



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

July 20, 2015

MEMORANDUM TO:           ACRS Members

FROM:                   Michael R. Snodderly, Senior Staff Engineer /RA/  
                              Technical Support Branch, ACRS

SUBJECT:                CERTIFIED MINUTES OF THE MEETING OF THE  
                              FUKUSHIMA SUBCOMMITTEE ON MARCH 19, 2015

The minutes for the subject meeting were certified on July 10, 2015, as the official record of the proceedings of that meeting. Copies of the certification letter and minutes are attached.

Attachments: As stated

cc w/ Attachments: E. Hackett  
                          M. Banks



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

MEMORANDUM TO: Michael Snodderly, Senior Staff Engineer  
Technical Support Branch, ACRS

FROM: Stephen P. Schultz, Chairman  
Fukushima Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS  
FUKUSHIMA SUBCOMMITTEE MEETING ON MARCH 19, 2015,  
IN ROCKVILLE, MARYLAND

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

<u>R/A</u>	<u>7/ 10 /15</u>
Stephen P. Schultz, Chairman	Date
Fukushima Subcommittee	

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
MINUTES OF THE ACRS FUKUSHIMA SUBCOMMITTEE MEETING  
MARCH 19, 2015

The ACRS Fukushima Subcommittee held a meeting on March 19, 2015 in TWFN 2B1, 11545 Rockville Pike, Rockville, Maryland. The meeting convened at 1:00 p.m. and adjourned at 5:09 p.m.

The entire meeting was open to the public.

We have received no written comments or specific requests for time to make oral statements from members of the public related to this meeting.

ATTENDEES

ACRS Members

Stephen P. Schultz, Chairman  
Ron Ballinger, Member  
Sanjoy Banerjee, Member  
Dennis C. Bley, Member  
Charles H. Brown, Jr., Member  
Michael Corradini, Member  
Dana A. Powers, Member  
Joy Rempe, Member  
Peter Riccardella, Member  
Michael T. Ryan, Member  
Gordon R. Skillman, Member  
John W. Stetkar, Member

ACRS Consultant

William Shack

NRC Staff

Michael Snodderly, Designated Federal Official  
Aby Mohseni, NRR  
Tim Reed, NRR  
Eric Bowman, NRR  
George Tartal, NRO  
Clinton Ashley, NRO  
John McKirgan, NRO  
Nanette Gilles, OCM  
Robert Krsek, OCM  
Amy Cubbage, OCM  
Patrick Castleman, OCM  
Lawrence Kokajko, NRR  
John Monninger, NRO  
Raul Hernandez, NRO  
Mike Franovich, NRR  
Mike Eudy, NRO

NRC Staff (Continued)

Angelo Stubbs, NRO  
Fred Schofer, NRR  
Marie Pohida, NRO  
Jenny Tobin, NRR  
John Lubinski, NRR  
David Desaulniers, NRC

Other Attendees

David Young, NEI  
Bryan Ford, Entergy  
William Webster, Dominion  
Phil Amway, Exelon  
Jeff Capoler, ERW  
Nick Pappas, NEI  
Jim Riley, NEI  
Steven Kraft, NEI  
Andrew Maller, NEI  
Jonathan Rund, NEI  
Kyle Dittman, MPR  
Greg Hatchett, AREVA  
Bill Williamson, AGA  
Ed Lyman, Union of Concerned Scientists

SUMMARY

The purpose of the meeting was to review the Draft Proposed Rule for Mitigation of Beyond-Design-Basis Events and the associated supporting documents and guidance. The meeting transcripts are attached and contain an accurate description of each matter discussed during the meeting. The presentation slides and handouts used during the meeting are attached to these transcripts.

SIGNIFICANT ISSUES	
Issue	Reference Pages in Transcript
1. A. Mohseni, Deputy Director of Division of Policy and Rulemaking, provided an opening statement for the staff where he outlined the presentation, provided introductions and mentioned the key objective to demonstrate to the Subcommittee that the proposed rule is sufficient to support informed external feedback.	7
2. T. Reed stated his intent to go over the proposed rule language and Statement of Considerations with an emphasis on new language since the Subcommittee's last briefing on this matter on November 20, 2014.	10
3. Member Stetkar stated that the footnote on Page 28 of the Statement of Considerations regarding the technical analysis in support of the	13-17

Containment Protection and Release Reduction rulemaking regulatory is woefully misleading. Member Stetkar was concerned that a Member of the public could infer that the ACRS endorsed this analysis for the staff's stated purpose. He requested that the staff remove the footnote. See Action Item 1 below. T. Reed agreed to remove it. Member Stetkar also called out the rationale for not including firefighting procedures in the integration portion of the rule misleading.	
4. Chairman Schultz asked about a discussion in the decommissioning section that related to a specific reactor. He asked if the intent was to incorporate into the rule provisions for that one particular reactor or whether the staff was using that as an example.	20
5. Member Stetkar asked if the staff has looked at the effectiveness of SAMGs in a quantitative sense across different plant designs.	28
6. Chairman Schultz added the inability of the staff not to be able to quantify the benefit at this time does not mean that all you have left is qualitative arguments. T. Reed and the Subcommittee then discussed backfitting and the idea of substantial safety benefit.	31
7. Chairman Schultz pointed out that even if the Containment Performance Release Reduction evaluation demonstrates sufficient margin between the goals and the risk shown, one can buy into that only if one has an adequate integrated response capability.	37
8. Members Corradini and Rempe asked for clarification of no additional equipment requirements for SAMGs, the reasonableness finding, and instrument survivability.	41
9. Member Brown asked about the apparent discrepancy between the staff's statement, "we determined that conditions to which the instrumentation would be exposed, do not include the progression of sequence of events to damage the fuel," and the statement, "it would be necessary that the design and associated functional performance be sufficient to meet the demands of those strategies."	48
10. E. Bowman discussed the instrumentation requirement being pre-core damage and the Tier 3 Item on instrumentation that will investigate further instrumentation requirements.	57
11. Consultant Shack asked if an inspection under the Reactor Oversight Program would address the issue of adequate implementation and training of the SAMGs.	63
12. E. Bowman and T. Reed stated that the staff recommends that the Commission require SAMGs based on a defense-in-depth argument that uses the cost justified substantial safety benefit exception to the Backfit Rule based on qualitative factors.	67
13. T. Reed discussed draft proposed training requirements for the integrated response. Member Bley asked about training for non-licensed personnel in the Technical Support Center. Member Bley relayed his concerns with the delineation between advice from the TSC and transfer of plant control.	71
14. G. Tartal discussed new reactor design requirements. Members Corradini and Rempe discussed differences in instrumentation requirements for next generation and advanced reactors. They discussed with the staff the example of the previously certified AP1000 and the yet to be certified APR1400.	75

15. T. Reed discussed Paragraph (f) Drills and Exercises and Paragraph (g) Change Control. Member Powers asked about the basis for the eight year periodicity between drills.	87
16. T. Reed discussed draft proposed changes to Appendix E, "Emergency Planning and Preparedness," application requirements for new reactors and implementation.	94
17. Member Rempe asked about the Commission's motivation for increased expectations regarding severe accident instrumentation for new reactors versus the existing fleet as described in the Advanced Reactor Policy Statement.	100
18. Member Skillman cautioned the staff about potential inconsistencies between containment integrity as it applies to the physical containment (a noun) versus human actions to preserve containment integrity (a verb).	108
19. Chairman Schultz commented that the staff could better describe the credit given for the SAMGs already in place and improvements made already in response to lessons learned from Fukushima.	112
20. Member Rempe asked the staff to describe the level of review performed on the revised PWROG and BWROG generic SAMGs.	113
21. E. Bowman presents DG-1301, "Flexible Mitigation Strategies for Beyond-Design-Basis Events," DG-1317, "Wide-Range Spent Fuel Pool Level Instrumentation, and DG-1319, "Integrated Response Capabilities for Beyond-Design-Basis Events."	117
22. B. Ford of Entergy presented some industry high-level comments on the draft proposed rulemaking. He clarified that the industry's formal comments would be coordinated through NEI during the upcoming public comment period. B. Ford covered three main areas: (1) the reevaluated hazard requirement should be part of the rule's scope not the equipment portion, (2) no need for additional requirements for new reactors, (3) SAMGs should remain voluntary.	132
23. Member Skillman challenged B. Ford's argument that the reevaluated hazard shouldn't have to address extended loss of AC power along with the loss of the heat sink if the licensee can demonstrate that the reevaluated hazard doesn't cause a loss of offsite power. B. Ford argued for that targeted hazard strategy the licensee shouldn't need to assess the extended loss of AC power.	133
24. Member Rempe asked how the revised voluntary SAMG commitment would differ from the existing one that wasn't consistently maintained.	140
25. Member Bley asked industry representatives if they had any objections to the staff's description of SAMG oversight.	143
26. Chairman Schultz asked industry representatives if the staff's cost estimates for SAMG implementation were reasonable. Industry representatives said they would evaluate the cost estimates and provide comments during the public comment period. B. Ford acknowledged that industry has spent and plans to spend resources to implement the generic SAMGs on a plant-specific basis whether SAMGs are required or remain a voluntary commitment.	144
27. Consultant Shack challenged industry representatives on the logic of removing seismic events from a rule to be put in place to deal with beyond-design-basis external events.	154

28. Member Riccardella added that he didn't understand why new FLEX equipment wouldn't be designed to the new seismic ground response spectra.	157
29. Chairman Schultz asked for comments from members of the public.	170
30. E. Lyman of the Union of Concerned Scientists made two comments. He mentioned that UCS had proposed in July 2012 that licensees should propose a success path approach where you define the series of external event scenarios and you carry them through to their conclusion and you determine how the plant and the auxiliary or emergency equipment and personnel will respond. He also mentioned that qualitative factors can be used to justify SAMGs.	170
31. B. Williamson of the Tennessee Valley Authority commented on ongoing activities of the PWROG and BWROG to validate their SAMGs.	174
32. Chairman Schultz asked the subcommittee for final comments.	176
33. Chairman Schultz adjourned the meeting.	183

ACTION ITEMS	
Action Item	Reference Pages in Transcript
1. Member Rempe requested a copy of the letter from the PWROG and BWROG to the staff on their proposal for updating the revised generic SAMGs.	167

#### Documents provided to the Subcommittee

1. Draft SECY-2015-XXXX, "Draft Proposed Rule for Mitigation of Beyond Design Basis Events," March 9, 2015 (ML15068A268)
2. Draft Proposed Federal Register Notice, "Mitigation of Beyond-Design-Basis Events," (ML15068A272)
3. Draft Proposed Environmental Assessment, "Mitigation of Beyond-Design-Basis Events," (ML15068A277)
4. Draft Proposed Office of Management and Budget Supporting Statement, "Mitigation of Beyond-Design-Basis Events," (ML15068A289)
5. Draft Proposed Paperwork Reduction Act Statement, "Mitigation of Beyond-Design-Basis Events," (ML15068A301)
6. Draft Regulatory Guide – 1301, "Flexible Mitigation Strategies for Beyond-Design-Basis Events," (To be Provided)
7. Draft Regulatory Guide – 1317, "Wide-Range Spent Fuel Pool Level Instrumentation," (ML15068A325)
8. Draft Regulatory Guide – 1319, "Integrated Response Capabilities for Beyond-Design-Basis Events," (ML15068A328)

9. Draft Regulatory Analysis Proposed Rulemaking to Address Mitigation of Beyond-Design-Basis Events, February 24, 2015 (ML15068A284)



# **Official Transcript of Proceedings**

## **NUCLEAR REGULATORY COMMISSION**

Title:                   Advisory Committee on Reactor Safeguards  
                              Fukushima Subcommittee

Docket Number:     (n/a)

Location:             Rockville, Maryland

Date:                  Thursday, March 19, 2015

Work Order No.:     NRC-1453

Pages 1-188

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NUCLEAR REGULATORY COMMISSION  
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
(ACRS)  
+ + + + +  
FUKUSHIMA SUBCOMMITTEE  
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THURSDAY  
MARCH 19, 2015  
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ROCKVILLE, MARYLAND  
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The Subcommittee met at the Nuclear  
Regulatory Commission, Two White Flint North, Room  
T2B1, 11545 Rockville Pike, at 1:00 p.m., Stephen  
Schultz, Chairman, presiding.

## 1 COMMITTEE MEMBERS :

2 STEPHEN P. SCHULTZ, Chairman

3 RON BALLINGER, Member

4 SANJOY BANERJEE, Member

5 DENNIS C. BLEY, Member

6 CHARLES H. BROWN, JR. Member

7 MICHAEL CORRADINI, Member \*

8 DANA A. POWERS, Member

9 JOY REMPE, Member

10 PETER RICCARDELLA, Member \*

11 MICHAEL T. RYAN, Member

12 GORDON R. SKILLMAN, Member

13 JOHN W. STETKAR, Member

14  
15 ACRS CONSULTANT :

16 WILLIAM SHACK

17  
18 DESIGNATED FEDERAL OFFICIAL :

19 MICHAEL SNODDERLY

1 ALSO PRESENT:

2 CLINTON ASHLEY, NRC

3 ERIC BOWMAN, NRC

4 DAVID DESAULNIERS, NRC

5 BRYAN FORD, NEI

6 ED LYMAN, Union of Concerned Scientists \*

7 ANDREW MALLER, NEI\*

8 JOHN MCKIRGAN, NRC

9 JOHN MONNINGER, NRC

10 ABI MOHSENI, NRC

11 TIM REED, NRC

12 GEORGE TARTAL, NRC

13 WILLIAM WEBSTER, Dominion

14 BILL WILLIAMSON, AGA\* \*

15 DAVID YOUNG, NEI

16  
17 \*Present via telephone  
18  
19  
20  
21  
22  
23  
24

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

1:00 p.m.

CHAIR SCHULTZ: Good afternoon. This meeting will now come to order. This is a meeting of the Advisory Committee on Reactor Safeguards, Subcommittee on Fukushima.

I'm Stephen Schultz, Chairman of the Subcommittee. Members in attendance today are Dick Skillman, Dennis Bley, John Stetkar, Mike Ryan, Ron Ballinger, Charlie Brown, and Joy Rempe. Pete Riccardella is attending on the telephone today, and there may be other Members that will join us later. We also have former ACRS Chairman, Dr. Bill Shack in attendance today participating as our consultant on this matter.

The purpose of today's meeting is to review the Draft Proposed Rule for Mitigation of Beyond-Design-Basis Events and the associated supporting documents and guidance prepared by the Staff. We have had several meetings with the Staff on this topic and look forward to discussions on their progress and the results and products that they're going to present today.

This meeting is open to the public. It's being conducted in accordance with the provisions of the

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1 Federal Advisory Committee Act. Rules for the conduct  
2 of and participation in this meeting have been published  
3 in the Federal Register as part of the notice for this  
4 meeting.

5 The Subcommittee intends to gather  
6 information, analyze relevant issues and facts, and  
7 formulate proposed positions and actions, as  
8 appropriate, for deliberation by the Full Committee.

9 Mr. Michael Snodderly is the Designated  
10 Federal Official for this meeting.

11 A transcript of the meeting is being kept  
12 and will be made available, as stated in the Federal  
13 Register Notice. Therefore, we request that  
14 participants in this meeting use the microphones  
15 located throughout the meeting room when addressing the  
16 Subcommittee. All participants should first identify  
17 themselves and speak with sufficient clarity and volume  
18 so that they may be readily heard.

19 We have received no written comments or  
20 specific requests for time to make oral statements from  
21 members of the public regarding today's meeting. I  
22 understand that there are individuals on the bridge line  
23 today who are listening in on today's proceedings. To  
24 effectively coordinate their participation in this  
25 meeting we will be placing the incoming bridge line on

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1 mute so that those individuals may listen in. At the  
2 appropriate time later in the meeting we will provide  
3 the opportunity for public comments from the bridge line  
4 and for members of the public in attendance.

5 I'd like to remind us all to turn off our  
6 cell phones and communication devices so there's no  
7 interruption during the meeting.

8 We'll now proceed with the meeting, and I'd  
9 like to call upon Aby Mohseni of the Office of NRR to  
10 open the presentations today. Aby.

11 MR. MOHSENI: Thank you very much, Dr.  
12 Schultz, and good afternoon. My name is Aby Mohseni, and  
13 I am the Deputy Director of the Division of Policy and  
14 Rulemaking in the Office of Nuclear Reactor Regulation.

15 Today we will discuss the Proposed  
16 Mitigation of Beyond-Design-Basis Rulemaking. We are  
17 here today to engage with the ACRS Fukushima  
18 Subcommittee in support of your review of the Proposed  
19 MBDBE Rulemaking package. We are seeking ACRS  
20 endorsement for issuance of the proposed rule package  
21 for public comment. The ACRS Full Committee will meet  
22 on April 9th on this same topic.

23 In terms of ACRS support for issuance of the  
24 proposed MBDBE rulemaking, our view is that the proposed  
25 rule needs to be sufficient to support informed external

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1 feedback such that the NRC using that feedback can  
2 produce a good final product.

3 Accordingly, you will find that this  
4 proposed rule package seeks external feedback on a  
5 number of issues for which the NRC expects such a  
6 feedback to be key in reaching a final decision. And,  
7 of course, we will always find that external  
8 stakeholder's feedback improves our rulemaking, and we  
9 certainly expect that to occur again for the proposed  
10 MBDBE rulemaking.

11 To support this presentation, I have  
12 several members of NRR and from NRO. Tim Reed from our  
13 Staff will be leading the discussion of the proposed  
14 rulemaking. Tim will focus on the proposed rule  
15 language. Supporting Tim as the Lead Technical Expert  
16 in mitigation strategies is Eric Bowman from the  
17 Japanese Lessons Learned Division. Eric will focus on  
18 the supporting draft regulatory guidance. From NRO we  
19 have Clint Ashley who will also support the discussion  
20 of the draft regulatory guidance; the portions of 13-01  
21 that would be applicable to new reactors.

22 We also NRO support at the side table.  
23 George Tartal will support Tim with regards to the  
24 aspects of the proposed rule language that apply to new  
25 reactors. There are other members from the Mitigation

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1 of Beyond-Design-Basis Events Rulemaking Working Group  
2 in attendance to support questions from the Committee.

3 We last met with the Subcommittee on  
4 November 21, 2014, followed by a Full Committee meeting  
5 in December 2014. And since that time, there have been  
6 a few changes to the rule language, but in large measure  
7 the language has not changed substantially. Our plan  
8 today is to walk through the proposed language  
9 reasonably quickly and note where the language has  
10 changed. Our intent is to provide the maximum time to  
11 the ACRS Subcommittee to discuss the parts of this  
12 package that ACRS has not seen to date with the focus  
13 being on the draft guidance.

14 We want to thank the ACRS for its  
15 flexibility and patience in supporting the Staff with  
16 our efforts to provide the materials for the Committee.  
17 As the ACRS knows, we are on an aggressive schedule, and  
18 we are doing quite a bit in parallel that would normally  
19 occur in series.

20 This rulemaking has been a collaborative  
21 effort with several offices, as rulemakings always are,  
22 but in this case the Japanese Lessons Learned Division  
23 in NRR has been a major player as this rulemaking is  
24 addressing many post-Fukushima regulatory actions the  
25 JLLD is currently addressing. I will now turn it over

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1 to Tim.

2 MR. REED: Thanks, Aby. I'm Tim Reed. As Aby  
3 just mentioned, I'm the Lead Project Manager for the  
4 Mitigation of Beyond-Design-Basis Events Proposed  
5 Rulemaking, and I'll walk through the language and give  
6 the ACRS an opportunity to walk through to feel free to  
7 question, provide questions, comments, whatever you  
8 want; and, of course, any time you want.

9 My intent was to focus on the areas that I  
10 think are substantively new but you, of course, can stop  
11 me wherever you want. You have at your disposal a lot  
12 more information than we previously provided; namely,  
13 the Statement of Considerations that supports this  
14 language, as well as all the supporting analyses, Draft  
15 Reg Guides, what have you. So, with that information it  
16 may, in fact, generate a lot more comments and  
17 interactions regardless of whether you've seen that  
18 language before.

19 So with that, I'll go to the background  
20 slide. There's really nothing new in terms of the  
21 background that you haven't heard before, but I think  
22 it always goes B- it's a good thing to let stakeholders  
23 who are listening into this, maybe haven't heard this  
24 before; what this rulemaking is about, how it came to  
25 be. It's quite a large rulemaking in terms of its scope,

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1 and it has effectively the consolidation of two  
2 rulemakings, as this Committee is certainly well aware,  
3 the Station Blackout Mitigation Strategies rulemaking,  
4 and the Onsite Emergency Response Capabilities  
5 rulemaking. Those were combined into what we're calling  
6 the Mitigation of Beyond-Design-Basis Events  
7 rulemaking, and it goes to addressing a fairly large  
8 number of Near-Term Task Force recommendations, and you  
9 see the list there. Essentially, all of 4, 7, and 8, as  
10 well as 9.1, 9.2., 9.3.

11 You've seen this list before. Basically,  
12 these are elements that have been implemented as part  
13 of the Mitigation Strategies Order, collectively with  
14 that order. In addition, we're also cleaning up the ERDS  
15 language to effectively align with what is in place now,  
16 so it doesn't refer to any technology.

17 And before I go a whole lot further again,  
18 this is for folks who may not have been involved with  
19 this to date. It's always important to mention that in  
20 terms of safety, the orders B- most importantly, the  
21 Mitigation Strategies order issued on March 12th of 2012  
22 has been out there for quite a long time, and it's being  
23 implemented right now. I think if folks didn't know that  
24 they would say what is this? You know, here we are in  
25 March of 2015; this event is from four years ago, but

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1 the fact is the Agency, the industry has been working  
2 very hard, obviously; a huge amount of changes going on,  
3 and Lessons Learned from Fukushima, mitigation  
4 strategies, and other post-Fukushima regulatory  
5 activities that you see there.

6 And as Aby mentioned, many of these are  
7 coming into this rulemaking. We're making those  
8 generically applicable; although, we plan to, or we  
9 proposed to make those generically applicable in the  
10 Code of Federal Regulations.

11 So, in addition to this, I would also  
12 mention that because of B- there's actually six  
13 potentially for rulemakings that also did address it as  
14 part of this rulemaking effort, and that's because those  
15 six petitions relied solely on the Near-Term Task Force  
16 report, and in each case those Near-Term Task Force  
17 recommendations are being addressed in this rulemaking,  
18 so it logically follows that this rulemaking will also  
19 address those petitions. So, it's quite a large effort  
20 that's scoped in, and I think it's important just to  
21 remind everybody of the scope of the rulemaking.

22 MEMBER STETKAR: Before you get to the  
23 B- into the language of the rule, I've got a few issues  
24 with the Statements of Considerations, because I hadn't  
25 read through those before. I'm not even sure we had them

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1 before.

