "Supplemental Fire Protection Review Criteria for Shutdown and Decommissioned Reactors" (this guidance is provided in RG 1.191)
- Updated guidance on the use of fire modeling and probabilistic methodologies for non-NFPA 805 plants
- Added reference to new SRP section for NFPA 805 plants
- Expanded review guidance for license renewal applications

Backfit Implications

- No new staff positions applicable to existing reactors are included in updates
- Clarifications added on circuit issues and operator manual actions have been reviewed and accepted by CRGR and ACRS
- Adoption of guidance in RG is voluntary for existing reactors
- Imposition of 50.59 on new reactors is not a backfit since no licenses have been issued

Backfit Analysis and CRGR Review

- No backfit analysis has been performed
- Same approach as original issue of RG 1.189
- The RG "does not impose a new or amended provision in the NRC's rules or a staff position interpreting the Commission rules that is either new or different from a previous applicable staff position."
- In addition, the RG does not require the modification or addition to SSCs or design of a facility or the procedures or organization required to design, construct, or operate a facility

Use of Risk-Informed Methods for Non-NFPA 805 Plants

- RG and SRP 9.5.1 updates repeat guidance in RG 1.205 for fire PRA and fire model applications
- Reference RG 1.174, NUREG/CR-6850, and RIS 2004-03, Rev 1 for risk-based exemption requests
- Reference NUREG-1824 for use of fire modeling

Compliance Expectations

- Voluntary acceptance of guidance for existing plants – no requirement to comply/backfit
- Guidance/criteria will be used by inspectors
- Guidance/criteria will be used by reviewers when evaluating exemption requests, license amendments, etc., for existing plants
- Guidance will be used by reviewer when evaluating applications for new reactor licenses – new reactors are expected to comply

Inspection Plan

- Existing inspection plan will suffice
- No changes to inspection frequency or scope

Conclusion

- RG and SRP have been updated to provide guidance for new reactor FPPs
- None of the changes has backfit implications
- Risk-informed methods can be used for existing and new reactors
- Compliance expected for new reactors
- Updates provide guidance for inspectors and staff reviewers
- No change to current inspection plans

Safety Related – Important to Safety

- According to Appendix R: The phrases "important to safety" and "safety related" apply to all safety functions.
- The phrase "safe shutdown" applies to both hot and cold shutdown functions.
- In the context of fire protection, safe shutdown applies to functions that are required to be performed during and after postulated fire events.
- Systems required for mitigation of consequences following a design basis accident (and not required for post fire safe shutdown) need not be protected from exposure fire damage

Alternative/Dedicated Shutdown

- **Alternative Shutdown**—The capability to shut down the reactor that is required when it is not feasible to provide the required protection for redundant safe-shutdown trains in one or more fire areas or where fire suppression activities, including inadvertent operation or rupture of a water suppression system, could prevent safe shutdown.

Alternative/Dedicated Shutdown (Cont)

- **Dedicated Shutdown**—The capability to shut down the reactor and maintain shutdown conditions by adding new SSCs to an existing plant that are dedicated to performing post-fire safe-shutdown functions.
- The regulatory requirements and guidance for both alternative and dedicate shutdown systems are generally the same.

Electrical Circuit Failure Analysis

- Any electrical circuit whose fire-induced failure could prevent safe shutdown, either directly or indirectly (e.g., by spurious actuation) should be addressed in the post-fire safe-shutdown circuit analysis.
- Protection should be provided in accordance with regulatory requirements to provide reasonable assurance of safe shutdown

Success Path

- **Success Path**—The minimum set of structures, systems (including power, instrument, and control circuits and instrument-sensing lines), and components that must remain free of fire damage in order to achieve and maintain safe shutdown in the event of a fire.
- Success path is synonymous with the safe-shutdown "train free of fire damage" and includes electrical circuits whose fire-induced failure could prevent safe shutdown

Spurious Actuations

- **Spurious Operation**—The undesired operation of equipment resulting from a fire that could affect the capability to achieve and maintain safe shutdown.
- Any and all must be considered to occur and may occur in rapid succession
- The assumption that there will be sufficient time to mitigate each individual spurious operation before another occurs does not meet regulatory requirements and must be demonstrated by a licensee claiming this.

Operator Manual Actions

- **Operator Manual Action**—Actions performed by operators to manipulate components and equipment from outside the main control room to achieve and maintain post-fire hot shutdown, not including "repairs."
- Manual operation of valves, switches, and circuit breakers is allowed to operate equipment and isolate systems

Operator Manual Actions (Cont)

- Crediting operator manual actions for III.G.2 protection must be approved via the exemption process.
- Use of operator manual actions does not necessarily obviate detection and suppression
  - Detection would likely be essential to timely notification that an action is required
  - Suppression would generally be an element of the defense-in-depth required by fire protection regulations

Fire Protection for License Renewal

- Those fire protection system components which are passive and long lived are subject to an aging management review (AMR).
- Examples of fire protection components which are passive and long lived, include fire barrier assemblies (e.g. ceilings, damper housing, doors, floors, penetration seals and walls), sprinkler heads, fire suppression system piping and valve bodies, and fire protection tanks and pump casings, and fire hydrant casings.
- Smoke/heat detectors are considered active components (not subject to AMR)

New Reactors vs. Existing

- Fire Protection Regulations and guidance applicable to both new and existing reactors:
  - 10 CFR 50.48(a) – Fire Protection Rule
  - Reg Guide 1.189
  - SRP 9.5.1
  - GL 86 10– Implementation of FP Requirements
- FP Regulations and guidance applicable only to new reactors
  - 10 CFR Part 52 – ESP's; DC's and COL's
  - Enhanced fire protection per Commission
  - 10 CFR 50.59- Changes (proposed)

New Reactors vs. Existing (Cont)

- FP Regulations and guidance applicable to existing plants only
  - 10 CFR 50.48(b) and Appendix R (Pre-1979 plants)
  - 10 CFR 50.48(c) – NFPA 805 rule
  - SRP 9.5.1X – Future SRP for 805 plants
  - NFPA 805
- FP Regulations applicable to decommissioned plants only – 10 CFR 50.48(f)

Passive Plant Safe Shutdown

- Passive reactor designs are limited by the inherent ability of the passive heat removal processes and cannot reduce the temperature of the reactor coolant system below the boiling point of water for heat transfer to occur between the reactor coolant and the heat sink
- Based on the discussion and recommendations of SECY-94-084, the passive decay heat removal systems must be capable of achieving and maintaining 215.6°C (420°F) or below for non-LOCA events.
- Systems to bring the reactor to cold shutdown or refueling condition are not safety grade

Use of Risk Information

- Licensees that have not adopted 10 CFR 50.48(c) and licensees preparing new reactor FPPs may apply risk informed methodologies, including fire probabilistic risk assessment (PRA), to the evaluation of an FPP change.
- NRC should review and approve the proposed methodologies, including the acceptance criteria, before the implementation of the plant change.
- According to10 CFR 52.47(a)(v), new reactor applications must include a design specific PRA

Use of Risk Information (Cont)

- A detailed fire PRA is not necessarily required for a new reactor FPP
- However, if an applicant for a COL references a certified design and if that certified design developed a fire PRA, then the COL applicant, per proposed 10 CFR 52.80(a), is to use that PRA and update it to reflect site and plant specific information that may not have been available at the design stage.
- The term "fire PRA" encompasses all levels and types of PRAs, ranging from a simplified bounding analysis to a detailed analysis in accordance with NUREG/CR 6850