2 First comment is that there is a woefully  
3 misleading statement regarding ACRS, and it's in the  
4 Scope of Proposed SAMG Requirements. It happens to be  
5 on page B- it's in a footnote. It happens to be on page  
6 28, at least in my copy. Just to read it on the record,  
7 the discussion says, "As part of the NRC's efforts to  
8 develop the backfitting justification for imposition of  
9 SAMG requirements, it sought to make use of any  
10 applicable quantified risk information that might help  
11 to inform the justification.

12 In this regarding, the NRC looked at its  
13 recent technical analysis work performed in support of  
14 the containment protection and release reduction CPRR  
15 Rulemaking Regulatory Basis." And there's a footnote,  
16 and the footnote says, "The technical" B- there's a word  
17 missing, "was presented to the ACRS Subcommittee on  
18 August 22nd, 2014," and there's an ADAMS reference, "And  
19 November 19th, 2014," and an ADAMS reference.

20 If I'm a member of the public reading this,  
21 the implication I get is that the ACRS endorsed that.  
22 (A) The ACRS did not endorse it. It was presented to a  
23 Subcommittee. And (B) the Subcommittee had tremendous  
24 problems with that technical analysis. Please remove  
25 that footnote, period. I'm now speaking as the Chairman

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1 of the ACRS, not a member. That is a completely  
2 misleading reference to ACRS.

3 MR. REED: Okay.

4 MEMBER STETKAR: I've got real problems  
5 with the way you refer to those technical analyses for  
6 the CPRR as evidence that SAMGs don't improve risk. You  
7 explicitly make those statements. Now, those analyses  
8 were done to look at the net risk-benefit to public  
9 health and safety of installing a filter on a hardened  
10 vent for boiling water reactors with Mark 1 and Mark 2  
11 containments. They did not evaluate the effectiveness  
12 of SAMG actions. They only looked at the effectiveness  
13 of that filter; and, yet, you draw a conclusion that says  
14 based on that analysis, it looks like, you know, SAMGs  
15 won't really affect plant safety. But then you go on and  
16 say well, we have other qualitative reasons of doing  
17 this, and things like that.

18 I have no problems with the qualitative  
19 stuff, but to point to that limited, and in my opinion  
20 very flawed technical analysis to say that that B- the  
21 NRC can draw a conclusion that SAMGs in total for any  
22 plant in the country, for any set of accidents do not  
23 improve risk, is B- this is now my personal opinion, not  
24 as Chairman of the ACRS, misleading at best. Okay?

25 And the third place where you're misleading

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1 is when you discuss the rationale for not including what  
2 you call firefighting procedures or firefighting  
3 strategies and procedures under the scope of the  
4 procedures that's included in this integration. And  
5 you're very careful to talk about these as firefighting  
6 strategies and procedures, and the rationale looks at  
7 fire brigade actions and things like that.

8 You say that this was discussed with the  
9 ACRS during the regulatory basis development. Indeed,  
10 it was discussed with us. We recommended that the fire  
11 response procedures, which are not firefighting  
12 procedures, they don't tell you how to put a fire out.  
13 They do tell you about things like oh, disconnecting  
14 power supplies to a large fraction of your plant,  
15 sending operators out to do local things in the plant  
16 that they wouldn't normally do, abandoning the main  
17 control room. Those operational aspects of those  
18 procedures are what our concerns were, not how one might  
19 go mobilize the fire brigade to go put water or gas on  
20 a fire.

21 Indeed, we have actual operating  
22 experience that shows people can get confused when  
23 they're in both the EOPs and the fire response  
24 procedures simultaneously. And, indeed, that confusion  
25 can cause them to overlook things that are important to

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1 plant safety because they're focusing, perhaps, more on  
2 the fire response procedure rather than on other  
3 indications. So, I'd suggest that you may want to look  
4 at the way that those procedures are characterized as  
5 fire fighting procedures, and develop a better  
6 rationale for why this procedure integration ought not  
7 to include the fire response procedures, which are  
8 different. I'm done. I don't know if you want to respond.  
9 Those are the three things that I B-

10 MR. REED: Well, we'll certainly touched  
11 upon the SAMG B-

12 MEMBER STETKAR: B- had reading through B-

13 MR. REED: B- stuff some more later. And we  
14 can B- I'm sure we'll revisit that. I can give you the  
15 thoughts, anyway.

16 MEMBER STETKAR: Yes.

17 MR. REED: And then we can talk about that,  
18 and I don't know if you want to talk B- if anyone B-

19 MEMBER STETKAR: That's strictly from the  
20 Statement of Discussions because, you know, you never  
21 said that reflected B-

22 MR. REED: Yes, and that's B-

23 MEMBER STETKAR: B- the rule language.  
24 That's why I wanted to B-

25 MR. REED: Well, we can address that

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1 throughout, or however you want to do it.

2 CHAIR SCHULTZ: No, I think we should wait  
3 on that B-

4 MR. REED: Okay.

5 CHAIR SCHULTZ: B- because I think it's  
6 worthy of further discussion B-

7 MR. REED: Absolutely.

8 CHAIR SCHULTZ: B- a broader discussion  
9 than this.

10 MR. REED: Absolutely. Appreciate that. So,  
11 can we go to the next slide where we actually get into  
12 the substance of this?

13 MEMBER STETKAR: Yes.

14 MR. REED: All right, sir. Okay. So, the way  
15 the rule is structured is first, in Paragraph A we have  
16 an applicability paragraph there. Again, as the  
17 Committee should be aware, this applies to power  
18 reactors both operating, as well as new applications.  
19 And, in fact, we actually have decommissioning  
20 provisions in here, so we've built in that so it applies  
21 to whether you're in decommissioning or at power, as  
22 well as a new applicant. So, again, that's no change.  
23 You'll see that we have, in fact, updated our  
24 decommissioning provisions to reflect exactly what  
25 we've been doing here recently, as you'll see in a

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1 second.

2 This Committee was B- we were provided B- I  
3 think November 21st is the right date for the  
4 Subcommittee meeting. We did discuss new design  
5 features requirements at that Committee. Those have  
6 changed slightly. We have a slide on that, on Slide 7.  
7 And at that point, I think we'll wait B- we can wait,  
8 if you will. George Tartal in NRO can address that slide  
9 B- that issue on Slide 7, but I just simply note that  
10 in November we had an assessment feature, if you will,  
11 in those design feature requirements, and now it's  
12 simply, basically, about design features and building  
13 that into the design of your facility for new reactor  
14 designs such that you enhance scoping capability and  
15 lessen reliance on human action. So, again, that will  
16 be addressed. We have a slide on that, on Slide 7.

17 The decommissioning provisions actually  
18 just reflect what we've recently done for Oconee and  
19 San Onofre 2 and 3, Vermont Yankee, and Crystal River,  
20 so it looks like a lot, but it's actually completely  
21 status quo there, is what we've done. It reflects how  
22 we've been treating mitigation strategies when the  
23 licensee goes into decommissioning, how we're relieving  
24 those requirements. So, the idea here is simply B- it's  
25 good rulemaking practice. I'm trying to build into the

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1 rule decommissioning provisions to helpfully  
2 facilitate that process of decommissioning. I'm sure  
3 this Committee is well aware, this is a issue of pretty  
4 high importance right now to the Commission, so this is  
5 really building that in. So, again, it's fairly similar,  
6 you know.

7           Once the fuel is removed from the reactor  
8 and goes to the spent fuel pool, obviously, it doesn't  
9 make sense to apply the mitigation strategies and  
10 guidelines that apply to the reactor source term, so  
11 what you do is remove anything doing with core cooling  
12 for the reactor, of course, or primary reactor  
13 containment. And your focus goes to the spent fuel pool.  
14 And then whatever period of time is needed to basically  
15 conclude that your decay heat in your spent fuel pool  
16 is low enough that your boil off happened long enough  
17 giving you plenty of time to take out action. Then you  
18 can basically now remove the remaining  
19 Beyond-Design-Basis External-type mitigation  
20 strategies and it leaves you with the so called B5B or  
21 50.54(hh)(2) mitigation strategies. And those are now,  
22 as you'll recall, they are now what would be proposed  
23 155(b)(2). And that's because the nature of those events  
24 involve kinetic energy being added to the spent fuel  
25 pool, and that's why those stay in place until the fuel

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1 is completely removed from the spent fuel pool.

2 Again, if you look through the SAMG  
3 considerations you'll see that discussion there. This  
4 is in alignment with what we've been recently doing.  
5 We're not carving any new territory here. This is trying  
6 to reflect that and do basically good rulemaking in  
7 terms of decommissioning.

8 CHAIR SCHULTZ: In that regard, Tim, in  
9 terms of the decay heat once it's sufficiently low in  
10 the spent fuel pool, in the section there's discussion  
11 related to one reactor, a specific reactor that has been  
12 shut down for a very long time. And it wasn't clear to  
13 me whether you were trying to incorporate into the rule  
14 provisions for that one particular reactor, or whether  
15 you were using that as an example.

16 MR. BOWMAN: What we're doing, Dr. Schultz,  
17 with that one B- this is Eric Bowman. I'm the Staff Lead  
18 for the B5B requirements, as well as the Special Advisor  
19 for Japan Lessons Learned Division. That particular  
20 facility is a decommissioned reactor. It's the only one  
21 with fuel remaining in the spent fuel pool.

22 In 2005, we looked at the risk that was  
23 presented by the spent fuel that's remaining in that  
24 pool and concluded that it was sufficiently low  
25 remaining decay heat that the B5B requirements would not

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1 need to be imposed on that particular facility.

2 CHAIR SCHULTZ: That particular reactor.

3 MR. BOWMAN: Well, spent fuel pool to be  
4 precise.

5 CHAIR SCHULTZ: Okay.

6 MR. BOWMAN: Not the reactor, but the pool.

7 CHAIR SCHULTZ: Right.

8 MR. BOWMAN: The reactor would have been out  
9 of the question, anyway, because it had already  
10 decommissioned. We haven't got any information to show  
11 any change, any substantial safety benefit that would  
12 be accrued by imposing requirements on that licensee.

13 The counter is true for the remaining  
14 reactors that have entered decommissioning. They had as  
15 operating licensees the requirements imposed upon them  
16 to develop and implement the strategies for their spent  
17 fuel pools, and we concluded in the Power Reactor  
18 Security Rulemaking in 2009 that those requirements  
19 should remain in place until the fuel is removed from  
20 the pools. So, we've constructed the wording of the  
21 decommissioning provisions to carry that forward as we  
22 move the B5B provisions, if you will, the 50.54(hh)(2)  
23 provisions from Section 50.54 to Section 50.155.

24 CHAIR SCHULTZ: That clarifies the  
25 distinction for me. Thank you.

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1 MR. REED: Is there any other questions  
2 before we move on with this? Okay. Then we come to  
3 Paragraph B which I kind of view as the central piece  
4 to this entire proposed rulemaking. And this goes to the  
5 integrated response capability that we would require,  
6 develop and implement, maintain integrated response  
7 capability. It's this and the next slide run through  
8 this paragraph the way it's structured in the proposed  
9 requirements therein.

10 They're again substantially the same. It  
11 starts off with, of course, the mitigation strategies  
12 for Beyond-Design-Basis external events, what's known  
13 in the industry as FLEX. That's the first set of  
14 guidelines there. The second set of guidelines as we  
15 just mentioned are the extensive B- what are most  
16 commonly called the Extensive Damage Mitigation  
17 Guidelines. Those would be there, obviously, as we move  
18 50.54(hh)(2) in those rule. Again, this is a loss large  
19 area due to explosions and fires. Then we have the only  
20 set in this paragraph that are not currently  
21 requirements. These are the Severe Accident Management  
22 Guidelines. Those, of course, go into place when you  
23 have the onset of core damage.

24 Those, as the Committee is well aware, are  
25 currently voluntary industry initiatives. This

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1 proposed requirement, we are proposing to the  
2 Commission that those would be requirements. They would  
3 be restricted to the guidelines. It's intentionally  
4 designed to be the least amount of requirements for this  
5 set of guidelines that we think is necessary.

6 So, those are three guideline sets. That  
7 would be integrated with the currently existing  
8 symptom-based EOPs. We've structured the rule B- that's  
9 on the next slide. Before I go to it, I'll hold for a  
10 second, but we've structured it intentionally such that  
11 we don't go back and revisit the work from the 1980s,  
12 so we say these are structured with the EOPs. The  
13 intention is to leave the EOP work in place and not touch  
14 that. So, what we're trying to do is take these  
15 strategies and guidelines that were developed over  
16 different times and different places for different  
17 events and basically work those into something that  
18 becomes a lot more seamless in terms of an integrated  
19 capability. And it looks B- really, I think it's going  
20 in place largely in place, I mean, so this is really  
21 B- if you think about it, the FLEX strategies are being  
22 implemented right now connected into the EOPs, the  
23 Station Blackout EOP. The Extensive Damage Mitigation  
24 Guidelines are in place.

25 The SAMGs are voluntary B- are in place,

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1 but voluntary, but there are links, and so this would  
2 really formalize that and make sure it's done, and a  
3 complete and thorough job. So, that's the idea of this  
4 integrated response capability.

5 This is basically the same as we presented  
6 back in 2014. We haven't made any substantive changes  
7 here since that B-

8 CHAIR SCHULTZ: I wanted to just clarify  
9 that for the record, Tim, that what you have on the  
10 slide, revised or unchanged B-

11 MR. REED: Yes.

12 CHAIR SCHULTZ: B- that you're talking  
13 about what the Committee has heard previously.

14 MR. REED: That's correct.

15 CHAIR SCHULTZ: Not what this rule is doing.

16 MR. REED: Yes, right.

17 CHAIR SCHULTZ: The proposed rule is doing.  
18 So, as you've described here in detail these are, in  
19 fact, all changes that are being proposed with the rule.

20 MR. REED: Oh, absolutely. Sorry, it's  
21 B- yes, this is entirely focused on the Committee and  
22 trying to get you B- hopefully, help you focus attention  
23 on the new stuff.

24 CHAIR SCHULTZ: Right.

25 MR. REED: That was the intent.

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1 MR. BOWMAN: The one thing I would suggest  
2 clarifying B- this is Eric Bowman, again. The  
3 50.54(hh)(2) movement from its current location to this  
4 particular section isn't going to be a change in the  
5 strategies, the B5B strategies that have already been  
6 in place, licensed, and reviewed. So, that will not be  
7 a substantive change. Otherwise, the statement you made  
8 about what the meaning of the unchanged is exactly  
9 correct.

10 CHAIR SCHULTZ: The statement at the  
11 bottom, "No additional equipment requirements for  
12 SAMGs."

13 MR. REED: Yes. The structures, as we get  
14 into it we can talk about this, and I'm sure we will based  
15 on the comments so far. The way we've structured the SAMG  
16 requirement is in light of what I think are B- I think  
17 our Work Group thinks are very informative risk  
18 information. And based on, in light of that what we tried  
19 to do is address what we've B- with a problem that was  
20 identified.

21 The problem that was identified  
22 post-Fukushima from the TI that showed that there was  
23 a range of conditions out there. When we went out and  
24 looked at what licensees had in place for the SAMGs,  
25 between people who have updated and kept those SAMGs

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1 basically up to date and were in great shape, to folks  
2 that put something in place in say 1998 and just  
3 basically did not do a whole heck of a lot with them since  
4 then, so there's a range there. So, the concern was hey,  
5 these things aren't necessarily being maintained. They  
6 don't necessarily reflect the generic work by the  
7 industry and updating SAMGs over time, certainly  
8 couldn't reflect the most recent work here. And wouldn't  
9 necessarily be in alignment with the configuration of  
10 the facility and wouldn't reflect the new capabilities  
11 going in place under the Mitigation Strategies Order.  
12 So, that's the problem, if you will, and so putting  
13 requirements on SAMGs, the way we've structured it would  
14 certainly solve that problem. And that was what we were  
15 going after.

16 Now, in terms of going further than that,  
17 you know, in terms of saying should the Staff review and  
18 approve SAMGs on a generic basis or on a plant-specific  
19 basis, we backed off of that. And I'm sure you've read  
20 that. And the idea is that we don't think that's  
21 necessary, and level of regulatory assurance for this  
22 thing B- for this area. We think we can do this with  
23 inspection. And it basically would be a high-level  
24 inspection to make sure licensees have SAMGs, that  
25 they're in place, they're in Configuration Management,

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1 they reflect new equipment, they're updated in  
2 accordance with the generic Owners Groups program, and  
3 new EPRI basis documents, the great work that's been  
4 done here in the last couple of years, and so that's the  
5 intent.

6 Of course, when I talked about SAMG  
7 requirements, I think it's in the backfit analysis.  
8 You'll see there's a footnote, and what I'm really  
9 saying there is that all the regulatory assurance, that  
10 in fact goes to that. And that includes drills that  
11 extend into core damage, that includes the change  
12 control that would apply to SAMGs, that includes  
13 training for SAMGs, so it's not B- it is the guideline  
14 set, but it's all the assurance requirements that  
15 support the guideline set so that you have sufficient  
16 assurance that, in fact, SAMGs are in place, and there's  
17 reasonable expectation that they can be implemented.  
18 But that's what we thought B- our view was B- our view  
19 is what is appropriate given what we understand to be  
20 the risk benefit from that.

21 Now, obviously, we think they're  
22 beneficial from a qualitative standpoint. I think there  
23 are very strong defense-in-depth arguments. Okay? But  
24 in terms of what I've extracted, I know Dr. Stetkar  
25 disagrees on this, but B-

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1 MEMBER STETKAR: What I would ask is, has  
2 the Staff B- I mean, the thing you refer to B-

3 MR. REED: Yes.

4 MEMBER STETKAR: B- is not a valid study of  
5 the effectiveness of SAMGs.

6 MR. REED: Yes, it wasn't B- that's  
7 correct.

8 MEMBER STETKAR: Has the Staff actually  
9 tried to look at the effectiveness of SAMGs B-

10 MR. REED: Yes, I think B-

11 MEMBER STETKAR: B- in a quantitative sense  
12 across pressurized water reactors, different plant  
13 designs?

14 MR. REED: Yes, I think B- I tried to B-

15 MEMBER STETKAR: Not, you know, early  
16 fatalities and cancer risk just because you can't  
17 quantify anything else?

18 MR. REED: Yes, I fully understand that  
19 wasn't directed to SAMGs. That's absolutely the truth.  
20 What I tried to do is be risk-informed by that  
21 information, okay, the best I can. And what I'm trying  
22 to B- what we're trying to do with that information is  
23 understand what could be the benefit for SAMGs using  
24 that, so it's certainly a stretch.

25 MEMBER STETKAR: Give you a different

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1 perspective from B- and I've been cautioned about not  
2 doing this, but I'll try to do it once. I've worked on  
3 risk assessments in Europe that are full scope Level 2  
4 risk assessments that, indeed, have shown substantial  
5 risk benefit from severe accident management guidance  
6 to save the containment. Can't tell you about them  
7 because they're, you know, proprietary work that I  
8 worked on, so I know there's quantifiable benefit.

9 I doubt that the NRC has looked at that  
10 because the NRC does not have models or quantitative  
11 ability to look at those deltas. You typically don't  
12 have SPAR models that have detailed Level 2, and you  
13 certainly have not quantified Level 2-type human  
14 reliability. You didn't even do it in the thing you  
15 referred to. I won't call it a risk assessment. So,  
16 developing a blanket B- saying I looked at that thing  
17 B- in Europe when we looked at, for example, the  
18 benefits of filters versus non-filtered vents on a  
19 boiling water reactor 30 years ago, it was clear that  
20 the filter didn't buy you any improvement in terms of  
21 offsite health benefit, and people have known that for  
22 a long time. But that's not SAMGs, that's not an  
23 inference that I can say having SAMGs or not having SAMGs  
24 will have an effect on reducing risk to the health and  
25 safety of the public. And that's my real problem with

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1 referring to that particular study and saying well, we  
2 gained all of these tremendous insights from that thing  
3 to say well, SAMGs are likely not to have much benefit,  
4 because I can show you a study B- I can't.  
5 Unfortunately, I can't show you the studies, but studies  
6 have been done to show that they do.

7 MR. REED: Well, I'm certainly not aware of  
8 that.

9 MEMBER STETKAR: It leaves people the wrong  
10 B- the problem is it leaves people the wrong impression  
11 because it says well, the NRC did some sort of risk  
12 assessment work, and the conclusion B- and it's recent.  
13 It's not stuff that's 30 years old. And the conclusion  
14 from that is oh, there's likely not much quantitative  
15 benefit, but we can develop a lot of qualitative  
16 arguments which, by the way, are all very good.

17 MR. REED: Appreciate, at least B-

18 MEMBER STETKAR: The qualitative arguments  
19 are all very good, but to explicitly say that we don't  
20 have any B- you may not have any quantitative evidence.

21 MR. REED: I mean, I was trying to  
22 extrapolate that, and you can B- I stand accused.

23 CHAIR SCHULTZ: Well, let me pile on a  
24 little bit.

25 MR. REED: Okay.

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1 CHAIR SCHULTZ: Because I do believe that  
2 the discussions associated with the reasons why the  
3 SAMGs are of safety benefit, those discussion B- that  
4 discussion is very good. I do get stuck when I see that  
5 the rationale for moving forward with this portion of  
6 the proposed rule is that B- the rationale is that we're  
7 using qualitative factors, or qualitative rationale.

8 I think it should be quantifiable. I think  
9 it's clear that if you have a facility of these types,  
10 and you have the need for Severe Accident Management  
11 Guidelines, and you instill them into the operation of  
12 the facility, that there is a quantitative benefit.

13 Let me say it differently. The inability,  
14 perhaps, for us not to be able to quantify at this time  
15 does not mean that all you have left is qualitative.

16 MR. REED: I guess B-

17 CHAIR SCHULTZ: It's just a matter of  
18 expression, but it de-emphasizes the advantage and the  
19 benefit of the SAMGs, and all of this integrated  
20 response capability, and its benefit and need to move  
21 forward with the rule. Otherwise, you begin to lose the  
22 argument B-

23 MR. REED: I think B-

24 CHAIR SCHULTZ: B- that this is an  
25 important B-

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1 MR. REED: Part of the problem is I think in  
2 backfit space, and not necessarily in showing a change  
3 in benefit. I'm showing either adequate protection,  
4 which is a very large change, or a substantial B- you  
5 know, so I think in purely backfit, so that may be part  
6 of the problem.

7 MEMBER STETKAR: No. Yes, I understand.

8 CHAIR SCHULTZ: Yes.

9 MEMBER STETKAR: I understand that  
10 constraint. And quantitatively in the context of U.S.  
11 backfit numerics, it's been a while since I looked at  
12 the study. I honestly don't know B-

13 MR. REED: Yes, and I B-

14 MEMBER STETKAR: B- whether you trip over  
15 B- on the other hand, I am absolutely confident that you  
16 can show more benefit than was shown from that CPRR  
17 little study.

18 MR. REED: Yes, I would agree with that,  
19 too. I think you could show more if you did something  
20 explicitly for SAMGs. Okay? But I'm thinking in my mind,  
21 and I didn't provide it in this one, but in the last  
22 presentation B- and I didn't want to provide it here.  
23 I didn't want to get into a lot B- because I knew B- I  
24 think is some sensitivity some of this information  
25 because I was at that briefing, Dr. Stetkar, but I was

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1 thinking about the more bounding number there, that was  
2 a full magnitude below the QHOs, if you recall. And, to  
3 me, that's B- you know, when you're 10 times below at  
4 a bounding level for a very B- for a type design that  
5 is amenable to actions after core damage, and there's  
6 lots you can do with the Mark 1 and Mark 2 there. To me,  
7 that is pretty good information that tells me that what  
8 I believe is B- everybody kind of expects that B- severe  
9 accident risk is very low. It's low as a function of all  
10 our regulations that drive core damage down, and it's  
11 low as a result of EP moving people out of harm's way.  
12 I mean, that shouldn't be surprising, but what was  
13 surprising to me was it was that low. And that's why in  
14 the backfit space I'm thinking I don't B- even if you  
15 spent the time and money to do it, I don't think we can  
16 make the level, if you will, show we can impose by  
17 quantitative measures.

18 MEMBER STETKAR: Don't hang up, though, on  
19 that one particular plant design, and the one particular  
20 issue for that one particular plant design. How much  
21 benefit do you get from piping an alternate cooling  
22 water supply to the containment fan coolers from a  
23 non-safety grade source of water to save the  
24 containment? That's a SAMG. I've seen it done. How much  
25 do you get from piping fire water into the containment

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1 spray system? That's a SAMG. I know plants that have  
2 hooked it up, and I've seen the credit that you can get  
3 for that.

4 They have it in pressurized water reactors  
5 and they are not focused on this particular one issue  
6 for a boiling water reactor with a Mark 1 or Mark 2  
7 containment. And that's the broader context of SAMGs.

8 MR. REED: Yes, I hear you. I mean, I'm not  
9 sure if I'm communicating well, but in each case if I'm  
10 going to get a lot of benefit for the circumstances, I  
11 think you're going to find that there's a power reactor  
12 there with a lot of risk there. For whatever reason,  
13 internal, external, probably external risk that there's  
14 substantial risk such that when I do that SAMG, I get  
15 a big benefit. So, yes, there would be a range across  
16 the board of different B- every plant is going to have  
17 a different risk, but for there to be a substantial  
18 change in severe accident risk, I think, you know,  
19 there's got to be some risk there.

20 And the first thing I would ask the people  
21 is if, in fact, you get to the point where you show SAMGs,  
22 let's say whatever plant it is, you show SAMGs get a very  
23 big return, I'm going to say let's come to a full stop.  
24 How did you get to that sequence? Is it better to stop  
25 upstream and address the issue before it goes to core

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1 damage, if you follow what I'm saying.

2 MEMBER STETKAR: It's a difference in  
3 perspective. Will it drop below some magic absolute  
4 number, or will it drop the risk by a factor of 100?

5 MR. REED: Yes.

6 MEMBER STETKAR: A factor of 100, not  
7 necessarily less than, you know, 1E to the minus 5 large  
8 release frequency.

9 MR. REED: Exactly.

10 MEMBER STETKAR: But gain a factor of 100 on  
11 perhaps a lower value than that.

12 MR. REED: Yes.

13 MEMBER STETKAR: But a factor of 100, to me,  
14 is kind of important from a risk perspective.

15 MEMBER BLEY: And the point you just made,  
16 Tim, if we put B- for any given defined scenario, you  
17 can prevent it. You can come up with something. I agree  
18 with you. But putting all your eggs in the prevention  
19 basket doesn't cover you for the case where you didn't  
20 think of the scenario.

21 MR. REED: Yes, that's defense-in-depth,  
22 and I like that argument B-

23 CHAIR SCHULTZ: And that's the qualitative  
24 stuff brings out that point.

25 MR. REED: Yes, I agree 100 percent. There's

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1 value to that, and if the Committee has ever looked  
2 through the SAMGs and looked at EPRI Technical Basis  
3 document, if you glance through that, there's an  
4 enormous amount of great information in there. I think  
5 it's very valuable, so I do think there's a lot of value  
6 in it. Absolutely.

7 MEMBER BLEY: And to that issue of what  
8 we've forgotten, when we had the floods a couple of years  
9 ago and started looking hard at the risk from floods,  
10 I think nobody had calculated it at the levels that you  
11 probably calculate it now.

12 MR. REED: Yes, I agree with that, too. I  
13 think sometimes we think we know more than we really do.  
14 There's more uncertainty, perhaps. Yes, I agree with  
15 that, also. I think I had those thoughts in there, too,  
16 so I'm aligned with it qualitatively. I'm just trying  
17 to address Dr. Stetkar's issues on how I was informed,  
18 or our team was informed by the risk. We think we really  
19 were informed enough.

20 MEMBER BLEY: Your argument about where the  
21 level of risk is compared to B- is one thing, but I  
22 really agree with John on the idea of extrapolating  
23 anything from that one study to apply across B-

24 MR. REED: Yes, I know B-

25 MEMBER BLEY: B- the range of the SAMGs,

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1 just doesn't work.

2 MR. REED: I know. I was B- you know, I think  
3 it was Dr. Corradini, one of our previous meetings B-

4 MEMBER BLEY: He came up with it?

5 MR. REED: Well, he was the one, hey, how  
6 come you aren't doing risk B- I haven't heard B- and  
7 he's beating on me. And I said well, you know, I'm going  
8 to try to find risk information everywhere I can find  
9 it. And I thought the B- I think the folks in Research  
10 did a great job in that technical basis for CPRR. I'm  
11 sorry, I really do think they did a great job, and that's  
12 why I was looking at it. I think it is informative, and  
13 there's a lot B- it tells you a lot about doing things  
14 after core damage, and whether there's any risk benefit  
15 to be gained. Certainly, there's benefits, but are they  
16 at the level that you can backfit and impose it? I don't  
17 believe you're going to get there personally as a  
18 backfit B- from a backfit standard in the U.S. I do  
19 understand there would be benefits, I agree, but it's  
20 a tough standard to hit the backfit mark, in my personal  
21 opinion. Anyway.

22 CHAIR SCHULTZ: But here's another  
23 perspective. If you look at that evaluation and you see  
24 the difference between the goals and the risk shown, one  
25 way one might look at that would be to say I can

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1 B- there's plenty of margin, and I can buy into that.  
2 But I can buy into that only if I have an integrated  
3 response capability that falls along these lines,  
4 because those are the elements that, in fact, are being  
5 brought forward to the Mark 1s, Mark 2s with that overall  
6 evaluation and approach. There's a lot of work that's  
7 being done, we'll hear about it tomorrow morning B-

8 MR. REED: Yes.

9 CHAIR SCHULTZ: B- with regard to B-

10 MR. REED: Absolutely.

11 CHAIR SCHULTZ: B- response to events.

12 MR. REED: Yes.

13 CHAIR SCHULTZ: And the need for that in  
14 order for the argument to hold, perhaps. And I don't mean  
15 you B- everyone wouldn't need that for the argument, but  
16 I would propose that this is extremely helpful to  
17 demonstrate that were this in place, I can buy into it.  
18 I can see that the delta is there, and it's very, very  
19 beneficial to move in this direction.

20 MR. REED: Also, I would be remiss if I  
21 didn't mention that B- I do tend to forget this because  
22 I think of it as no SAMGs and SAMGs, and that's the delta;  
23 where, in fact, there are SAMGs. And the delta about this  
24 requirement is simply updating those SAMGs. As I  
25 mentioned, some folks they really update, others that

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1 may be a switch, and so the delta in terms of that impact  
2 is fairly small, I believe. I think you could probably  
3 take somebody who has a 1998 SAMG that's been sitting  
4 on the shelf, and you probably wouldn't be too bad given  
5 their most recent experience with mitigation strategies  
6 and their understanding of how to do that. They have a  
7 much more mitigation strategy mind set, clearly, and if  
8 you take even something that was out of date, I believe  
9 they'd have a really good chance.

10 Now, I think it's much better the work the  
11 industry has recently done, it's great stuff, and I  
12 would like to see it updated, no doubt. And they're  
13 working that way, so I do think there's benefits. But  
14 we've got to keep in mind that these things are in place  
15 at every facility. They're just voluntary, and what  
16 we're trying to do is make them mandatory. So, that goes  
17 to this backfit again.

18 I'm a backfit mind set in rulemaking.  
19 That's the way I'm thinking, so that's why I thought  
20 B- I'm trying to inform the Commission. I'm trying to  
21 be as honest and objective across the board. I mean, the  
22 fact is, is that it's the Commission's decision here on  
23 how much weight you're going to give to qualitative  
24 factors. I mean, that's a recent SRM, and I understand  
25 that. For them to make that informed decision, I think

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1 they have to have all the best information, again.  
2 That's the spirit I'm trying to provide, so B-

3 MEMBER STETKAR: Tim, my point is that the  
4 information that you throw in their face as quantitative  
5 information is rather, in my opinion, bad information.  
6 It's misleading.

7 MR. REED: I should probably characterize  
8 it a little better. I think I B-

9 MEMBER STETKAR: And that's the danger of  
10 spending B-

11 MR. REED: Yes.

12 MEMBER STETKAR: B- kind of a page focusing  
13 them on this recent study that's been done, and look at  
14 the insights that we can from it, and from quantitative  
15 B-

16 MR. REED: Yes, I B-

17 MEMBER STETKAR: B- we can't make the case,  
18 because it's not true.

19 MR. REED: It B-

20 MEMBER STETKAR: It's true that you can't  
21 make the case B-

22 MR. REED: That's what I meant.

23 MEMBER STETKAR: B- but using that study as  
24 evidence B-

25 (Simultaneous speech)

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1                   MEMBER           STETKAR: B- you           can't  
2                   quantitatively justify it.

3                   MR. REED: Certainly want to characterize  
4                   that information correctly, but I want to be informed  
5                   by it. So, I mean, to the extent you can help with that,  
6                   I do appreciate it. I mean, so B- because I think it's  
7                   great information to try to use, but I understand we've  
8                   got to be careful how we do that.

9                   MEMBER STETKAR: Right. I think very  
10                  careful with sensitivity.

11                  MR. REED: Yes, okay.

12                  MEMBER STETKAR: Just to try to demonstrate  
13                  that there is quantitative evidence and that you've  
14                  relied on it to some extent.

15                  MR. REED: Yes.

16                  MEMBER STETKAR: And I think B-

17                  MEMBER CORRADINI: Can I ask a question?

18                  CHAIR SCHULTZ: Yes. I was just informed  
19                  that you wanted to ask a question. Go right ahead.

20                  MEMBER CORRADINI: So, Tim said I was  
21                  beating him up, so here's my chance. So, Tim, I don't  
22                  understand the last phrase in your viewgraph where no  
23                  additional equipment requirement. And that B- and I  
24                  want you to explain that, and also from the context that  
25                  the way you described the process, NRC Staff is going

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1 to make sure there are SAMGs, that they're up to date,  
2 that they're being trained on, but it's going to make  
3 no comment on the technical content of them, and review  
4 them for, I don't know, the evolution of the technical  
5 content. Am I misunderstanding?

6 MEMBER REMPE: Could I even ask a little bit  
7 differently, because you said they were going to review  
8 them for the reasonableness, or adequacy for reasonable  
9 implementation successfully. At least you said  
10 something like that a few minutes ago. Right? And so how  
11 would a Staffer do that without some sort of  
12 quantitative analysis? I mean, what's your vision on how  
13 you're going to implement this?

14 MR. REED: Well, first let me talk a little  
15 bit to Dr. Corradini's, and I'll try to get to you both  
16 at one time.

17 MEMBER BALLINGER: I've got one after that.

18 MR. REED: Okay, fine.

19 (Simultaneous speech)

20 MR. REED: Well, no, this is the central  
21 question I think in this rulemaking, so this makes a lot  
22 of sense. But, you know, if I B- if you follow where I'm  
23 going with this, if I don't think there's a lot of  
24 quantitative risk benefit, okay, there is benefit, but  
25 not a lot. I do want the requirements in place to

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1 basically make sure there things are in the  
2 Configuration Management Program, and maintained up to  
3 date. That was the problem.

4 What I don't want to do is sink a lot of  
5 attention and resources from the NRC into reviewing at  
6 any level and then getting into exchanges back and  
7 forth, and industry taking their resources and sinking  
8 it at a generic level, or even a plant-specific level  
9 because those resources would not be doing something  
10 else that, in my view, would be much B-

11 MEMBER BALLINGER: Looking at equipment?

12 MR. REED: No, I mean in terms of reviewing,  
13 looking at strategies, looking at equipment for the  
14 strategies, looking at the B- basically going through  
15 and reviewing the SAMG information. I think that would  
16 take an awful lot of focus and resources away from  
17 activities that I think would be vastly more important  
18 for plant safety. That's my concern.

19 MEMBER CORRADINI: So, let me ask it more  
20 bluntly. So, you're saying that there's going to be a  
21 frequency of a box check, but not any frequency of a  
22 content check.

23 MR. REED: I don't think that B- I think  
24 that's not too far off. I mean, basically, what B- I  
25 mean, I wouldn't, obviously, put it that way, but what

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1 we're suggesting here, you could see the inspection  
2 ideas that we have here, is to make sure that the  
3 guideline set is in place, is within Configuration  
4 Management, reflects the new set of equipment and quite  
5 a bit of additional capability for mitigation that's  
6 going in place because of the Mitigation Strategies  
7 Order, and reflects the new generic industry efforts to  
8 update the SAMGs. That's an awful lot of good stuff, and  
9 if that happens, I think we have addressed the issues  
10 that were identified in the TI. So, that's B- if that's  
11 the box check, Dr. Corradini, that's what we are  
12 intending to do. But not delve into the individual  
13 strategies and reviewing them, or looking at whether the  
14 primary means, alternate means, or uncertainties of  
15 instruments, the range of instruments, or everything  
16 else as you walk through all the different phenomenology  
17 you could see in these different core damage sequences  
18 are the appropriate way to do it. That's a large, giant  
19 effort that you could go on for years, and that's B- I  
20 don't want to take our resources, the licensee's  
21 resources and go down that rabbit hole.

22 MEMBER CORRADINI: Okay. All right.

23 MR. REED: Is that B-

24 MEMBER CORRADINI: You've clarified it. I  
25 may not agree with it, but you clarified it.

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1 MR. REED: Okay, that's B- understand.

2 MEMBER REMPE: Then is it worthwhile having  
3 that if they have these SAMGs, and they're trained to  
4 rely on certain instruments, as you brought up, and the  
5 instrument is not good for those conditions. I mean,  
6 what's the benefit?

7 MR. REED: I probably don't have my SAMG  
8 person here yet in the room. They'll be here shortly,  
9 but basically, the SAMGs have that philosophy built into  
10 them, you know, in terms of primary means to B- you know,  
11 if you've looked at them B-

12 MEMBER REMPE: They're working on that to  
13 even improve it at this time, too.

14 MR. REED: Yes, absolutely. Absolutely.

15 MEMBER REMPE: But if there's not any  
16 regulatory exchange or review B-

17 MR. REED: That's right.

18 MEMBER REMPE: B- I'm not sure if it's going  
19 to be a worthwhile endeavor.

20 MR. REED: No doubt I'm trusting the  
21 industry experts, and I'm not going to B- and the NRC  
22 is not going in and basically checking that work, at  
23 least not officially.

24 MEMBER REMPE: Well, I B-

25 MR. REED: I would say I'm probably not

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1 being fully fair to the efforts of the NRC because, you  
2 know, back in the '90s, some of you folks might have been  
3 around when the Staff did look at the SAMGs, and I had  
4 quite a bit of interaction with the industry up until  
5 1998 in establishing the voluntary initiative. And we  
6 have, in fact B- we've had a public meeting, a two-day  
7 public meeting back B- I'm thinking it was in March,  
8 somewhere in 2014, maybe it was a little later month  
9 where we've interacted with them. And, in fact, we've  
10 got access through the e-Portal. We have been looking  
11 at the SAMGs, so if it sounds like we don't have any idea,  
12 that wouldn't be proper. But what I'm saying is, when  
13 I say review, an official review where somebody sends  
14 and ends in official review. And that's a different  
15 animal, you know. What we've done, I wouldn't  
16 characterize that as review. I think we've used words  
17 like "look," and, you know, that's a soft word, but I  
18 won't want to over sell what we've done, but we have  
19 B- we're definitely familiar with it. We have  
20 interacted with industry, we've interacted recently, so  
21 that's the level at this point of what we've done.

22 MEMBER REMPE: Historically, you did at the  
23 beginning and it was deemed a voluntary effort, and then  
24 after B-

25 MR. REED: That's right.

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1                   MEMBER REMPE: B- Fukushima you went back  
2                   and said well, the voluntary effort didn't work so well,  
3                   and here we are again. Well, we'll do a checkbox review  
4                   to keep it from being something that's not really going  
5                   to be useful in the end-run if you don't have more of  
6                   an exchange, and an ongoing exchange at some level. I  
7                   realize it's a severe accident and not deemed to be that  
8                   frequent of an event, but it's just B- I'm wondering if  
9                   something more concrete needs to be established.

10                  MEMBER CORRADINI: So, can I try a different  
11                  way of saying it, Tim? I understand where NRC can only  
12                  interact with the owner-operators, the licensees in a  
13                  formal manner, but I think in this regard, if you have  
14                  a no- good, very bad day, you want to be ready for it  
15                  by having the regulator in conversation with the  
16                  licensee so that they're on the same page as to what the  
17                  content is of these. So, to the extent that the Agency  
18                  has people in conversation with the licensees on this  
19                  on an ongoing basis, I think it can only be beneficial.  
20                  And I think these B- as John started off the  
21                  conversation, on a relative basis, these are quite  
22                  beneficial.

23                  CHAIR SCHULTZ: Thank you, Mike. Charlie,  
24                  you're next in queue.

25                  MEMBER BROWN: Okay. Equipment. On B- I

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1 guess at an ANS meeting recently, one of your staff  
2 presented a B- some conclusions where it demonstrated  
3 for accidents monitoring instrumentation, that that was  
4 needed to further hardened reactor and containment, and  
5 spent fuel pool monitoring to better withstand severe  
6 accident conditions. That was presented B- one of your  
7 staff members did that.

8 So, I said okay, that's consistent with  
9 some of our past discussions and the meetings relative  
10 to severe accident monitoring. Then I looked at the FRN  
11 and said, okay, the NRC proposes to have requirements  
12 for licensee B- this is on page 67, for licensee  
13 equipment, including instrumentation that is relied  
14 upon for use in the proposed mitigation strategies and  
15 guidelines.

16 You page down to page 69, when you finish  
17 all your discussion, it says, "As a result, we  
18 determined that conditions to which the instrumentation  
19 would be relied on would be exposed, do not include the  
20 progression of sequence of events to damage the fuel."  
21 You've determined that it should not be necessary for  
22 the instrumentation to be designed for use in the  
23 mitigating strategies and guidelines conditions, in the  
24 first paragraph. But, instead, it would be necessary  
25 that the design and associated function requirements

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1 B- functional performance be sufficient to meet the  
2 demands of those strategies. Well, that was a little  
3 loose, couldn't figure out what that said.

4 Then I looked at your other document that  
5 you provided us that said -- that's the being supported  
6 -- to support the meeting with ACRS today and not to  
7 solicit external feedback, where said, "The proposed  
8 SAMGs would not include new instrumentation  
9 requirements." You go through a discussion and then you  
10 conclude that, "The Staff concludes the NRC and licensee  
11 requirements efforts and resources are focusing on  
12 designing severe accident instrumentation. Attention  
13 could be significantly diverted from more important  
14 safety issues."

15 I'm trying to figure out where you're going  
16 with this. Is it the conclusion -- there have been a  
17 number of past meetings where we've discussed and it has  
18 been kind of understood that you would look at or assess  
19 it, and it seems to me what you've said is no, there's  
20 no severe B- other than the fuel pool B- the spent fuel  
21 pool level instrumentation, that looks like everything  
22 else is off the board and everybody would just be relying  
23 on the standard built in equipment, so I'm not quite sure  
24 where you're going with these statements from one to the  
25 other. First a little bit of an endorsement, then the

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1 presentation to the ANS, then diverting attention from  
2 other more important safety issues is such that no  
3 instrumentation is required.

4 MR. REED: I guess all I can B- and, Eric,  
5 I think some levels on mitigation strategy stuff, but  
6 I can give you the perspective on SAMGs. The SAMGs  
7 approach is basically in terms of equipment and  
8 instrumentation. It's going to be, I'll tell you, the  
9 status quo. In other words, you make use of everything  
10 you have in the facility, wherever the pedigree of that  
11 is. It's Reg Guide 1.197.

12 (Off microphone comment)

13 MR. REED: Yes, I probably did. And what you  
14 do is, given that you're basically looking, and you  
15 recognize that's going to only last for so long, and then  
16 no matter what it is you do, whether you get the super  
17 duper instrument or whatever, depending on where that  
18 is, it's going to fail. And what you're really looking  
19 at now is hey, what's my primary means, what's my backup  
20 means, what my alternative means are, what are my  
21 calculational methods for determining it, and that's  
22 what the SAMGs do.

23 So, the question I would have is, given  
24 that's the philosophy the SAMGs are built on, what would  
25 be the difference if you changed out an instrument to

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1 make it more capable of say severe accident conditions  
2 beyond what it would be for Reg Guide 197, whatever, I  
3 think Rev. 3, whatever it is that people have actually  
4 monitoring instrumentation for. How much better would  
5 it be? And would it extend you look into a severe  
6 accident by minutes, hours, anything at all? Would that,  
7 in fact, then end up changing any of the actions that  
8 are taken in terms of mitigation? Would it still be add  
9 water, add water, add water, or would it, in fact, be  
10 a real change in what can we do in mitigation?

11 And then you roll that back up to finally  
12 why I started. How important are SAMGs in their entirety  
13 for public health and safety? I don't think in terms of  
14 backfit space and absolute change they're a very large  
15 change. They are beneficial. You know, obviously,  
16 you've seen my arguments. Okay? And when I look at how  
17 the overall changes in terms of safety, and then I drive  
18 it down and I look at okay, I'm going to start thinking  
19 about equipment, enrichments, and different  
20 strategies, and maybe making it better, how much better  
21 am I making it? And how much does that matter B-

22 MEMBER BROWN: How do I know if I'm adding  
23 water that I'm doing any good? I mean, not if you're  
24 going out a hole that you're not aware of, it's never  
25 getting to where you want it to go, and the temperatures

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1 just keep going up.

2 MR. REED: How will you know with better  
3 instruments?

4 MEMBER BROWN: You'll know the temperature  
5 keeps going up until you've exceeded B-

6 (Simultaneous speech)

7 MEMBER BROWN: B- up to 2,000 degrees.  
8 Well, then you know you've got a bigger problem.

9 MEMBER REMPE: And it's real important to  
10 know where it fails.

11 MR. REED: So, you extended the time in a  
12 sequence.

13 MEMBER BROWN: Well, no, you've extended  
14 the information you have relative to how severe the  
15 problem is now because you know the water is not getting  
16 there. I mean, I just have a little bit of qualms with  
17 that thought B- pressure B- let me see, temperature,  
18 pretty important. Okay? And you can put pretty hardened  
19 sensors in place, and you can get that information out,  
20 okay, under pretty nasty getting them out of the plant  
21 where you can read them. You can also get some types of  
22 level out if you work out B-depending on the reactor type  
23 we're talking about that is pretty blacksmith  
24 technology approach to doing business, and maybe the  
25 temperature is the best one. But if you don't know

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1       whether the water is doing anything or not, what the hell  
2       good is it to put the water in? You pump the whole  
3       Atlantic Ocean or the Pacific, whatever it is, it's not  
4       cooling anything, doesn't do any good.

5               MR. REED: You're going to B- the Committee  
6       is going to hear this a lot because I do this B- I always  
7       say bring your backfit justification. I'm thinking in  
8       backfit space, so when you say you want to do something  
9       different with equipment or instrumentation, then I say  
10      okay, show me the benefit for that, and let's see if you  
11      could show substantial additional protection or  
12      adequate protection. I don't think you can. And if you  
13      can, then we'll talk about the costs both direct and  
14      indirect that justify B-

15             MEMBER BROWN: I would argue that it brings  
16      in the thought or the concept of alternate B- if you know  
17      your water is not doing any good, I better do something  
18      else.

19             MR. REED: Okay.

20             MEMBER BROWN: You know you have to go do  
21      something else.

22             MR. REED: Right.

23             MEMBER BROWN: You may not exactly know, but  
24      what's the knowledge worth?

25             MR. REED: That's B-

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1                   MEMBER BROWN: Do you want to continue to  
2                   have the whole thing melting down like a little volcano  
3                   and lava flowing out the side B-

4                   MEMBER BLEY: Not much today, but today you  
5                   have an accident it'll be really B-

6                   MEMBER BROWN: Right. I've got a  
7                   fundamental disagreement on some very basic. And I'm not  
8                   talking about extensive B-

9                   MR. REED: I understand what you're saying.

10                  MEMBER BROWN: B- high-level digital, you  
11                  have flat screen displays, you know, the hardened  
12                  B- that's baloney.

13                  MR. REED: I understand the spirit of what  
14                  you're saying.

15                  MEMBER BROWN: Look at a temperature sensor  
16                  with hard wire coming out and a guy reads with a meter  
17                  somewhere 200 feet away.

18                  MEMBER POWERS: The trouble, Charlie, is  
19                  that if you've got conditions that will damage a ceramic  
20                  fuel then you've got conditions that will destroy any  
21                  thermocouple known to man.

22                  MEMBER BROWN: I don't B- once you B- I  
23                  don't know. If your fuel is already broken and stuff is  
24                  coming out of it, you've got heat. It can get pretty hot.

25                  MEMBER REMPE: So put your thermocouple on

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1 the bottom of the vessel and you'll know it's heating  
2 up, and that something real hot is on the inner surface  
3 of the vessel, and you might think of an alternate  
4 strategy.

5 MEMBER BROWN: I just think it B-

6 MEMBER REMPE: It's where you put that  
7 thermocouple.

8 MEMBER POWERS: If you're going to talk  
9 about thermocouples located away from the fuel, we've  
10 got lots of them.

11 MEMBER REMPE: But what's their operating  
12 envelope, 350 C?

13 MEMBER POWERS: You can make them anything  
14 you want to.

15 MEMBER REMPE: Well, that's the issue, is  
16 think about where you B-

17 MEMBER BROWN: The ones today are using  
18 conventional B- getting the information out to B-

19 (Simultaneous speech)

20 MEMBER POWERS: B- things like that.

21 MEMBER BROWN: I mean, nobody is putting any  
22 thought into the way you would do this in order to have  
23 a better idea of what the temperatures are on the inside  
24 of the reactor vessel.

25 MEMBER POWERS: And you're simply never

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1 going to get there. If you're talking about temperatures  
2 that are away from the reactor, the inverse calculation  
3 is ill-posed, and it's more likely to mislead you than  
4 anything I can think of. The answer is always water,  
5 water, and water.

6 MEMBER BROWN: If you don't know whether the  
7 water is doing you any good, then what good is it?

8 MEMBER POWERS: It is extremely difficult  
9 to come up with a way that the water isn't any good.

10 MEMBER BROWN: I don't know, but there seem  
11 to be a lot of questions floating around at the beginning  
12 B-

13 MEMBER POWERS: Yes, you could hypothesize  
14 all kinds of strange conditions B-

15 MEMBER BROWN: That doesn't seem like it's  
16 an unknown unknown type of operation B-

17 MEMBER POWERS: The answer at Fukushima was  
18 add water.

19 MEMBER BROWN: And we still don't know  
20 whether any good initially.

21 MEMBER POWERS: The answer was B- yes, we  
22 know that not adding water was really bad. We know that  
23 one for an absolute for sure fact.

24 MEMBER BROWN: Well, this back and forth is  
25 not going to resolve this particular issue, but I did

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1 want to bring it out that this B- I personally do not  
2 agree, even though my compatriot B-

3 MR. BOWMAN: To answer the first part of  
4 your question, though, the discussion in the Statement  
5 of Considerations on the limitations of the equipment,  
6 including instrumentation is limited to the discussion  
7 in the proposed Section 50.155(b)(1) for equipment  
8 supporting the mitigating strategies portion. I'm  
9 sorry, (c)(1) for the equipment supporting the  
10 mitigating strategies portion of (b)(1) which is  
11 limited to pre-core damage. So, for its use to meet the  
12 functional requirements before core damage there is no  
13 need for the equipment or the instrumentation to be  
14 capable of surviving post-core damage.

15 MEMBER BROWN: Where does the severe  
16 accident monitoring thought process get factored? I  
17 guess I missed that when I was reading this.

18 MR. BOWMAN: There's an exclusion of a  
19 separate equipment requirement for post-core damage,  
20 and that's discussed, in part, in the draft SECY paper  
21 where we made the statement. That's that separate page.

22 MEMBER CORRADINI: So, can I ask a question?

23 MEMBER BROWN: To the Commission B- for the  
24 Commission.

25 MEMBER BROWN: Hold on, Mike.

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1 MEMBER CORRADINI: Sorry, Charlie.

2 MEMBER BROWN: Well, that's where you do  
3 state B- you do talk about severe accident monitoring.

4 MR. BOWMAN: Yes. There was B-

5 (Simultaneous speech)

6 MEMBER BROWN: B- not going to do anything.

7 MR. BOWMAN: We are not doing anything in  
8 this context in this rulemaking. There remains a Tier  
9 3 action item post-Fukushima to look at the value that  
10 post-severe accident monitoring equipment would  
11 provide and come to a conclusion as to whether or not  
12 that would provide a substantial safety benefit. I think  
13 part of B-

14 MEMBER BROWN: The patient could be dead by  
15 the time we get to that one.

16 MR. BOWMAN: B- the problem that we've got,  
17 and we may not have communicated it well enough, it's  
18 not that we are pointing to the quantified results of  
19 the CPRR information and saying it doesn't meet it. What  
20 we're saying is we don't have quantified information  
21 that meets the substantial safety benefit criteria at  
22 this point.

23 MEMBER BROWN: I guess B- I understand what  
24 you're saying. I just B- I have a little bit of  
25 difficulty because I can't stick a quantitative, highly

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1 quantitative in this very unknown type situation that  
2 I'm just effectively going to B- I don't want to use the  
3 word "ignore," reject, not consider it at this time,  
4 maybe forever.

5 MR. BOWMAN: We have to consider the value  
6 it would add to have the severe accident capable  
7 instrumentation in the context of the existence of other  
8 things like computational aids that can give us  
9 information that would influence our decisions on what  
10 courses of actions we've got to be taking.

11 MEMBER CORRADINI: So, you really don't  
12 want to rely on a computer when I could measure  
13 something. You're not saying that, are you?

14 MEMBER BROWN: That is exactly what he said.

15 MR. BOWMAN: You would measure it. If you  
16 can't measure something, you would use whatever means  
17 you have available to aid you in B-

18 MEMBER REMPE: I'm aware that industry has  
19 these calculational aids, but what I was B- I haven't  
20 B- I thought heard you say is we're just going to check  
21 the box, but now it almost sounds like well, yes, we are  
22 going to look at what they are proposing. And if the  
23 first sensor goes and we B- you know, they should define  
24 boundaries for when that sensor goes and what the  
25 alternative methods are at that time. Are you going to

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1 have some interaction with the regulator reviewing what  
2 industry is proposing? Are you just going to say yes,  
3 they've got B- they say they have calculational aids,  
4 they have alternate sensors, and we check the box and  
5 go on. How much B- that's what I'm wondering, are you  
6 going to get into the details, or are you just going to  
7 let them do whatever?

8 MR. REED: Well, first of all, presuming the  
9 Commission does agree with the qualitative arguments  
10 and thinks that SAMGs should be imposed. I don't know  
11 if that's a given at all.

12 MEMBER REMPE: Right.

13 MR. REED: Then I think then it depends on,  
14 of course, their direction to us. Now, we are  
15 B- obviously, we're familiar with the SAMGs, and that's  
16 different than being reviewed, as I mentioned, so we are  
17 familiar. You do understand that, but I don't think we  
18 would B- if it's me, I'm speculating now, but those  
19 special requirements are pretty high-level, and unless  
20 I saw something that was egregious, I mean, in terms of  
21 some licensee's SAMGs were, you know, on the face of it  
22 not even potentially executable. Okay? I mean, it would  
23 have to be something where it doesn't make the  
24 black-letter of the B- you know, what our rule says, you  
25 know, in terms of what SAMGs do. It's a pretty tough B- a

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1 pretty high standard. So, I wouldn't be going B- at  
2 least the way I see it right now, I wouldn't be going  
3 into individual sequences and looking at the different  
4 means of instruments and what have you. I wouldn't be  
5 going down to that level.

6 I think to go down to that level, in other  
7 words, to check the work that industry has done over the  
8 last 20 plus years would, obviously, have a lot of NRC  
9 resources and back and forth. So, right now it's saying  
10 yes, we've looked at it. We know it's there, but we're  
11 not reviewing and approving.

12 MR. BOWMAN: I think one potential example  
13 is something that would be plainly wrong with an  
14 implementation of a severe accident management  
15 guideline set for a licensee if their SAMGs did not  
16 reflect the plant as built, and as maintained, or the  
17 equipment that was available and that they should be  
18 proposing to rely on. Then we would say there is a  
19 problem, an issue of concern, and we would process it  
20 through our normal inspection processes in the Reactor  
21 Oversight Process for dispositioning.

22 MR. REED: Because I think if you read  
23 through that, one of the things I think it B- I think  
24 it was in this package, could have been in a previous  
25 version about the qualitative arguments, SAMGs, I

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1 think, are very valuable and they became a lot more  
2 valuable because of the much increased mitigation  
3 capabilities that are going into place now.

4 Now, those are designed to be pre-core  
5 damage, but let's face it, this stuff would B- you use  
6 everything and anything you can post-core damage, and  
7 it's likely they would be very useful post-core damage.  
8 So, for example, if a licensee didn't reflect that in  
9 their SAMGs, that to me would be a clear case where no,  
10 this is not making it.

11 MEMBER CORRADINI: May I ask a question at  
12 this point, Steve?

13 CHAIR SCHULTZ: Yes, go ahead, Mike.

14 MEMBER CORRADINI: So, maybe we should wait  
15 until industry comes up and ask them the question of  
16 content, and the questions might be what is the minimum  
17 set of instrumentation although outside of their EQ  
18 range, that they look at so that they get a feeling for  
19 how, God forbid, an event like this occurs, how it's  
20 progressing in terms of water addition, or where I might  
21 retreat to put the water?

22 Also, the next question for industry is,  
23 what is the frequency in which they do training so they  
24 do it appropriately, but not overwhelm the operators  
25 with training that is of low probability compared to

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1 other things need to train? I assume the industry has  
2 answers to these things.

3 CHAIR SCHULTZ: I agree, Mike. That would be  
4 a good approach to take, especially with regard to this  
5 afternoon, and we'll give the industry some time to  
6 think about that before they come up. But that is a way  
7 in which what we've just discussed, I think what Eric  
8 was getting to with regard to measurement versus  
9 calculation. Those are the elements that had gone into  
10 the development of the SAMGs.

11 DR. SHACK: Just thinking about it, I mean,  
12 it seems to me one of the problems with the SAMGs has  
13 not been so much that the guidelines have been poor o  
14 badly thought out. The question is whether they've  
15 really been implemented, people have been trained on  
16 them.

17 In your view, would the inspection under  
18 the ROP go some ways towards solving that problem that  
19 we're sure that people B- are they being implemented and  
20 people are being trained?

21 MR. BOWMAN: Well, the things we saw in the  
22 temporary instruction inspection, I think it was 184,  
23 I don't remember exactly what the number was, that was  
24 done post-Fukushima, was some licensees did not include  
25 the SAMGs in their Configuration Management Programs,

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1 so there were some issues that were found with the  
2 currently B- the then existing SAMGs reflecting B-

3 DR. SHACK: No, I realize there were  
4 problems found. The question is, is your proposal going  
5 to fix that? It should.

6 MR. REED: That's exactly what it's going  
7 towards. In other words, it would B- sure, you update  
8 them, you maintain them updated over time, that you've  
9 done the sufficient training that, you know, you can  
10 expect that they could actually implement them. Those  
11 are the kind of issues that were found in the TI, and  
12 so that's what we're trying to do. That would address  
13 that. That's the level we're going to to solve the  
14 problem. That's how we tried to construct it.

15 CHAIR SCHULTZ: I would hope so, otherwise,  
16 there's no reason to move forward and make them  
17 mandatory, not voluntary.

18 MR. BOWMAN: Absolutely.

19 CHAIR SCHULTZ: That, in fact, this  
20 approach would fix the problems that have been  
21 identified from 1998 until now, whenever they occur.

22 MR. BOWMAN: The other B-

23 CHAIR SCHULTZ: I'm not saying there are  
24 lots of problems out there, but there are certainly  
25 some.

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1 MR. BOWMAN: The other thing I would point  
2 out to be completely open is that the content of the  
3 SAMGs has changed since they were first implemented. One  
4 of the major changes was the inclusion of damage to fuel  
5 in a spent fuel pool. That wasn't covered under the prior  
6 version of the SAMGs before the Fukushima event.

7 MR. REED: In fact, I think there are five  
8 candidate high-level accidents. I don't see Ed in the  
9 room, Ed Fuller did look at the Technical Basis Document  
10 in detail and those are all lessons learned from  
11 Fukushima, like hydrogen build-up mitigation, the use  
12 of raw water. There's a few others, too.

13 CHAIR SCHULTZ: Well, this is something we  
14 can hear in the industry presentation later today.

15 MR. REED: Any more questions on this slide?

16 DR. SHACK: One further comment. I mean, in  
17 terms of the fence B- I agree that you probably can't  
18 do this under a backfit. You know, that B- I haven't done  
19 the calc but I'd be very surprised. But as a  
20 defense-in-depth measure, I certainly don't see the  
21 difference between the EDMGs and the SAMGs. And the  
22 defense-in-depth capability I get from one to the other,  
23 seems to me an inconsistent treatment. I would, you know  
24 B-

25 MR. BOWMAN: All I can say in response to

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1 that is that the requirement for the EDMGs was proposed  
2 B-

3 DR. SHACK: Was under a different B-

4 MR. BOWMAN: B- as the adequate protection  
5 exemption for exception from the Backfit Rule. So, it  
6 did go through the backfit process. It was a policy  
7 decision that was made. It's been carried forward B-

8 DR. SHACK: It seemed to me on a qualitative  
9 basis if you're looking for defense-in-depth, I can at  
10 least make a strong case for SAMGs as a contribution to  
11 the defense-in-depth as I can EDMGs.

12 MR. REED: I would personally agree with  
13 you, Dr. Shack. I think there's a stronger case for  
14 SAMGs, but that's just my personal opinion. So, I do  
15 think there's a lot of value, too, but Eric is absolutely  
16 right that the EDMGs stem from B5B B-

17 DR. SHACK: It's a different world, yes, I  
18 agree. But, again, I do want to think that B- you know,  
19 it's important to solve the problem that we're really  
20 seeing with the SAMGs, which is implementation and  
21 training, not so much the proposing things that are  
22 technically unsatisfactory.

23 CHAIR SCHULTZ: But you're proposing to  
24 move it forward in that way.

25 MR. REED: Yes.

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1 CHAIR SCHULTZ: The defense-in-depth  
2 argument.

3 MR. REED: Yes, absolutely.

4 MR. BOWMAN: Well, a defense-in-depth  
5 argument that uses the cost justified substantial  
6 safety benefit exception to the Backfit Rule based on  
7 qualitative factors, presenting the qualitative  
8 factors to the Commission so that they can make the  
9 decision on whether or not they believe it is, indeed,  
10 cost justified substantial safety benefit.

11 MR. REED: And I do B- and when I say that,  
12 I do say I understand that the work does not reflect  
13 specific all the benefits for SAMGs in risk space, so  
14 I understand that. I know that's not exactly what  
15 B- scratch Dr. Stetkar's itch here, but I do understand  
16 that, that there's more benefit. And I'm suggesting that  
17 there's enough that we could make the substantial list  
18 from that standpoint. So, yes, sir, we are proposing to  
19 the Commission to B- for them to go forth with this as  
20 a requirement.

21 MR. BOWMAN: At least as a proposed B-

22 MR. REED: Yes, a proposed requirement.

23 MR. BOWMAN: So we can fully inform and  
24 develop a final recommendation.

25 CHAIR SCHULTZ: Yes, it's a Commission

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1 decision.

2 MR. BOWMAN: Yes.

3 MR. REED: Is there anything else on Slide  
4 4? We won't have to do the later slide on SAMGs by the  
5 time I get there.

6 (Off the record comments)

7 MR. REED: So, Slide 5 is just a  
8 continuation of Paragraph B. And I had mentioned that  
9 the three different guideline says they're integrated  
10 with EOPs and it's structured intentionally that way to  
11 leave in place the work from the 1980s that put in place  
12 the symptom-based EOPs after TMI. We're not going to  
13 revisit that. That work is fully acceptable.

14 And then given you have this integrated  
15 capability. Of course, you need to support that with  
16 sufficient command and control, and staffing. And this  
17 stems from the fact that, you know, at least one of these  
18 guideline sets the mitigation strategies for  
19 Beyond-Design-Basis External Events, FLEX is, in fact,  
20 for a site-wide Beyond-Design-Basis Event. That's a  
21 severe challenge to the site. Obviously, it's a command  
22 and control challenge. It also involves all site  
23 assistance, so for an indefinite capability maintaining  
24 core cooling, spent fuel pool cooling and containment  
25 capability, so that's the demand, ultimate demand

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1 that's placed on this integrated capability. And,  
2 obviously, that places demands on your command and  
3 control, your staffing, and your communications. You'll  
4 see the Paragraph B-4 and 5 there, I believe is the  
5 references. Again, that hasn't changed. That's been  
6 substantially the same as it was in November.

7 Slide 6. I was thinking that we were going  
8 to get to Slide 6 before we got into any real  
9 interaction, so that shows how much I know. But Slide  
10 6 are the equipment requirements, and these have  
11 changed. And, namely B- and I have the exact  
12 requirements up there on the slide. The part of it that  
13 changed, of course, was the reasonable protection of the  
14 mitigation strategies equipment under proposed  
15 155(c)(2).

16 Of course, just before we get to that, these  
17 are the parts of the rule, the equipment requirements  
18 we're calling them, that would make generically  
19 applicable the equipment requirements from EA-12-049,  
20 and that's in (c)(1), (2), and (3). And then the  
21 requirements for the level instrumentation from the  
22 spent fuel pool in Order EA-12-051 as 155(c)(4).

23 And there you see basic B- this was,  
24 obviously, you will recall back in November a lot of  
25 discussion. It was on COMSECY 14-0037, and we are still

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1       awaiting the Commission's direction on this. And, of  
2       course, we'll be aligned with that direction. It goes  
3       without saying.

4               We think this is B- what we've seen so far,  
5       this is in alignment. I'll be very frank, there's some  
6       B- I mean, as we're going through this concurrence  
7       process, I think we've mentioned it in the beginning.  
8       This is a lot happening in parallel, and you're getting  
9       B- you're becoming part of the rulemaking concurrence  
10      process. Welcome to the party. But, you know, in this  
11      case we're getting feedback, and the concern is, is that  
12      can we actually implement that provision by the  
13      effective date of the rule? There's a lot of moving parts  
14      there on what the licensee can do. They may, in fact,  
15      be getting information from another entity, and then  
16      giving it to us, us doing our assessment, so we're  
17      looking at that, and maybe we'll probably ask for some  
18      stakeholder feedback on that. We're thinking about any  
19      question to that, and maybe building in flexibility as  
20      part of our CR process to make sure that the  
21      implementation can be done appropriately.

22              Again, we've got to B- we inform that by  
23      the Commission direction, so the Commission direction  
24      in the SRM will rule the day, and we need to comply with  
25      that. But, nonetheless, that's an ongoing issue. That

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1 is different. You see that provision up there. I'll come  
2 to a full stop if the Committee wants to comment on that  
3 aspect of the change in the language. Okay. So, I that's  
4 where I thought the discussion was, and there's none.

5 (Off the record comment)

6 MR. REED: The training requirements, those  
7 are unchanged. In fact, it's actually B- Dr. Corradini  
8 kind of mentioned a little bit earlier, kind of our  
9 concept here. What we're trying to do is salvage  
10 training requirements that enable a licensee to make use  
11 of everything they have available to them right now  
12 that's usable, and there's quite a bit of training  
13 that's in place that would work for this integrated  
14 response capability. Training that goes to from the  
15 EOPs, from mitigation strategies order, any EP  
16 training. There's a lot of B- even fire protection  
17 training could be applicable. All that training can be  
18 used. We're trying to B- you've read the Statement of  
19 Considerations there. We're trying to enable licensees  
20 to make maximal use of what they have. But to the extent  
21 they don't have any training, then we're talking about,  
22 you know, a systems approach to training there. So,  
23 we've written the Statement of Considerations to try to  
24 get that thought across. Hopefully, that makes sense.

25 It's clearly designed to, basically,

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1 establish a minimum training requirement to not focus  
2 too much attention on SAMGs to the exclusion of say EOPs  
3 or other training, for example, so it's with that kind  
4 of mind set.

5 Again, that is basically the same training  
6 requirements that were in place. There's no change.  
7 You've got the Statement of Considerations there with  
8 you so, hopefully, that makes sense of that requirement.  
9 Yes, sir?

10 MEMBER BLEY: For the plants that have  
11 chosen, should they enter the SAMGs to transfer control  
12 of the plant to the TSC, will there be anything  
13 specifically addressing any kind of training that would  
14 apply to whoever is in charge of the TSC?

15 MR. REED: I think exact B- that would be,  
16 I think, the most substantive part of the training. In  
17 other words, the TSC personnel, their understanding of  
18 the content of the SAMGs, that switch over from the  
19 control room to the TSC. I think that is where most of  
20 the training would be focused. Certainly, they're  
21 probably very B- in some cases, very familiar, perhaps  
22 not. We mentioned the TI results, so that's where I think  
23 most of the training would go.

24 Now, you should also understand, although  
25 we have drills, in my view, drills and training are very

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1 similar, there's a lot of overlap, so we have also drills  
2 in this rule that would be a test, you know, a  
3 demonstration of whether you can do these transitions,  
4 so that's another check on it. But, yes, I do think  
5 that's where the SAMGs training would be focused, at  
6 least in my view. I don't know if I B-

7 MR. BOWMAN: What I would add is that the  
8 training requirement is written as a broad high-level  
9 requirement. It's in 155, Subparagraph E, and in the  
10 draft guidance, I believe it's in NEI 13-06 that we're  
11 looking at B- we're considering endorsing, is sets of  
12 guidance for training for the ultimate decision maker  
13 or the Emergency Director, whatever the chosen name for  
14 that person is, whether or not that person is within the  
15 control room or in the TSC, or wherever they'd be  
16 located.

17 MEMBER BLEY: I guess that always B- I hang  
18 up on this idea of transferring the control, it's  
19 B- even if you're very senior and experienced, if you're  
20 not licensed and refreshing routinely, you don't know  
21 the guts of the plant on the way B- in the way that  
22 licensed folks do. And I guess we'll have to wait and  
23 see how this would be implemented to make sure that we're  
24 covered in that regard.

25 MR. BOWMAN: Well, in any case, if you view

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1 command and control as a bundle of rights and functions,  
2 in order to implement direction on what would be going  
3 on in the plant, if they transfer command and control  
4 to the TSC, what would happen is the TSC would provide  
5 direction to the main control room, and from there the  
6 licensed operators would direct what happens in the  
7 plant.

8 MEMBER BLEY: I guess that's kind of B-

9 MR. BOWMAN: So, there is a real functionC-

10 MEMBER BLEY: B- of the model I've always  
11 thought of, and that it would be advice. We hear more  
12 and more that no, in fact, they'll be driving the plant  
13 from the TSC, at some plants. And it's another venue,  
14 not commercial nuclear plants, I recall reading many  
15 incident reports in facilities that have a similar  
16 structure, and quite often you'd see the senior guy come  
17 in and say this is going bad, I'm taking over, without  
18 being fully informed of the details of what was going  
19 on right now in the plant. And the first couple of  
20 decisions would if not wreck the plant, put it in a lot  
21 worse situation than it was in. And that's the thing I  
22 keep worrying about with this concept.

23 The way you described it, I have no worry,  
24 send them recommendations and the guys who really are  
25 aware would say wait a minute, you might not want us to

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1 do that for these reasons. Keep it at that and just watch  
2 how this progresses.

3 MR. REED: Okay, so we're on Slide 7. George  
4 Tartal from NRO will present Slide 7.

5 MR. TARTAL: Good afternoon. Thanks, Tim.  
6 I'm George Tartal with the Office of New Reactors. I'm  
7 going to talk to Slide 7 here on the new reactor design  
8 requirements.

9 CHAIR SCHULTZ: George, just move up to the  
10 microphone a little more. Thank you.

11 MR. TARTAL: Is that better?

12 CHAIR SCHULTZ: Yes.

13 MR. TARTAL: Okay, good. Again, this is  
14 talking about Slide 7, the new reactor design  
15 requirements. We briefed the Committee on this in  
16 November. The concept is not substantially changed from  
17 what we briefed the Committee on last time.

18 Again, the applicability statements that  
19 this feature, or sorry, this provision would apply to  
20 applicants for new reactors and the key here is  
21 applicants, that this being a forward fit requirement.  
22 That's the way that we discussed with the Committee last  
23 time, it being forward fit. It applies when the key  
24 safety functions, that is core cooling, containment,  
25 and spent fuel pool cooling capabilities are being

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1 proposed to the NRC for review and approval, and we want  
2 this requirement to apply as early as possible in the  
3 design process.

4 It still applies to applicants for designs  
5 for construction permits, operating licenses, design  
6 certifications, standard design approvals, combined  
7 licenses, and manufacturing licenses. That concept  
8 hasn't changed.

9 What has changed on this particular  
10 provisions is, as we went through the backfit analysis,  
11 we found two situations that would either be a backfit  
12 or inconsistent with issue finality provisions in Part  
13 52. The first of those is the requirement used to say  
14 that it applied to applicants that referenced a design  
15 with a previous approval. For example, a combined  
16 license applicant referencing a certified design. We  
17 removed that applicability statement from Paragraph A.4  
18 because that would essentially be inconsistent with the  
19 issue finality given to the design certification.

20 And then the other situation that we  
21 revised in A.4 is applying to applicants for design  
22 certification renewals. Again, under the issue finality  
23 provisions of Part 52 that would have been a violation  
24 of the issue finality afforded to the design  
25 certification once it's certified, so we had to remove

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1       that provision from A.4, as well.

2               MEMBER CORRADINI: So, can you give me an  
3       example of each so it's clear?

4               MR. TARTAL: I did give you B-

5               MEMBER CORRADINI: Or clearer?

6               MR. TARTAL: Right, okay. So, let's give you  
7       an example of a combined license applicant such as Levy  
8       that's referenced in the AP1000 design. All right? This  
9       rule provision would not apply to a plant like Levy  
10      because they already have B- sorry, they're referencing  
11      a certified design in their applications, so they would  
12      not need to comply with the requirements of Paragraph  
13      D in that situation.

14              Another example would be B- you wanted  
15      another example on DC, so let's say the AP1000 design  
16      that Westinghouse came in for a renewal. We would not  
17      be able to impose this provision on Westinghouse in that  
18      case because they're already afforded issue finality in  
19      this area.

20              MEMBER CORRADINI: But they still conform  
21      to the current plant rules.

22              MR. TARTAL: Yes. They're still subject to  
23      the rules and regulations that were in effect at the time  
24      the design was originally certified.

25              MEMBER CORRADINI: And all the associated

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1 rules that we just spoke about.

2 MR. TARTAL: You're talking about the other  
3 provisions that the other Staff are talking about now  
4 in this meeting?

5 MEMBER CORRADINI: Yes.

6 MR. TARTAL: No, those provisions apply to  
7 B- oh, I'm sorry, yes, for the combined license  
8 applicant in the first situation, yes, those provisions  
9 would apply to the combined license applicant, not to  
10 the design certification renewal applicant.

11 MR. BOWMAN: As far as the applicability  
12 goes for the remainder of the requirements in Paragraphs  
13 B, C, E, F, and G, those are all applicable; being  
14 subject to Paragraph D as an applicant for a new reactor  
15 plant design would not result in an exemption from any  
16 of the other requirements of the section as a whole.

17 MEMBER CORRADINI: The reason I'm asking  
18 the question, just so I B- maybe I'm misunderstanding.  
19 So, just you can tell me to wait, but you're about to  
20 go to the second part of that slide where the bullet is,  
21 "Longer time constant, sufficient instrumentation."  
22 I'm trying to understand what sufficient  
23 instrumentation means for a new plant that it isn't  
24 meant for in a current B- do you understand where I'm  
25 going?

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1 MR. TARTAL: I'm not sure what that has to  
2 do with the applicability. Can you help me with that?

3 MEMBER CORRADINI: Well, I B- so, is there  
4 going to be an additional requirement of  
5 instrumentation on a new plant that is being required  
6 on a current plant? That's where I'm going.

7 MR. TARTAL: Yes, this is a forward fit  
8 requirement, so the idea of having the longer time  
9 constant, sufficient instrumentation; actually, you're  
10 reading from the Commission's Advanced Reactor Policy  
11 Statement, but specifically to the requirement in  
12 Paragraph D, that's the second sub-bullet under new  
13 reactor design requirements.

14 MEMBER CORRADINI: Right. So, my question  
15 is going B- I now am going to require additional  
16 instrumentation for these advanced plants under adverse  
17 conditions. So, what's the design basis for the adverse  
18 conditions? I'm struggling. On one hand, we're arguing  
19 that we don't know what they are, or there's not  
20 risk-significance to them. On the other hand, we're  
21 asking the new plants to design to something, and I don't  
22 understand what they're designing to.

23 MEMBER BROWN: I don't think that's B- I'm  
24 not sure I understand that question, but I thought I just  
25 heard that no B- there's no advanced instrumentation in

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1 severe accident for anything, new reactors, old  
2 reactors B-

3 MEMBER REMPE: Well, actually B-

4 MEMBER BROWN: B- backfit reactors.

5 MEMBER REMPE: For the AP1000 there's not a  
6 good B- maybe I'm misunderstanding, but I don't think  
7 that there's a firm process in place. But for these new  
8 plants that B- the AP1000 B-

9 MEMBER BROWN: Do you mean the SMRs, or are  
10 you B-

11 MEMBER REMPE: No, the AP1000. They  
12 actually did an analysis that considered some  
13 scenarios, identified some sensors and said they had to  
14 be surviving that for a certain time, and the staff, and  
15 it was an agreement type of thing. It wasn't a fixed  
16 process that they had to follow, but they said yes,  
17 that's good. Is my B- am I correctly interpreting what  
18 I read from it's like FSAR or something.

19 MR. McKIRGAN: So, if I could B- this is  
20 John McKirgan from the New Reactor Staff. Under Part 52,  
21 I think the analysis you're talking about is the severe  
22 accident analysis where they look at the most likely  
23 severe accident scenarios and describe features that  
24 would address those scenarios, so that is part of a  
25 certified design.

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1                   MEMBER REMPE: Right. So, that's part  
2 B- and the reason they do that is because of the  
3 Commission's Advanced Reactor Policy Statement that  
4 said they had to do that. The existing plants just look  
5 at design basis events.

6                   MR. McKIRGAN: At a very high level, I'll  
7 agree with that.

8                   MEMBER REMPE: Okay.

9                   (Simultaneous speech)

10                  MR. McKIRGAN: But I think in concept,  
11 that's a fair statement. Dr. Corradini, could I ask you  
12 to rephrase your question for me a little bit?

13                  MEMBER CORRADINI: Well, I'm listening  
14 because I'm probably misinterpreting, so your  
15 explanation is helping me. So, I'm trying to understand  
16 the nuances of an AP1000 versus an APR1400.

17                  MR. McKIRGAN: Okay.

18                  MEMBER CORRADINI: So, let's say the  
19 APR1400 which is going to come in under certification,  
20 you're going to look at it, and somebody wants to build  
21 one in the States. How is their B- since they're not  
22 certified yet, how are they going to be treated, and any  
23 different than the AP1000?

24                  MR. McKIRGAN: So, let me see if I can say  
25 that simply. We're looking for B-

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1 MEMBER CORRADINI: Please do.

2 MR. McKIRGAN: We're looking for design  
3 features so we want to address this rule to those  
4 applicants who have not yet finalized their designs. So,  
5 in the case of the AP1000 where there is a certified  
6 design and construction is going on, we feel those  
7 design B- that has achieved a level of design finality  
8 that we want to not become a backfit issue, so we're  
9 looking to forward fit these. So, we're only looking for  
10 those applicants that have not yet achieved  
11 certification. So, if the Commission were to proceed  
12 with this, then these provisions would apply to the  
13 APR1400 which was accepted for review.

14 MEMBER CORRADINI: Okay, and now that  
15 B- okay, so I B- then I did interpret it correctly. So,  
16 my next question is, what is the basis of the adverse  
17 conditions you would add instrumentation or improve the  
18 design of the instrumentation? I'm struggling with the  
19 words.

20 MR. BOWMAN: Right. If I could interject,  
21 this is Eric Bowman, Dr. Corradini. On the slide what  
22 you see at the bottom is a quote of two portions of the  
23 Advanced Reactor Policy Statement, and the first one  
24 includes the phrase "sufficient instrumentation," and  
25 goes on further about the instrumentation.

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1                   There is no language that's being proposed  
2                   in 50.155 in the design features portion that addresses  
3                   instrumentation. The proposed guidance for new reactor  
4                   designers to use in meeting the Paragraph D requirements  
5                   or proposed requirements is contained in Appendix A of  
6                   Draft Guide 13-01, which a very preliminary copy has  
7                   been provided to the Committee. And there is no  
8                   additional instrumentation requirement contained  
9                   within that appendix, so I would say that the sufficient  
10                  instrumentation would be included in the design if it's  
11                  considered by an applicant to be a design feature that  
12                  enhances coping durations and minimizes the reliance on  
13                  human actions, or if it's required in order to follow  
14                  the Advanced Reactor Policy Statement. It wouldn't be  
15                  a B-

16                               (Simultaneous speech)

17                  MEMBER CORRADINI: So, what I'm hearing you  
18                  say is there really is no B- I did not read Appendix A,  
19                  but I am pulling it up now. But the guidance in Appendix  
20                  A is a bit qualitative.

21                  MR. McKIRGAN: Yes, and I think we'll talk  
22                  about that more in a moment.

23                  MEMBER CORRADINI: Okay, fine. Then I'll  
24                  wait.

25                  MR. McKIRGAN: But, Dr. Corradini, if I

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1 could also remind you, so there are no additional  
2 instrumentation requirements in this provision under  
3 this rule, but I would not want you to forget the other  
4 provisions in Part 52 and the severe accident analysis  
5 that goes into design certifications where they do  
6 consider the most likely severe accidents and talk about  
7 the features to mitigate those. So, the instrumentation  
8 B- there is a greater level of consideration in that  
9 area, and we can talk more about that perhaps at another  
10 meeting. But I think that's what Dr. Rempe had read, and  
11 that does apply to the design certification applicants  
12 independent of the rulemaking package that is before the  
13 Committee right now.

14 MEMBER CORRADINI: Okay, thank you very  
15 much. That helps. Thank you.

16 MEMBER STETKAR: Let me try something else  
17 to get away from the instruments and focus on the second  
18 sub-bullet under the intent there. "Simplified safety  
19 systems that where possible reduce required operator  
20 actions." And I won't mention any existing designs, but  
21 let's presume that we have a design, been certified  
22 where under a loss of all AC power the operators must  
23 de-energize everything in the control room and relocate  
24 to a remote shutdown area that has much less  
25 instrumentation and indications available. And that's

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1 a certified design, that's already been accepted. And  
2 we have a new design that comes in, Design X for  
3 certification, that proposes that same strategy. Would  
4 that new design be held to a different standard because  
5 the determination could be made that that's not  
6 simplified and it doesn't reduce the need for operator  
7 actions? Is that part of this intent?

8 MR. MCKIRGAN: You said a lot there, and I  
9 don't know that I caught it all.

10 MEMBER STETKAR: Okay.

11 MR. MCKIRGAN: I mean, certainly the intent  
12 here is to B- for the new applicants to come in with  
13 these enhancements. Obviously, this provision does not  
14 apply to the certified designs.

15 MEMBER STETKAR: Right.

16 MR. MCKIRGAN: So, I missed when you B-

17 MEMBER STETKAR: Well, but what I was  
18 asking, given the fact that we've accepted a design  
19 where it employs that strategy, de-energize everything  
20 in the control room to preserve battery life and  
21 relocate to some other place in the plant where you do  
22 things from that location. But if a new applicant came  
23 in now that proposed that same strategy for an extended  
24 loss of AC power, would that applicant be held to higher  
25 scrutiny because it could be judged that they are not

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1 minimizing, in fact, they're increasing the need for  
2 operator actions?

3 MR. McKIRGAN: And this B- so, yes, this is  
4 where the guidance comes in, because as you can see, this  
5 is a very high-level language in the requirement, in the  
6 regulation. And then the guidance is what's providing  
7 one acceptable means to meet that requirement. It's very  
8 difficult when you start to get into speculation about  
9 what B-

10 MEMBER STETKAR: I'm just trying to  
11 understand, you know, what different philosophical  
12 criteria are going to B- I tend to provide specific  
13 examples, but to try to understand the different  
14 philosophy that might be applied to a new design  
15 certification applicant coming in tomorrow compared to  
16 one that's already been accepted.

17 MR. McKIRGAN: And I think that is captured  
18 in Appendix A to the Draft Guide.

19 MEMBER STETKAR: Okay.

20 MR. McKIRGAN: And I think if you haven't  
21 had an opportunity B-

22 MEMBER STETKAR: I have not had an  
23 opportunity to read that, so I will.

24 MR. McKIRGAN: So, that B- and, again,  
25 that's a Reg Guide, that's not the requirement, but it

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1 is one acceptable means. And, again, as Tim started the  
2 discussion, the major focus here is to get this out for  
3 stakeholder feedback, to have the dialogue.

4 MEMBER STETKAR: Okay, thanks.

5 MR. REED: Any further questions for George  
6 on Slide 7? All right.

7 Slide 8, then we'll go to Paragraph F and  
8 G of the proposed rule. And as I note there at the top,  
9 this is basic B- it is the same as what was presented  
10 back in November, so just to remind folks, those are  
11 provide the drills and/or exercise requirements and  
12 change control is Paragraph G. The drills, of course,  
13 include an initial drill that would show use and  
14 transitions between the various guideline sets. Then  
15 there's a follow-on periodicity of every eight years to  
16 show continued capability of that B- those transitions  
17 and use of the integrated capability of these multiple  
18 sets of guidelines.

19 It is rather complex. It's B- you know, in  
20 fact, you'll find if you go back into the questions, we  
21 actually have a question focusing on this issue in terms  
22 of the structure of the periodicity, if you will, of the  
23 drills, and to ask for stakeholder feedback as to  
24 whether that aligns well with the EP drills. They also  
25 have, essentially, an eight-year period type of

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1 periodicity to them because the intent here is to enable  
2 flexibility to licensees to most efficiently address  
3 these kinds of drills and exercise requirements. And if  
4 necessary B- if they can in one fell swoop in terms of  
5 combining drills and exercises, so that was the intent.

6 So, this has been B- is basically  
7 unchanged. It is, in fact, entirely unchanged since  
8 November, but again we have an additional question there  
9 to understand from external stakeholders whether  
10 there's any need to change this, or improve it, and to  
11 align it better with other EP exercises.

12 MEMBER POWERS: Is the eight-year  
13 periodicity of the drill the product of deep thought?

14 MR. BOWMAN: The deep thought that went into  
15 it was an attempt to align with the existing periodicity  
16 for the EP exercise program, and the Appendix E  
17 inclusion of the drilling on the B5B strategies. One of  
18 the other things we're doing is removing the B5B  
19 strategy demonstration from the EP exercise program and  
20 moving it over to the requirements here for the  
21 Paragraph F drills or exercises in order to provide more  
22 flexibility to licensees on whether to do a separate  
23 drill for that, or include it in the emergency  
24 preparedness exercise.

25 MEMBER POWERS: It did not include anything

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1 about the ability of human beings to retain experience?  
2 I can think of nothing that happened eight years ago that  
3 I can even recall, so B-

4 MR. BOWMAN: I have nights like that, too.

5 MEMBER POWERS: My entire life is like that.

6 MR. REED: Actually, Dave Desaulniers is  
7 C-I think he's got perhaps something to say.

8 MR. DESAULNIERS: Okay. As a member of the  
9 working group, just to add B-

10 CHAIR SCHULTZ: Go ahead.

11 MR. DESAULNIERS: B- that you raise a good  
12 question.

13 CHAIR SCHULTZ: For the record, just please  
14 announce yourself.

15 MR. DESAULNIERS: David Desaulniers.

16 CHAIR SCHULTZ: Thank you.

17 MR. DESAULNIERS: Just keep in mind that the  
18 eight-year periodicity is for drills, and while you can  
19 look at those as training opportunities, you heard  
20 earlier training is implemented in accordance with a  
21 systems approach to training. Part of that system is to  
22 look at the periodicity of the training, insuring that  
23 it's sufficient. So, there shouldn't be training  
24 ongoing outside the drill periodicity.

25 MEMBER BLEY: Are these drills that the

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1 Staff would track closely, or is this just that they need  
2 to do these drills, and perhaps could meet this  
3 requirement by other drill requirements that they  
4 already have in place for other organizations that  
5 observe them?

6 MR. BOWMAN: The drills would be subject to  
7 the Reactor Oversight process, viewing an ordinary  
8 drill, as is done for the fire response drills, and all  
9 other drills.

10 MEMBER BLEY: The resident might submit B-

11 MR. BOWMAN: Exactly. That's the level of  
12 oversight we would see for that.

13 CHAIR SCHULTZ: It's not a graded exercise.

14 MR. BOWMAN: Unless they incorporate it  
15 into doing it at the same time as an emergency  
16 preparedness exercise. And then we wouldn't be strictly  
17 looking at these aspects of it as parts of the graded  
18 portion. The EP exercise is graded for meeting  
19 requirements as an EP exercise. We wouldn't extend the  
20 grading to the SAMGs, for instance.

21 MR. REED: Okay. Let's go to the change  
22 control portion on the bottom of this slide. That is  
23 unchanged, too, and this is a B- as I think I spoke to  
24 back in November, it's a very basic, nominal I'll call  
25 it change control provision for Beyond-Design-Basis. We

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1 recognize that the current change control provisions  
2 that are in place, whether it's 50.59, 50.54(g), or  
3 50.54(p) fire protection, whatever it is, those each are  
4 B- I'll call these design-basis type change controls,  
5 they focus on a certain regulatory area, and we are fully  
6 B- we understood that in large measure I'll say those  
7 were "blind" to a Beyond-Design-Basis type situation,  
8 so the idea here is to have a change control that looks  
9 at the Beyond-Design-Basis aspects of this regulation  
10 and its implementation, and that a licensee would  
11 nominally have to look at changes to the facility,  
12 understand those changes, include that they continue to  
13 comply with the requirements and document that and  
14 maintain it, so that's the idea.

15 Then, of course, if you look in the  
16 regulation you'll find that we also indicate that you  
17 need to apply your currently existing change control  
18 provisions because as I think the Committee is probably  
19 fully aware just from the discussions of the  
20 modifications went in place from the Mitigation  
21 Strategies Order, it's very easy for these  
22 modifications to touch on multiple areas. Touch and, in  
23 fact, impact safety-related systems, structures, and  
24 components, that clearly brings in 50.59. Brought fire  
25 protection equipment that will bring into play fire

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1 protection change control. It can go into EP, it can go  
2 into security, so depending on what the change to the  
3 facility is, it can affect multiple different  
4 regulatory areas, which each have their own change  
5 control provision. So, it is B- now, this is a very  
6 complex situation, and what we're trying to do is  
7 address the Beyond-Design-Basis, insure people  
8 continue to do what they have to in the other change  
9 control provisions so they don't offset anything to do  
10 with the licensing basis there. So, that's the intent.

11 I do understand that in a previous life  
12 having to do change control and doing this kind of thing,  
13 there are lots of opportunities going back and forth  
14 where this can be very complex, and one change control  
15 provision could stop another or create some interface  
16 issues, and we probably need to sort that out. And,  
17 hopefully, we'll get great stakeholder input on any kind  
18 of disconnects like that. For example, if you're in  
19 Beyond-Design-Basis space and you want to go and take  
20 a B- say open a security door because that makes sense  
21 for mitigation, maybe your security 50.54(p) or  
22 something else stops you from doing that, or it may  
23 appear to stop you from doing that. So, those are the  
24 kind of interface issues we want to sort through and make  
25 sure that they're not stopping us from doing what we need

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1 to do, and that we can implement these  
2 Beyond-Design-Basis requirements.

3 So, all that's kind of built into this, and  
4 I look forward to getting a good set of feedback on this.  
5 It does not, unlike any other change control provision  
6 in place, have a threshold criteria, and I'm talking  
7 about, if you're familiar with 50.59, there are eight  
8 such criteria. And, typically, the other ones have I'll  
9 call it a reduction of effectiveness criteria. There's  
10 no such criteria that says hey, if you cross this line,  
11 you come to NRC for prior review and approval. It simply  
12 indicates hey, you must continue to comply with the  
13 regulations. You must reach that conclusion, and you  
14 must basically maintain that documentation there so we  
15 can come and look at that later.

16 That's not a great deal of flexibility on  
17 the part to the licensee, and I understand that, so it's  
18 an area where we're seeking external stakeholder input.  
19 You can see that in one of our stakeholder questions to  
20 say whether there's a better way of doing it, or there's  
21 been an improved way to do it under what we're suggesting  
22 here. That's all exactly the same as it was previously.

23 CHAIR SCHULTZ: Tim, did you ask for  
24 stakeholder feedback on the frequency of the drills?

25 MR. REED: Yes, we did. We, actually B- we

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1 just added B- I think we might have added it. I don't  
2 know if you have it, if we added it after it went to you  
3 or not. I can't keep track of the changes going on but,  
4 yes, it was looking at the frequency of these drills  
5 versus the frequency of your EP exercises. (A) How does  
6 that match up? Is there B- you know, does that work  
7 together, is there a way of doing it better? That's the  
8 kind of question that we're looking at, so we do have  
9 one on that, also.

10 CHAIR SCHULTZ: Thank you.

11 MR. REED: Any other questions on this  
12 slide? Appendix E, these also remain unchanged. As  
13 you'll recall, these are the B- what I refer to as the  
14 onsite B- enhanced onsite emergency response  
15 capability type requirements. They are located in  
16 Appendix E to 10 CFR Part 50 either directly in the  
17 current part, existing parts of Appendix E, or as a new  
18 Section 7 which contains the staffing and  
19 communications capability requirements.

20 Then in addition, of course, we also have  
21 made basically what I view as a cleanup to the ERDS  
22 requirements in Appendix E that reflect what is already  
23 in place in terms of not referring to any kind of  
24 technology there. So, we're fixing that part of the  
25 regulation as part of this, also. But this goes to the

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1 B- what I call the multi-source-term requirements, and  
2 also the equipment to support those B- doing those  
3 assessments.

4 Right now, it would be B- if you go and look  
5 at this, would require licensees to be able to do  
6 multiple source-terms, even a single unit would have to  
7 be able to handle releases from the reactor and the spent  
8 fuel pool at the same time, and through multiple points.  
9 Of course, multiple units, multi-units it's a more  
10 complex situation, so that's building this capability  
11 into Appendix E.

12 This is something that was being done  
13 post-Fukushima by the industry. We expect that as a  
14 result, though it is a backfit, is in fact done and  
15 should be of very little or no impact, so that's going  
16 into Appendix E. And the staffing and communications  
17 requirements here reflect the 50.54(f) request for  
18 information of March 12th, 2012 where we requested  
19 licensees to basically do an analysis of their staffing  
20 for a Beyond-Design-Basis type event that affects the  
21 entire site. They, in fact, are responding to that, so  
22 that's ongoing. Again, this would simply reflect that  
23 staff requirement, and also those communications  
24 capability part of that response or that RFI. And that,  
25 again, this reflects that request for information, so

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1       that's building that into Appendix E.

2               So, that's Appendix E. That is unchanged.  
3       The application requirements saying those are basically  
4       unchanged. I think there is some B- and this is what I  
5       call the content of applications. There's a lot of  
6       regulation if you go and look in there in Part 50 and  
7       Part 52 about if you want to come in with a new reactor  
8       application under either process, Part 50 and Part 52.  
9       So, there have been some changes George Tartal was  
10      mentioning before, we made some changes now about  
11      forward fitting basically design requirements. So, for  
12      example, 52.59 was a certification of a current  
13      B- renewal of a certification for a current certified  
14      design. That's not there, but that's now been changed  
15      to reflect what George just said earlier in terms of the  
16      new design requirements on new designs forward fitted.  
17      So, otherwise, those application B- content of  
18      application requirements reflect exactly, I believe,  
19      unchanged from what was in what you saw in November.

20             The implementation now, if you go back to  
21      November and you look at that, we basically gave you kind  
22      of a high-level list of items that in our view would kind  
23      of drive the issue in terms of how much time do we have  
24      to give licensees to implement this once this regulation  
25      goes final, and you hit you effective date. How much time

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1 are folks going to need? And we tried to list a couple  
2 of items, areas there where we think there would be kind  
3 of pacing, what would be the implementation period.

4 Now you'll see in there it's essentially a  
5 B- it's marked to two refueling outages, and we actually  
6 have a question on this because we recognize that it may  
7 not make sense to tie implementation of this rule to  
8 refueling outages, but the proposed rule as written  
9 right now would basically say you'd have to implement  
10 it two refueling outages following the effective date  
11 of the rule; basically, when you're coming from startup  
12 and withdrawing rods. So, it made sense to make that four  
13 years or something else, and we have the question,  
14 stakeholder question on that. And, of course, we'll  
15 pursue that as part of our CER process as we get to the  
16 final rule, we see where we are, we see what licensees  
17 have on their plates. We'll revisit this and see if we've  
18 got it right.

19 And I'll just reflect back to an earlier  
20 slide where I mention we may have some challenges with  
21 implementing 155(c)(2), that would be another aspect of  
22 this we have to be mindful of to see whether that  
23 implementation is appropriate. We may need to build some  
24 flexibility or some criteria into the implementation of  
25 that provision, again, mindful of the fact that we have

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1 to get a Draft SRM from the Commission on  
2 COMSECY-14-0037. And we're obviously going to comply  
3 with that regardless, so that's a driver on that. So,  
4 implementation now you do see the language there as  
5 opposed to a high-level set of bullets that you saw in  
6 November. So, I'll come to full stop and see if folks  
7 have any questions on this.

8 Okay, backfit considerations. This will be  
9 the first time we've had a discussion on backfit today.  
10 Huh? That was supposed to be a joke. So, this is B- this  
11 slide was I think identical to what I provided before.  
12 And I don't think it's really worthwhile going through  
13 it with basically all the backfit discussion we've had  
14 today.

15 We've developed the proposed rule such that  
16 if the Commission, in fact, does not agree with the Staff  
17 and our qualitative basis for imposing SAMGs, that we  
18 can, in fact, adjust the regulation. And we definitely  
19 can do, and so we're ready to do that if that's the  
20 direction we get. So, that's the first thing. I've  
21 committed to the Commission back in B- was in SECY paper  
22 B- one of the updates to Fukushima from 2014, I think,  
23 that I would do that, so we can do that. And, if  
24 necessary, we will do that.

25 But in large measure, most of the

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1 requirements in this rulemaking are going into place  
2 right now. In large measure, they're being imposed under  
3 orders, most of them. The vast majority are being  
4 imposed as a result of implementation of EA 12-049, the  
5 Mitigation Strategies Order. But we also reflect the  
6 spent fuel pool level, as EA-12-051 said. That's already  
7 in, those are in place, those are not backfits as a  
8 result because they've already been imposed.

9 The rest of this, you'll see some  
10 discussion of other areas where technically they would  
11 be backfits. I mentioned just now recently the  
12 multi-source-term requirement. That would be a backfit.  
13 It's a new requirement, but in fact licensees are  
14 implementing it voluntary, so that's a new requirement  
15 without impact, as far as we understand at this point.

16 SAMGs and everything that support SAMGs, as  
17 I mentioned earlier, are backfits. And, of course, we've  
18 had quite a bit of discussion on whether we have a good  
19 valid basis on that. And I have a next slide on that  
20 coming up, and we can B- if you want hold it, or we can  
21 have some more discussion this slide.

22 And we mentioned earlier that we have new  
23 reactor requirements, and that's in, of course, 155(d).  
24 And those are forward fitting, and that's why they're  
25 not an issue for us in backfit, you know, since it's

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1 really about implementing a new reactor policy and  
2 trying to implement the Commission's ideas there, what  
3 the Staff believes those are, so we've got that  
4 discussion.

5 And, in fact, additionally, what I view as  
6 simply cleaning up the ERDS requirements to reflect what  
7 is in place now, and remove references. There's a  
8 reference right now in there about NRC replacing a  
9 modem. Nobody uses that any more, so it's an opportunity  
10 to clean up the requirements for ERDS. I'll come to a  
11 stop, and if you want to we can talk about backfit here,  
12 or we can go to the next slide and talk about the backfit  
13 again, if you want.

14 CHAIR SCHULTZ: Let's stop for a moment and  
15 ask if there's questions on this slide.

16 MR. REED: Okay.

17 MEMBER REMPE: A long time ago when they did  
18 the Advanced Reactor Policy Statement, what was C-- it  
19 was before I was on ACRS, and what was the Commission's  
20 motivation for imposing more requirements for severe  
21 accident instrumentation on the new reactors versus the  
22 existing fleet?

23 MR. McKIRGAN: If I could begin, this is  
24 John McKirgan. The Policy Statement does not impose any  
25 requirements, so it was intended to provide an

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1 opportunity for the vendors to voluntarily provide  
2 these features, but it does not impose requirements.

3 MEMBER REMPE: Westinghouse did not have to  
4 do that analysis, and that's why it's a fuzzy thing with  
5 the Staff interacting with them on it.

6 MR. McKIRGAN: Let me see if I can say it  
7 correctly, and someone from the audience can correct me  
8 if I'm wrong. But I believe it's a concept of application  
9 requirement, so there's a requirement that they have to  
10 provide information in the application on those things.  
11 And there is, of course, the Policy Statement from the  
12 Commission, so the Staff in conducting our reviews looks  
13 at those things and considers them. Of course, the  
14 vendors first have been mindful of the Policy Statement  
15 and the content of application requirements, and have  
16 provided these features. So, it's a combination of the  
17 voluntary input provided by the vendors and then the  
18 guidance that's used by the Staff during the review that  
19 gets us B-

20 MEMBER REMPE: Never any discussion well,  
21 the Commission decided, you know, we think this is just  
22 needed for adequate protection, for example?

23 MR. McKIRGAN: I don't have that  
24 background. I could not answer that.

25 MEMBER POWERS: I'm not sure what your

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1 question is, Joy?

2 MEMBER REMPE: Well, it seems to be the new  
3 reactors have gone ahead and looked at severe accidents  
4 and the instrumentation survivability for whatever  
5 reason, and I'm just wondering B-

6 MEMBER POWERS: Required to because they're  
7 required to have a PRA. They're required B-

8 MEMBER REMPE: They have a PRA, yes. But  
9 they look at instrumentation, too.

10 MR. MONNINGER: So, if you may allow, this  
11 is John Monninger of the Staff. I'm the Director of  
12 Division of Safety Systems and Risk Analysis from the  
13 Office of New Reactors. You know, the first question was  
14 with regard to the Advanced Reactor Policy Statement,  
15 and the original timing of that was very closely aligned  
16 also with the Severe Accident Policy Statement, which  
17 came post-TMI, and the Commission's expectations for  
18 new reactors, or advanced reactors to have high levels  
19 of safety, and particularly higher levels of severe  
20 accident safety performance.

21 We can talk about the AP1000, the AP600, the  
22 ABWR, the System 80+. Back in 1990, the Staff proposed  
23 various policy positions to the Commission. One of those  
24 policy positions was something called Equipment  
25 Survivability, and out of that policy position the Staff

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1 did impose those requirements on applicants for both  
2 equipment and for instrumentation, for instrumentation  
3 post-severe accident, prior to severe accident and  
4 post, so we looked at various profiles. The Staff did  
5 MELCOR calculations, the applicants did a series of MAPP  
6 calculations to come up with quasi bounding profiles for  
7 the equipment, and we spec'd out, or the applicant  
8 spec'd out equipment within the design certifications  
9 for both the prevention and mitigation of severe  
10 accident, and also the instrumentation necessary for  
11 that. So, that's B-

12 MEMBER REMPE: Okay, that helps a whole lot.  
13 And what I'm not hearing you say is why, was it deemed  
14 that's needed for adequate protection?

15 MR. MONNINGER: So, in those days we B- for  
16 the good or for the bad, we developed what we called  
17 Policy Positions. We didn't say whether they were for  
18 adequate protection, they weren't necessarily  
19 substantial safety enhancements. There was, you know,  
20 a lot of qualitative discussions in there, but there was  
21 no type of backfit discussion done at that time. It was  
22 the positions, there as probably, you know, 10, 15, 25  
23 of them that were generated over five years or so, and  
24 they were intended to meet the Commission's  
25 expectations for the Severe Accident Policy Statement

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1 for closure of severe accidents, and also the  
2 Commission's expectations within the Advanced Reactor  
3 Policy Statement, but wasn't an explicit analysis  
4 against the Backfit Rule in those times.

5 Subsequently, many of those provisions  
6 were codified within Part 52. You know, I don't have the  
7 exact accounting for which ones did roll up into Part  
8 52, and which ones didn't, there were issues with direct  
9 containment heating, steam explosions, the equipment  
10 survivability, hydrogen control, all those types of  
11 issues. And that's where the instrumentation for new  
12 reactors or advanced reactors comes in.

13 MEMBER REMPE: Thank you very much.

14 MR. REED: I was just add, too B- you  
15 mentioned the Severe Accident Policy Statement. If you  
16 go to Appendix A of the Draft Reg Analysis you'll see  
17 I walk through a little bit of the history on SAMGs, and  
18 I do have some quotes out of the Severe Accident Policy  
19 Statement from 1985. And you'll see the Commission at  
20 that time concluded that severe accident risk was not  
21 an undue risk to public health and safety. Of course,  
22 then they hedged and said, of course, if you identify  
23 any kind of vulnerabilities we would address those under  
24 backfit, and as you folks probably are well aware, along  
25 later in the decade came 88-20 that was looking exactly

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1 at those IP and IPEEE, those vulnerabilities. But,  
2 nonetheless, at that time they had to conclude no undue  
3 risk to health and safety of the public on the Severe  
4 Accident Policy Statement itself. So, these would be  
5 causing future reactors go beyond that and to be much  
6 safer. I think the risk results that they are, in fact,  
7 submitting would show that they have achieved  
8 significant levels of safety improvement for new  
9 reactors. So, just adding to what John just said.

10 MEMBER REMPE: Thanks.

11 CHAIR SCHULTZ: Go ahead.

12 MR. REED: All right. So, let's go to SAMGs  
13 where I sense there's -- the Committee is not in full  
14 agreement with the justification. We started this thing  
15 off talking about the quantitative analysis that I B- or  
16 it was informed by quantitative information, and also  
17 the qualitative basis I provided. It sounds like folks  
18 have B- do like the qualitative arguments that I  
19 provided there. I do B- you know, I boil this down to  
20 it's a very simple argument because I think it's very  
21 easy to relate SAMGs to the qualitative arguments in  
22 terms of defense-in-depth. They are, in fact, the  
23 B- I'll call it the command and control guideline set,  
24 if you will, once you go past core damage. They're  
25 informing the decisions that you make with containment,

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1 or how you try to maintain containment under human  
2 control, and containment is clearly one of the most  
3 important defense-in-depth features in the facility in  
4 terms of fission product barriers. And they also do  
5 inform or can inform any decisions made by the onsite  
6 emergency response organization for protective actions  
7 either on site or off site, so that goes to EP. And that's  
8 another one of our fundamental foundational  
9 defense-in-depth parts of our regulations.

10 So, you saw those arguments. I think  
11 they're very good arguments from a qualitative  
12 standpoint, but I'm mindful of the Commission's SRM here  
13 recently, and unfortunately it came just a couple of  
14 weeks B- about a week and a half ago, the early part of  
15 this month on qualitative factors. So, I think, as I  
16 mentioned earlier, it's up to the Commission to decide  
17 the weight that they want to put on the qualitative  
18 factors given what I think is B- I personally think, I  
19 think the Working Group believes is really good risk  
20 information to inform our decision, recognizing B- and  
21 I think I've got to be a little more careful on how I  
22 characterize it, as Dr. Stetkar discussed, and we  
23 discussed earlier with the Committee. But I do think  
24 there's a lot of value in looking at the information  
25 coming out of the containment protection and release

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1 reduction.

2 Again, as I mentioned earlier, I think that  
3 analysis demonstrates what I think what you should  
4 expect, and which I think is a great story for safety,  
5 that the 50 plus years of regulation and infrastructure  
6 the AC and the NRC have put in place, have in fact driven  
7 down severe accident risk to a very low level such that  
8 when you do look at it and you try to quantify it, and  
9 you try to show B- and you do show benefits. I mean, even  
10 that work shows benefits, too. Whether that meets our  
11 backfit criteria. I don't think it does, and I think it  
12 strongly enough to suggest you won't get there.

13 Now, we can disagree on that, whether we  
14 could go off and do a detailed look with a PRA or some  
15 sort of risk analysis that looks at SAMGs more fully and  
16 tries to get at their benefits quantitatively. I think  
17 B- I bet that that would come out pretty much around the  
18 same answer, and that's what I'm suggesting. So, again,  
19 that was an effort to provide a full complete story to  
20 the Commission, as I said, both sides of the equation,  
21 everything I know about risk, everything I know about  
22 the qualitative arguments that are very strong for  
23 defense-in-depth, and let the Commission make that  
24 decision.

25 I think personally, it's worth the

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1 Commission to put that out for stakeholder feedback and  
2 get the feedback from industry and external  
3 stakeholders, but if the Commission wants to decide that  
4 no, it's B- you know, based on the recent decision on  
5 qualitative factors they want to B- of course, I can,  
6 in fact, adjust this regulation. It might take B- it  
7 actually would probably take a little bit of time, a  
8 couple of weeks, but we definitely can do that and adjust  
9 to remove SAMG requirements, if that's the direction.  
10 But this was B- I did have last time if you recall a  
11 little bit more detail about the CPRR work. I'm  
12 sensitive, I was sensitive to some of the issues here  
13 already. I tried to remove that. In fact, I removed the  
14 figure. You won't see that in here. That was in the last  
15 presentation that came right from the CPRR with the  
16 bounding number, if you guys recall. So, that's B- I'll  
17 come to full stop. Let me just stop talking and allow  
18 you guys to start talking, so how's that?

19 MEMBER SKILLMAN: Tim, second carat under  
20 the first bullet, "Decisions Concerning Containment."  
21 In that context is containment a noun or a verb?

22 MR. REED: I'm thinking of it as a noun. In  
23 other words, I'm thinking B- I'm trying to make any  
24 decision to keep that barrier under human control. I  
25 don't want to lose the physical integrity of that

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1 boundary because then I'm done. Right? So, that's  
2 exactly how I think about it.

3 MEMBER SKILLMAN: Okay, so in that context  
4 it's containment integrity.

5 MR. REED: Yes, I think you could think of  
6 that as B- and we B-

7 MEMBER SKILLMAN: Okay, let's B-

8 MR. REED: We've had that discussion.

9 MEMBER SKILLMAN: We're going to get into it  
10 in 13-01 in a minute B-

11 MR. REED: Yes.

12 MEMBER SKILLMAN: B- because I want to  
13 point out the inconsistencies throughout 13-01. So,  
14 what I want to suggestion here is words matter, and  
15 written words matter more.

16 MR. REED: Absolutely.

17 MEMBER SKILLMAN: And here, this is  
18 containment integrity. I think somewhere in this  
19 discussion you need to weave in containment integrity  
20 and containment cooling, because while they are  
21 considered one and the same, they are, in fact,  
22 different. For example, containment integrity gets to  
23 the liner, or the vessel, any vessel, whatever might be  
24 used in the valve seals, what your last leak rate test  
25 confirmed; whereas, containment cooling can get into

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1 spray, boxcar fans, other activities that you would  
2 B- or other functions that you would use to cool. So,  
3 I think there needs to be clarity around this term. And,  
4 more importantly, as you did in 13-01, there are 12 or  
5 13 different places where you used this term, and  
6 sometimes you used the term containment integrity,  
7 other times it's containment cooling, and it isn't  
8 consistent. So, I want to just lob that now and we'll  
9 talk about it a little more in 13-01.

10 MR. REED: We can certainly wait until  
11 13-01, if you wish.

12 MEMBER SKILLMAN: 13-01 is fine. I think  
13 that's the better place to talk about it.

14 MR. REED: Okay.

15 MEMBER SKILLMAN: But I think when you talk  
16 about it, you better be specific as to containment  
17 integrity, or containment cooling.

18 MR. REED: The good news is Eric is going to  
19 present 13-01.

20 MEMBER SKILLMAN: Okay.

21 MR. BOWMAN: Well, I'm going to present that  
22 we aren't really ready with 13-01 completely yet, as we  
23 don't have a complete version of the underlying proposed  
24 industry guidance. And we are also awaiting the decision  
25 on the COMSECY-14-0037. I think we can talk about the

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1 containment portions. The one thing I would suggest,  
2 though, it's not just integrity or cooling, the words  
3 that we used in the original Mitigating Strategies Order  
4 and the words that we're using in the proposed rule are  
5 containment capabilities. And that also encompasses for  
6 Mark 3, and estimates of containments, the backup power  
7 for the hydrogen igniters.

8 MR. REED: I think mass and energy. Yes,  
9 there's a lot to it.

10 (Simultaneous speech)

11 MEMBER SKILLMAN: And there's one incident  
12 in 13-01 where it is containment capabilities, so it  
13 seems that there is an opportunity here for  
14 clarification.

15 MR. REED: Oh, yes.

16 MEMBER SKILLMAN: Thank you.

17 MR. REED: No other problems with the SAMG  
18 backfit?

19 CHAIR SCHULTZ: No. I guess, Tim, the only  
20 comment I'd have is that going back and forth between  
21 qualitative and quantitative, I would precede each of  
22 the four bullets that you have there with the value of,  
23 the way you did it at the bottom. I mean, each of those  
24 has significant value.

25 MR. REED: Oh, yes. Sure.

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1 CHAIR SCHULTZ: And the other piece of this,  
2 although there's a great amount of detail associated  
3 with costs associated with performing this, imposing  
4 the requirements, much has already been done. And I  
5 didn't go through carefully and dissect that, but things  
6 are moving B- things have moved forward, things are  
7 moving forward, and so it's certainly B- well, I think  
8 we're talking about codifying what is in place and  
9 assuring that it stays in place, and it doesn't drift  
10 the way some, only some have drifted in the past.

11 MR. REED: That's exactly what we're trying  
12 to do. And when we did the analysis of cost, we tried  
13 to B- the costs have been, I'll call sunk costs to date  
14 were not costing that's going forward, which I think is  
15 a fair way of doing it, too.

16 CHAIR SCHULTZ: It is the right way of doing  
17 it, certainly.

18 MR. REED: And I do agree there's value in  
19 them. And I personally think the value is largely in  
20 maintaining the containment under human control. And I  
21 think I made those arguments pretty clear, because the  
22 containment is there for one reason, it's to contain  
23 fission products, and fission products, when you have  
24 fission products, you got core damage, and where are  
25 you? You're in SAMG space, and so that to me is a direct

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1 link, and I've said that many times before. So, it's a  
2 pretty strong argument from the defense-in-depth  
3 standpoint.

4 CHAIR SCHULTZ: Any other comments before  
5 we break? We have reached the time for a break, and after  
6 the break we'll go into the discussions related to the  
7 Draft Regulatory Guides. So that we go into that with  
8 sufficient energy, I'll call a break until 3:35.

9 (Whereupon, the above-entitled matter went  
10 off the record at 3:15 p.m., and resumed at 3:34 p.m.)

11 CHAIR SCHULTZ: I would like to bring the  
12 meeting back in session and on the record. And we'll  
13 proceed then with the discussion on the Draft Regulatory  
14 Guidance. Eric Bowman, welcome.

15 MEMBER REMPE: Can I ask a question that's  
16 kind of a holdover from earlier discussions this  
17 afternoon?

18 CHAIR SCHULTZ: Go ahead, Joy.

19 MEMBER REMPE: We talked about the Severe  
20 Accident Management Guidelines, and I know at one point,  
21 Tim, you mentioned well, even if they use the old one  
22 and properly trained on it, and implemented it, it would  
23 be there. It's pretty good, but I read the Draft SECY.  
24 It discusses that the BWR Owners Group and the PWR Owners  
25 Group have new SAMGs, and it says the Staff will not be

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1 reviewing them. And I guess I'd like to know have you  
2 looked at them, what's your thoughts, are they  
3 sufficient or deficient? I mean, this is kind of  
4 important. Again, why do this if you're not to have some  
5 sort of oversight?

6 MR. REED: Sure. I can tell you what we have  
7 done. And I tried B- I mentioned a little earlier we had  
8 I think it was a one or two-day public meeting where we  
9 interacted with the SAMG experts, some of which are  
10 here. We also were granted access to an e-Portal which  
11 we've looked at the SAMGs that are in existence in the  
12 e-Portal, so we're familiar with that. We actually had  
13 a member of our research staff, Ed Fuller, who is a SAMG  
14 expert from back in the day also, he also looked at the  
15 Technical Basis Document. I think I mentioned that the  
16 Technical Basis Document from EPRI, if not 2012 version  
17 update the 1992, added five candidate high-level  
18 actions of lessons learned. I believe it's five. I might  
19 be wrong, but I believe so. I'm checking my memory here.  
20 Lessons learned from Fukushima, so we've done all that  
21 work.

22 But that's different, and I want to make  
23 sure, I don't want to over B- but that's different than  
24 reviewing it. You know, that's having a lot of  
25 familiarity with it. I think we used looking at it, you

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1 know. I'm not even sure we can say audit, you know. Each  
2 of these words mean something to us, and if I'm going  
3 to review that, then I need to have that submitted to  
4 me. Then I need, I think, to have some sort of criteria  
5 of what I would look and find acceptable. That works us  
6 into a pretty structured format, and that's what I was,  
7 you know, saying what we have not done to date, and  
8 that's why we structured it admittedly with a light  
9 regulatory footprint not to do that. You know, basically  
10 that B- going back to this idea about hey, do you have  
11 them? Are they in place? Are you keeping them up to date?  
12 Not getting into the licensing up front review and  
13 approval type process, so is that helpful?

14 MEMBER REMPE: Not totally, because B-

15 MR. REED: Okay.

16 MEMBER REMPE: B- you've B- I believe you  
17 mentioned in your discussion, or someone did that well,  
18 if it doesn't reflect the plant, we'll clearly say  
19 that's not working. But what if you just don't think it  
20 B- I mean, do you think they're adequate with what you  
21 reviewed? I mean, the B-

22 MR. BOWMAN: What we're standing from is in  
23 the 1990s we had a significant amount of interaction  
24 with the EPRI and the parties that were developing the  
25 basis for the Severe Accident Management Guidelines,

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1 the Technical Basis Report, and looked at the Owners  
2 Groups guidelines, including modifications to it, and  
3 concluded that they were good enough for us to forego  
4 further regulatory action on the subject of the SAMGs,  
5 and leave them as a voluntary industry initiative. We  
6 would be building on that view of the Severe Accident  
7 Management Guidelines, and we also have an outstanding  
8 offer from the Owners Groups as a joint submittal from  
9 the BWR Owners Groups and the Pressurized Water Owners  
10 Group B- Pressurized Reactor Water B- Pressurized  
11 Water Reactor Owners Group to submit any changes on a  
12 future ongoing basis to the Severe Accident Guidelines  
13 so that we could keep up to date on them and maintain  
14 currency, and the assessment that they were adequate to  
15 meet the needs. It would not be a licensing-type review.  
16 That's where we are with it.

17 MEMBER REMPE: So, you do review them for  
18 adequacy? And you B-

19 MR. BOWMAN: We have not taken that offer up  
20 to date. It really depends on what happens with the  
21 rulemaking, the treatment. We haven't completely  
22 settled that. That will be further settled when we get  
23 feedback from stakeholders, and it'll depend on, of  
24 course, whether or not Severe Accident Management  
25 Guidelines, in fact, become requirements, or what the

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1 final disposition is.

2 MEMBER REMPE: Okay, so depending on the  
3 outcome, you have an offer from industry that you can  
4 B- I don't know B- review is a bad word, maybe, I don't  
5 know, but review them for adequacy, and if there's some  
6 point of contention there can be follow-on discussions?

7 MR. BOWMAN: Yes. We have to remain mindful  
8 that we cannot delegate to the Owners Groups the  
9 authority to set what is acceptable legally to meet a  
10 requirement. We can look at a public document such as  
11 the Technical Basis Report, and judge whether or not we  
12 think that it provides sufficient basis to develop the  
13 Severe Accident Management Guidelines on a  
14 licensee-specific basis. Those are some hurdles that we  
15 haven't crossed yet.

16 MEMBER REMPE: Okay, thank you. And that  
17 you, Steve.

18 CHAIR SCHULTZ: Thank you. Okay, Eric.

19 MR. BOWMAN: Okay. Draft Regulatory  
20 Guidance. We've provided as part of the Draft Proposed  
21 Rule package three Draft Regulatory Guides that would  
22 propose to endorse a number of documents that were  
23 developed by industry to provide guidance.

24 Rather than going in the order that they are  
25 listed on the slide here, I'll just start out with Draft

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1 Guide 1317, which is on the wide range spent fuel pool  
2 level instrumentation, because I think that'll be the  
3 easiest one to cover with the Committee.

4 The proposed requirement in 155(c)(2) is to  
5 make the orders, EA-12-051 generically applicable. The  
6 way we've drafted that portion of the proposed rule is  
7 a high-level requirement that lacks a lot of the  
8 specificity that was in the order, itself. But we are  
9 carrying forward the guidance that was provided by  
10 industry for the order as endorsed by JLDISG 2012-02  
11 with no changes. So, what you got for Draft Guide 1317  
12 is really just that Interim Staff Guidance put into  
13 regulatory guide format.

14 The second one to discuss, Draft Guide  
15 1301, is the guide on the mitigating strategies portion,  
16 the portion that would EA-12-049 generically  
17 applicable. It also includes an Appendix A that provides  
18 the guidance for new reactor designers to meet the  
19 Paragraph D portion of 50.155. And then the third one  
20 would be Draft Guide 1319, which deals with the other  
21 aspects of the proposed rule.

22 The state of development for Draft Guide  
23 1301, it's a very preliminary draft right now. We've had  
24 several public meetings with industry and public  
25 stakeholders on the subject of the revision to NEI

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1 12-06. Currently, we have Draft Version C of Revision  
2 1. It's taking some feedback that we've provided and  
3 it's B- the intention of the revision to NEI 12-06 is  
4 to address lessons learned in the implementation of the  
5 requirements of the Mitigating Strategies Order.

6 The other thing that is going to ultimately  
7 be dealt with in Revision 1 to NEI 12-06 is the  
8 reevaluated hazards under the 50.54(f) letter of March  
9 12th, 2012. We're still awaiting the Commission's  
10 guidance in the SRM on COMSECY 14-0037 in order to  
11 proceed further on the development of guidance for how  
12 that should be dealt with.

13 You've seen in the presentation earlier and  
14 in the proposed rule language that we have proposed at  
15 least as a starting point for seeking stakeholder input  
16 on how the mitigating strategies should deal with the  
17 reevaluated hazards. Once we get the SRM on that  
18 COMSECY, we'll get further along with the discussions  
19 with stakeholders, including the Industry Working  
20 Group, on how to address the reevaluated hazards.

21 My understanding is that the Industry  
22 Working Group is going to propose an Appendix G to add  
23 to NEI 12-06 that will address the reevaluated flood  
24 hazards, and potentially an Appendix H for reevaluated  
25 seismic hazard.

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1           So, what you've got is a B- you can think  
2 of it as a rough draft of what we would put out in Draft  
3 Guide 1301 to seek public comment on the regulatory  
4 guidance as it's developed to date. We intend to  
5 finalize the Draft Guide to include guidance on the  
6 reevaluated hazards, and clear up some of the  
7 typographic errors, if you will, that Dr. Skillman  
8 pointed out, so that we have a more complete product when  
9 the proposed rule package is published. Right now we're  
10 shooting for this summer as B- insuring that we get the  
11 Draft Guide more fully developed. And we are, of course,  
12 happy to come and interact with the Committee again when  
13 we're further along in that development process.

14           MEMBER SKILLMAN: Eric and I were off the  
15 record when we sat and spoke for several minutes during  
16 the break. I went through this Draft Guide very  
17 thoroughly and there are about 13 instances where the  
18 term core cooling containment and spent fuel cooling is  
19 used, but not all 13 instances are the same. Sometimes  
20 it's containment, sometimes it's containment  
21 integrity, sometimes it's containment function,  
22 sometimes it's containment cooling, so I pointed that  
23 to Eric that that phrase should be used consistently  
24 each time it's used in this guide for the record. Thank  
25 you.

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1 MR. BOWMAN: Thank you for that. Are there  
2 any other questions on the main body portion of Draft  
3 Guide 1301?

4 MEMBER SKILLMAN: I do. I have one. It is on  
5 page 3 of the Draft Guide. It is the second paragraph  
6 from the bottom of the page, and this paragraph  
7 communicates that the Commission-issued memorandum  
8 which included requirements for mitigation strategies  
9 as a license condition for Virgil Summer Stations 3 and  
10 3. And my question is about what Vogtle 3 and 4?

11 MR. BOWMAN: Vogtle 3 and 4 were subject to  
12 the Mitigating Strategies Order EA-12-049 because it  
13 was issued contemporaneous with the issuance of their  
14 combined license.

15 MEMBER SKILLMAN: So, it's a chronology  
16 issue.

17 MR. BOWMAN: Yes. It's just Summer's Units  
18 2 and 3 didn't receive their combined licenses prior to  
19 the issuance of the Mitigating Strategies Order, and  
20 they were issued license conditions along with a  
21 combined license.

22 MEMBER SKILLMAN: Thank you.

23 MR. BOWMAN: If there are no other  
24 questions, I'll have Clint Ashley from the Office of New  
25 Reactors to discuss the content of Appendix A for Draft

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1 Guide 1301.

2 MR. ASHLEY: Thank you, Eric. Good  
3 afternoon. I'm Clint Ashley. I'm from the Office of New  
4 Reactors. I was a member of a team that was put together  
5 to put this preliminary Draft Guidance for Applicants  
6 for New Nuclear Power Plants, and there's other members  
7 in the audience that if your questions get more  
8 detailed, we can certainly draw on their expertise.

9 Draft Guide 1301, Appendix A contains  
10 guidance that provides applicants for new nuclear power  
11 plants with an acceptable method to meet the proposed  
12 rule. This slide highlights guidance related to coping  
13 duration and human actions, which are areas that are not  
14 covered in NEI 12-06 for meeting the proposed rule, as  
15 Eric just summarized.

16 So, to enhance coping durations, the design  
17 features should increase the amount of time that safety  
18 functions can be maintained early in an event before  
19 there's a need to augment the plant with onsite portable  
20 equipment, or possibly even transition from plant  
21 equipment to onsite portable equipment. And we believe  
22 that enhancing coping durations provides the operators  
23 with the time to plan and implement the onsite portable  
24 mitigation strategy for the longer term coping. So, with  
25 respect to the initial coping phase, enhanced coping

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1 durations means coping with installed plant equipment  
2 for at least 24 hours.

3 And we looked at this, we looked at the  
4 existing designs, the AP1000, the ESBWR, and they had  
5 coping durations, initial coping durations out to 72  
6 hours. We looked at the Advanced Boiling Water Reactor,  
7 it had initial coping duration out to 36 hours. We looked  
8 at operating plants in general, and we saw some initial  
9 coping durations that were on the order of five to eight  
10 hours. Eric, please correct me if that's B- it's a rough  
11 general idea about coping durations.

12 So, we also spoke with the Staff that had  
13 been involved with the Fukushima activities, read the  
14 Near-Term Task Force reports, and we came up with a  
15 judgment that we felt that 24 hours would provide an  
16 operator with ample time to implement the mitigation  
17 strategy, keeping in line with this rule requirement  
18 that says we need to have enhanced coping durations.  
19 That's for the initial response phase.

20 Now, as far as the concept of enhanced  
21 coping durations, we also applied that to the transition  
22 phase, which is where you would B- at the end of that  
23 transition phase you would bring in your offsite  
24 equipment. So, we viewed that B- again, we looked at the  
25 current certified designs and their capabilities, and

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1 so we came up with a judgment that the coping for that  
2 transition phase if we want to bring in that offsite  
3 equipment, we expect that to be at 72 hours. And that's  
4 consistent with the current fleet of advanced reactor  
5 designs. Are there any questions on the B- how we came  
6 up with the 24 hours and 72 hours?

7 Now, additionally, we also have this  
8 feature for B- in the initial response phase, we permit  
9 use of an installed AC power engineered alternative, and  
10 we refer to that as supplemental AC. Again, that has to  
11 be protected from external hazards such as the flood and  
12 the seismic. The basis for the eight hours was to be  
13 consistent with the recommendations in the Near-Term  
14 Task Force report. And we believe that this coping  
15 duration will, again, provide ample time for operators  
16 to start in line the supplemental AC source. It would  
17 be permanently installed, normally disconnected from  
18 the electrical bus, designed such that only minimal  
19 operator action would be needed to put the system in  
20 service, and we would expect that it would be diverse  
21 and independent source from the emergency AC source.

22 With respect to human actions, you know,  
23 the requirement to minimize reliance on human actions  
24 we felt was consistent with the Advanced Reactor Policy  
25 Statement, and we modeled this after the Aircraft Impact

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1       Assessment Rule. We believe that the benefit of being  
2       able to cope with an extended loss of AC power would  
3       reduce reliance on operator actions, was also  
4       recognized by the Near-Term Task Force report based on  
5       the results of insights from the Fukushima Daiichi  
6       accident.

7               So, greater reliance on design features  
8       that would include well thought out human-machine  
9       interfaces, would reduce reliance on and simplify  
10      manual actions necessary to restore key safety  
11      functions. So further reducing reliance on human  
12      actions would also reduce the potential for human  
13      failures during stressful adverse conditions.

14             So, for the initial response phase which is  
15      our focus with respect to design features, the guidance  
16      is we would expect minimal operator actions at limited  
17      and protected locations, and that all necessary actions  
18      to monitor and coordinate the control of the nuclear  
19      facility can be performed in the main control room.  
20      However, we also recognize that if there's an alternate  
21      station that contains equipment specifically designed  
22      for that purposes, that it could be also conducted from  
23      outside the control room.

24             MEMBER STETKAR: So, a design that requires  
25      that the operators completely de-energize the main

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1 control room and shuffle off to another place that has  
2 barely enough instrumentation available for them to  
3 make sure they're adding some water is perfectly fine,  
4 because that minimizes operator actions during a very  
5 confusing situation.

6 MR. ASHLEY: The guidance doesn't preclude  
7 geographically where the operators do command and  
8 control, but I recognize that certainly if you were to  
9 have to de-energize the control room to extend battery  
10 life, that would be a more complicated action, and an  
11 applicant would have to do sufficient technical  
12 justification and provide that to the Staff in order for  
13 them to make a judgment on that.

14 MEMBER STETKAR: Okay.

15 MR. ASHLEY: That's all I had for Appendix  
16 A.

17 MR. BOWMAN: Okay, thanks, Clint. Draft  
18 Guide 1319 is the final Draft Guide. In this guide we  
19 consider three industry-developed guidance documents  
20 to address the vast majority of the remaining  
21 requirements that would be in place for 50.155.

22 The first of the industry documents, NEI  
23 1201 should be familiar. It was the guidance document  
24 that was endorsed for meeting the B- providing  
25 information in response to the RFI of March 12th, 2012

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1 on the staffing assessment for response to a multi-unit  
2 event on site, and also providing the information for  
3 the communications assessments.

4 The other two guidance documents that we're  
5 looking at, the industry ones, NEI 1306 and NEI 1401,  
6 NEI 1306 deals with the multi-unit dose assessment, the  
7 types of training, drills, and exercises, and the  
8 necessary facilities for emergency preparedness for a  
9 multi-unit event.

10 NEI 1401 covers the command and control,  
11 the integration of the different procedure sets, what  
12 would be necessary to create an integrated response  
13 capability of all the elements that are in 50.155. And  
14 finally to provide some guidance on the development of  
15 Severe Accident Management Guidelines.

16 It points back to the EPRI Technical Basis  
17 Report for the Severe Accident Management Guidelines,  
18 and does make mention of the Owners Groups guidelines.  
19 We do include the we aren't endorsing secondary  
20 references within the NEI document, so this is not  
21 intended to be an endorsement of the Owners Group Severe  
22 Accident Management Guidelines.

23 I'm not sure if you've had enough time to  
24 look through the guidance documents, so we would, of  
25 course, be happy to come back and discuss them further

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1 with you, as we'll have to do with Draft Guide 1301 once  
2 that's finalized.

3 MR. REED: And, again, we mentioned a little  
4 earlier the timing for the draft guidance is to try to  
5 get it B- our process is to issue with the proposed rule,  
6 so our estimate on that, of course, is that have to  
7 reflect the Commission's deliberation on this proposed  
8 rule. We have to take some guess at that, get the SRM,  
9 fix the package and get it to the Federal Register. And  
10 if you start working those numbers and you be reasonable  
11 about it, I think something like maybe July of next year,  
12 or this year, I guess, whatever year we're in, 2015,  
13 would be about the estimated time that the rule would  
14 probably be published, maybe even August. So, with  
15 regard to the Draft Guidance and filling in the holes,  
16 that would be the kind of time frame I think that we have  
17 to finish what we have, have complete Draft Guidance  
18 sufficient to get the stakeholder feedback on the Draft  
19 Guidance to get to the final guidance.

20 And then it's up to the Committee. I mean,  
21 you guys B- this is, obviously, a very important issue.  
22 You guys have engaged with us quite a bit but, you know,  
23 in other rules, as you well know, you don't engage on  
24 Reg Guides until the Final Rule, so it's up to the  
25 Committee whether you want to interact more with us

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1 before that goes out, during the public comment period,  
2 wait until the Final Rule. Your call. We're here to do  
3 whatever it is that you wish in that regard, so that's  
4 basically what Eric was suggesting. I think I actually  
5 have that on the last slide, too.

6 MR. BOWMAN: I already switched to the last  
7 slide.

8 MR. REED: You did, so recognize that that's  
9 there. That's a hole right now, if you will, in the Draft  
10 Guidance, and industry I think is probably waiting for  
11 the Final SRM on COMSECY 14-0037. I know that some work  
12 on some of these appendices are going on, so we'll have  
13 to see how that sorts out.

14 CHAIR SCHULTZ: Are there any other pieces  
15 with regard to 1301 where you're anticipating further  
16 appendices, other elements that would, perhaps, be  
17 included?

18 MR. BOWMAN: Those are the two major items.  
19 The current version, the current draft version of NEI  
20 12-06 includes an appendix on AP1000 design and how it  
21 can meet the Mitigating Strategies requirements. There  
22 had been an effort earlier to generalize that to new  
23 reactor designs.

24 And the other caution I would have is that  
25 we don't have a final clean version of NEI 12-06, so I

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1 can't tell you with certainty exactly what it's going  
2 to look like, or whether or not we will have any further  
3 clarifications or exceptions that we need to add to  
4 13-01 until I see a final version. The version that this  
5 was based on, this Version DG-1301 was based on was a  
6 version that included redline strikeouts and comments  
7 that still needed some cleaning up.

8 CHAIR SCHULTZ: That's helpful, thank you.

9 MR. BOWMAN: But I did want to give you a  
10 sense of where we are currently with what we view as  
11 appropriate guidance, what the state of affairs is right  
12 now.

13 MR. REED: And that's part of my last slide,  
14 the Staff's last slide here on status and path forward.  
15 As I mentioned earlier, we are in office concurrence  
16 right now. It's ongoing. I'm getting feedback from  
17 offices. I'll certainly try to incorporate some of the  
18 feedback that we've heard today, too. We need to get this  
19 package after office concurrence up to the EDO on the  
20 16th of April, and it needs to go and it will go to the  
21 Commission on April 30th. So, that's the schedule. We're  
22 on that schedule right now. We intend to meet it. As I  
23 mentioned, the Draft Guidance will go out with the  
24 Proposed Rule, and that I'm estimating in the summer.  
25 And we're certainly here to, if you so wish, we'll try

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1 to interact with you, the Committee, as you wish on the  
2 Draft Guidance.

3 As you're well aware, the Full Committee  
4 meeting is on April 9th on the proposed rule. That a much  
5 shorter, one or two-hour meeting, but a lot of the  
6 Committee Members, of course, are participating. And  
7 then, of course, we'll meet with the Full Committee and  
8 the Subcommittee, of course, during the final rule  
9 process, so that's the path forward and the status.

10 CHAIR SCHULTZ: Other questions for the  
11 Staff from members of the Subcommittee? Hearing none,  
12 I'll thank you now for the work that you've done in  
13 preparation, and stay in the room in case there are more  
14 questions. We're going to turn to the industry  
15 presentation, and for the audience it's just going to  
16 be a short break while we change chairs. We're not  
17 leaving the record.

18 (Off the record comments)

19 CHAIR SCHULTZ: At this point, I'd like to  
20 recognize David Young from NEI.

21 MR. YOUNG: Thank you. Good afternoon. My  
22 name is David Young, and I'm the Senior Project Manager  
23 in the Emergency Preparedness Department at NEI. With  
24 me are Bryan Ford from Entergy, and Bill Webster from  
25 Dominion. We appreciate the opportunity to provide

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1 industry comments and observations on the draft  
2 proposed Mitigation of Beyond-Design-Basis Events Rule  
3 to this ACRS Subcommittee.

4 At this time, I'm going to turn it over now,  
5 and I'll turn it over to Bryan to go ahead and get started  
6 on delivering our comments in the presentation.

7 MR. FORD: Well, as David said, my name is  
8 Bryan Ford with Entergy, and I'm going to provide you  
9 some industry high-level comments on the rulemaking. We  
10 look forward to providing more during the rest of the  
11 process.

12 To start off with some overall positives,  
13 we think the right topics in general are in the  
14 rulemaking, and the rulemaking reflects the significant  
15 amount of work that has been done between the NRC and  
16 the industry since Fukushima. You know, it does work to  
17 codify the existing order requirements and commitments,  
18 and the responses to the 50.54(f) letter.

19 We appreciate the fact that the Staff  
20 intends to support the use of the previously developed  
21 and the still developing industry guidance. There is  
22 still additional work needed on that. Specifically, if  
23 the seismic moves into the rulemaking, we don't have  
24 guidance yet that supports that. And we do appreciate  
25 the changes that have been made based upon previous

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1 industry comments in the process.

2 Some areas that we think could use some  
3 improvement. You know, the mitigation of  
4 Beyond-Design-Basis Event capabilities needs to  
5 address a spectrum of plant conditions that may be  
6 caused by the different initiating events and the  
7 resulting damage states. One thing that the current  
8 proposed does is it basically requires that you assume  
9 the ELAP condition and the loss of the heat sink even  
10 when you're assessing the revised hazard response. We  
11 think that in many of those cases you should be able to  
12 use a alternate or targeted hazard mitigation strategy  
13 that takes into account the actual state of the plant.  
14 If the flood or whatever the event is doesn't cause a  
15 loss of offsite power, then for that targeted hazard  
16 strategy you shouldn't need to assess the extended loss  
17 of AC power.

18 MEMBER SKILLMAN: Bryan, doesn't that take  
19 the teeth out of the tiger?

20 MR. FORD: Well, we're really thinking  
21 that, as we said before, that the current FLEX or 12-06  
22 strategies were basically developed for an unknown set  
23 of events, so instead of a known damage state, you're  
24 basically taking I'm going to assume a damage state and  
25 develop strategies to address that damage state.

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1                   Once we move to the revised hazards, we  
2                   think that we have a better understanding of what the  
3                   effect has been on the plant of that event, and we think  
4                   taking that into account for building the strategy  
5                   specific for that event is the appropriate thing to do.

6                   MR. YOUNG: For that reevaluated hazard.

7                   MR. FORD: For that reevaluated hazard.  
8                   You'll see in a second, we still think we need to keep  
9                   the overall FLEX capabilities, whether it's for flood  
10                  or for whatever the hazards are, but when we're going  
11                  in and building a specific strategy for the reevaluated  
12                  hazard we think we should be able to consider what the  
13                  effects of that reevaluated hazard has been on the  
14                  plant.

15                 MEMBER SKILLMAN: Well, supposing I say  
16                 okay, well, I really haven't lost all of the ultimate  
17                 heat sink, I've only lost 20 percent of it?

18                 MR. FORD: You know, you would have to  
19                 evaluate how you can say that, and whether or not the  
20                 equipment is still available. You'd have to go through  
21                 the whole process to assure that the necessary equipment  
22                 is available for the hazard that you just evaluated.

23                 MEMBER SKILLMAN: I didn't lose all my AC,  
24                 I only lost two of my three lines.

25                 MR. YOUNG: But I think when you would look

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1 at the strategies for that particular condition, then  
2 you'd factor that into how you would build your  
3 strategies.

4 MEMBER SKILLMAN: Now I have a custom  
5 strategy.

6 MR. FORD: Yes, and we think in many cases  
7 or in some cases for the reevaluated hazards plants are  
8 going to need to build a specific strategy to deal with  
9 the reevaluated hazard.

10 MR. YOUNG: There'll be information that we  
11 will have now on the reevaluated hazard that would not  
12 have been B- as Bryan said B- right, in this nebulous  
13 damage state where everything is gone, that's the  
14 underlying assumption, from the reevaluated hazards  
15 you're going to have additional information that may  
16 indicate that certain things are going to be available,  
17 so you would have to have strategy sets that reflect the  
18 availability of that equipment. In fact, an installed  
19 power source, why wouldn't I use it?

20 MR. FORD: And on the other hand, it may also  
21 say that other equipment isn't available that in your  
22 primary FLEX strategy is, so you would need to take that  
23 into account and deal with it for the targeted hazard.

24 MEMBER SKILLMAN: On the other hand, if I  
25 just choose to not go through these permutations and

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1 combinations and simply say I'm in ELAP, and I've lost  
2 access to my normal heat sink, doesn't the path forward  
3 become very, very clear; even though it's complicated,  
4 it's very clear?

5 MR. FORD: I'm not sure about that depending  
6 upon what the reevaluated hazard has done at your plant.  
7 You know, depending upon how you got into that ELAP state  
8 and, you know, we make certain assumptions under the  
9 12-06 current strategies on the availability of  
10 equipment and what equipment is available and what  
11 equipment isn't, and in the reevaluated hazard that  
12 evaluated hazard may exceed those assumptions. And as  
13 a result, you know, the plant can be in a greatly  
14 different state potentially than we assumed for the base  
15 FLEX flood or whatever it may be event.

16 MEMBER SKILLMAN: I understand your  
17 explanation. It just seems to me that by asserting this  
18 might be the better way to go you have created what can  
19 be an unending series of evaluations to try to figure  
20 out where you should be. And it seems to me that that's  
21 not simplifying, that's complicating this issue.

22 MR. FORD: Well, hopefully, when we get to  
23 the next slide B- I don't see that it complicates it  
24 right yet, but we'll show you what our proposal is, and  
25 we'll see.

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1 MEMBER SKILLMAN: Thank you.

2 MR. FORD: One thing we do think, though, is  
3 that the current proposal of including seismic into this  
4 is inconsistent with the current seismic path forward  
5 that we've been working on. Currently, the seismic path  
6 forward that's being used is a risk-based path where  
7 we're doing reviews of IPEEE information, we're doing  
8 SPRAs. The flooding path in FLEX is of a deterministic  
9 path forward. You know, you go and you build a specific  
10 strategy for that. So, we currently don't have any  
11 guidance that really goes towards incorporating the  
12 reevaluated seismic hazard into FLEX, and how you would  
13 do that. And we haven't started developing that yet.

14 MEMBER STETKAR: Why haven't you?

15 MR. FORD: Because right now the industry  
16 path is that we are doing this risk-based path of doing  
17 SPRAs, and using the IPEEEs for the plants that could.

18 MEMBER STETKAR: I guess I didn't  
19 understand that answer, but that's okay.

20 MEMBER POWERS: I mean, is the difficulty or  
21 the conundrum we have here that for seismic we have some  
22 sort of probabilistic record that goes back a few  
23 thousand years, but for floods, you know, maybe 100  
24 years is all we have. Is that the conundrum?

25 MR. FORD: I think that is part of it. You

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1 know, the stated current NRC position that I understand  
2 is that they can't really assign probability numbers to  
3 many of these flood events because of the amount of  
4 information we have available. On the other hand, there  
5 is numbers that are accepted for probability to seismic  
6 events, and we're right now consistent with the industry  
7 commitments for resolving the 50.54(f) letter. We're  
8 off with the Tier 1 plants doing SPRAs currently.

9           So, our suggestion is twofold. One, where  
10 in the proposed rulemaking the reevaluated hazard was  
11 added back in the equipment section, we don't think  
12 that's necessarily the right place to add it because  
13 where it was put really only applies to the portable FLEX  
14 equipment, and there's a lot to these strategies and  
15 making one of these strategies for one of the hazards  
16 than just the qualification of the portable equipment.  
17 So, we think the appropriate place would be to bring it  
18 up into the (b)(1) section where it says you have to  
19 build a strategy or guideline that supports that  
20 reevaluated hazard. And our view is that it doesn't  
21 necessarily have to be directly connected to the  
22 concurrent ELAP, but you need to do the current FLEX,  
23 and then if you have a hazard that exceeds your current  
24 FLEX, you also need to go evaluate that hazard for what  
25 the appropriate strategy would be. And our current view

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1 is that you would limit that to the reevaluated flood  
2 hazard consistent with the industry commitments.

3 So along with that, we wouldn't put it back  
4 in the equipment section. We're not really sure the  
5 equipment section as a whole is really necessary for the  
6 rule. It's more stuff that should be controlled by  
7 guidance. There's always chances that when you try to  
8 take a large body of guidance and sum it up in a couple  
9 of sentences that you lose the subtleties of what makes  
10 that work. But as a minimum, we think that this would  
11 B- this section on incorporating the revised hazard  
12 would be best up in the "You must build your strategy  
13 to address it," and leaving up what is reasonable  
14 protection and how you decide that reasonable  
15 protection robustness into the guidance.

16 On the new plant requirement that was  
17 discussed earlier, we don't necessarily think that  
18 those requirements are necessary to be added in for new  
19 plants. That, one, the new plants are designed to the  
20 higher review standards and design standards that are  
21 identifying the revised hazards, so we're not sure that  
22 those are necessary to be included in the rule.

23 Also, on SAMGs, we don't think using the  
24 qualitative factors is in accordance with the  
25 Commission direction given in the SECY, and so we think

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1 that it would be more appropriate to achieve the  
2 regulatory footprint that the Commission would like in  
3 a different way. The industry has developed and is  
4 committed to SAMGs, and we understand the goal is to have  
5 a regulatory footprint to make sure we keep them in the  
6 future, but we don't think that it seems that the current  
7 method of justification is correct for including them  
8 in the regulations.

9 MR. YOUNG: So, for example, if the basis  
10 here of qualitative factors wasn't sufficient to get it  
11 in the rules, then perhaps some sort of voluntary  
12 industry docketed commitment might be a way of  
13 establishing a footprint on it in the future. That  
14 doesn't exist today. That may be one approach.

15 MEMBER REMPE: So, we have a voluntary  
16 commitment. Isn't that what they had years ago, and then  
17 they inspected after Fukushima and the voluntary  
18 commitment wasn't kept up? So, what are you suggesting  
19 at this time?

20 MR. YOUNG: Well, it would be a B- kind of  
21 the word we used yesterday in some of the discussions,  
22 a more reinvigorated and more vigorous kind of  
23 commitment that carries more B-

24 MEMBER REMPE: Unless it's a regulatory  
25 commitment, I don't B-

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1 (Simultaneous speech)

2 MR. YOUNG: If it was a licensing basis  
3 commitment of that nature, and I don't want to go into  
4 a whole lot of specifics here because we'd have to talk  
5 it through with a lot of folks, but certainly more than  
6 just sort of the voluntary initiative that was  
7 characterized back when it was rolled out in the '90s.

8 MR. FORD: So, I guess our main point is that  
9 we don't think that the current justification in the  
10 rulemaking package using the qualitative factors is  
11 sufficient to justify the imposition of the  
12 requirements as a regulation. We do understand the  
13 desire and need to have, you know, appropriately  
14 maintained and controlled SAMGs, and we support that,  
15 and we're willing to work on how the appropriate way is  
16 to include it, but we don't think B-

17 MEMBER STETKAR: Bryan, let me ask, does the  
18 industry have that broad-based quantitative  
19 justification to show that there isn't any benefit from  
20 the SAMGs? Do you have all of those Level 2 PRAs that  
21 you can show me how much B- how little benefit you get  
22 from the SAMGs?

23 MR. FORD: No.

24 MEMBER STETKAR: Okay. Thank you.

25 MR. FORD: But to be clear, and this is as

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1 a licensee for a long time, it's the NRC B- you know,  
2 as the NRC has said in the past, there's a job for the  
3 NRC, and a job for licensee.

4 MEMBER STETKAR: So, you can't quant B- you  
5 can't tell me quantitatively that they're not  
6 justified. The NRC can't tell me quantitatively that  
7 they're not justified. You're telling me qualitatively  
8 that you don't think they're justified.

9 MR. YOUNG: Well, no, I don't think that's  
10 what we're saying.

11 MEMBER STETKAR: That's all I hear.

12 MR. YOUNG: You know, what we're saying is,  
13 is the basis as currently written in the FRN doesn't get  
14 you there. We don't think it gets you there, so there  
15 was B-

16 MEMBER STETKAR: I'm asking do you have a  
17 basis to disprove that?

18 MR. YOUNG: The Staff B-

19 MEMBER STETKAR: Quantitative, we want the  
20 quantitative basis B-

21 MR. YOUNG: The Staff itself said that  
22 quantitatively they can't get there, so we're going to  
23 use qualitative approach to make it over the hump, and  
24 we're saying when you look at the SECY, it's like  
25 B- we're not seeing the sufficient rationale there for

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1 using qualitative factors. So, the solution is either  
2 come up with more B- better quantitative rationale,  
3 take some kind of administrative exception to backfit,  
4 get a docketed commitment. I mean, there's other  
5 approaches, so B-

6 MEMBER BLEY: Can I ask a B- you were here  
7 for the Staff's presentation, and you've talked with  
8 them on it. The way they're proposing to have oversight  
9 of the SAMGs, at least to me seems a not very intrusive  
10 way to do it. Do you have objections to the way they've  
11 described how they would have that oversight, or are you  
12 just objecting to the basis that they provided for  
13 getting to that?

14 MR. FORD: The basis.

15 MR. YOUNG: Yes.

16 MR. FORD: The basis is the B-

17 MR. YOUNG: As I said, I don't think the  
18 industry is objecting to maintaining and, you know, we  
19 just put out documents to upgrade the SAMGs.

20 MEMBER BLEY: Anything inspections?

21 MR. YOUNG: Yes, I mean, yes, I always  
22 expected B-

23 MEMBER BLEY: So, on the practical level you  
24 are not objecting to how they want to pursue the SAMGs.

25 MR. YOUNG: It is the process that they're

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1 using to get there.

2 CHAIR SCHULTZ: Has the industry evaluated  
3 the costs that are provided for the implementation, the  
4 SAMG implementation, the costs that are in the  
5 evaluation? Are they reasonable?

6 MR. YOUNG: Yes. We've looked at some of the  
7 numbers in the Reg analysis and, quite frankly, aren't  
8 prepared to discuss those here today, but I think we want  
9 to go back and take a very good look at the numbers that  
10 are in the Reg analysis and maybe just do some  
11 independent scrubbing to see if we come up with  
12 something in the same ballpark. I just had some recent  
13 experience in the EP Rule back in 2011, and I think some  
14 of the numbers that were in that Reg analysis weren't  
15 borne out in the subsequent cost of implementation, so  
16 I would want to go back and take a pretty hard look this  
17 time around going in on the front end and see if we can  
18 look at those estimated costs, and do they really  
19 reflect all the B-

20 CHAIR SCHULTZ: Well, let me ask it  
21 differently. The scope of what's described and costed  
22 out, the scope of what is described there seems to be  
23 what you say the industry would commit to with respect  
24 to SAMGs, that portion of it, and then also an upgrade,  
25 and making sure the Owners Groups and making the

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1 improvements that we've discussed, as well as assuring  
2 that everyone is committed to, and performing, and  
3 doing, and sustaining, and exercising, excuse me,  
4 demonstrating through drills. All of that is to be done,  
5 is what you're saying, the industry sees value in that.

6 MR. YOUNG: We don't see any B- we don't  
7 have any objection to the current proposed requirements  
8 that are in the FRN.

9 CHAIR SCHULTZ: Okay.

10 MR. YOUNG: So, having SAMGs, configuration  
11 control, maintaining them up to date, drilling on them  
12 periodically, that's all B-

13 MEMBER BLEY: You want to not have it a rule?  
14 I'm having a little trouble seeing what you're  
15 presenting to us.

16 MR. YOUNG: I think B- again, in our  
17 discussions, I guess, you know, the message B- you know,  
18 the point here in this presentation is to B- we're not  
19 objecting to the requirements. We just think the Staff  
20 needs to go back and take a look at the basis provided  
21 in the FRN, and look at its consistency with this SRM,  
22 and if they can't get through it through anything other  
23 than qualitative measures, we ask that they go back and  
24 think about another approach for providing a basis for  
25 imposing the requirement.

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1                   MEMBER BALLINGER: So, what you're  
2                   objecting to is basically the administrative process?

3                   MR. YOUNG: The imposition B- how the  
4                   requirement is imposed.

5                   MEMBER BALLINGER: What is the downside?

6                   MR. YOUNG: Well, because if you start to  
7                   use qualitative factors and defense-in-depth, that  
8                   becomes a slippery slope very quickly for everybody's  
9                   great idea.

10                  MEMBER BALLINGER: Okay, so there's your  
11                  objection.

12                  MR. YOUNG: You know, so everybody's got  
13                  great ideas, and I'm sure they all add defense-in-depth  
14                  at some point but, you know, the Commission said yes,  
15                  we want some kind of quantitative analysis. Right? I  
16                  mean, that's the expectation, so that's the concern.

17                  CHAIR SCHULTZ: Do you have a way in which  
18                  you would characterize the safety benefit of SAMGs, not  
19                  only the SAMGs, but what has been proposed, which is that  
20                  B- and the industry is doing, assuring that there's  
21                  integration, operating procedures on up to response to  
22                  severe accidents.

23                  MR. YOUNG: I think in our conversations,  
24                  you know, we've all along in our conversations,  
25                  interactions with the Staff, and the last time we were

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1 in front of the Subcommittee, the industry has  
2 acknowledged that, you know, we are prepared to support  
3 having some kind of regulatory oversight of severe  
4 accident management because they certainly do add some  
5 additional level of mitigation capabilities, you know,  
6 for accidents and protection of the public. So, you  
7 know, quantifying the B- and I'm hedging a little bit  
8 because of the way you kind of phrased it, which almost  
9 goes more to, you know, have I looked at some of rigorous  
10 analysis? No, I haven't. But, I mean, qualitatively,  
11 that's kind of what we said, is we support it, we think  
12 there's value to having it, and we think some kind of  
13 oversight of it is appropriate. And we're just proposing  
14 here, not to make light of what you said, but yes, it  
15 is more of an administrative kind of thing because there  
16 some other precedent issues that could come up.

17 CHAIR SCHULTZ: It's a policy matter.

18 MR. YOUNG: As a policy matter.

19 MEMBER REMPE: So what regulatory oversight  
20 process could be invoked that gives assurance that the  
21 voluntary effort wouldn't dissipate? I mean, you're  
22 saying I don't mind doing it, I don't want it to be  
23 imposed this way, so give me an example of what you'd  
24 suggest.

25 MR. YOUNG: Well, I'm certainly nowhere

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1 near as knowledgeable as Mr. Reed but, you know, I don't  
2 know what the ultimate mechanism might be to fit this.  
3 All we're saying is that the basis currently in there  
4 now just needs to be looked at, just go back and rethink  
5 that. Is there some other basis that gets you there  
6 without having to invoke qualitative requirements in  
7 this instance because of the precedent issue, and how  
8 this could get B-

9 MEMBER BLEY: And especially  
10 defense-in-depth.

11 MR. YOUNG: And particularly B- I mean, is  
12 there anything isn't defense-in-depth at some point. I  
13 mean, you could almost make that argument for just many,  
14 many things, so B-

15 MEMBER BALLINGER: So, your issue is the use  
16 of qualitative arguments period, and that's to start the  
17 slippery slope, is what you're saying.

18 MR. YOUNG: Yes. In so many words, yes.

19 MEMBER BLEY: So if they say, went back and  
20 looked at say some of the PRAs and then addressed some  
21 of the events that we've heard, maybe not just  
22 Fukushima, and said gee, there's uncertainty in how  
23 likely some of these are, and attacked that uncertainty  
24 basis, and from that showed there was a possibility of  
25 a higher risk that might meet the Backfit Rule, that

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1 would be more palatable.

2 MR. YOUNG: Well, clearly then you're in  
3 accordance with the SECY. Right? Now, you've done a  
4 quantitative set of analysis, and here's your results,  
5 and this is what it shows, and you compare this B-

6 MEMBER BLEY: Maybe substantial judgment  
7 involved in it, but it's a quantitative B-

8 MR. YOUNG: Well, it's a quantitative  
9 assessment. Now, again, that's not to say that, you  
10 know, we might have comments on that in public comment  
11 period, and we could certainly talk about those at that  
12 point, but certainly something like that would be more  
13 of a path for getting a quantitative rationale.

14 MEMBER BLEY: From the way you've talked it  
15 seems there's not an easy mechanism, or a previously  
16 adopted mechanism to get these kind of requirements in  
17 place other than a rule. Is that right? You suggested  
18 something but it had no stuff there, no substance there.

19 MR. FORD: We would have to sit down and talk  
20 to the Staff over what the appropriate mechanism is. The  
21 previous voluntary industry initiative that put SAMGs  
22 in, I mean, as the Site Licensing Manager, that is not  
23 as near and dear to my heart as I wrote a letter that  
24 had a regulatory commitment in it that I track to make  
25 sure that it's done. So, there may be other mechanisms

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1 we could use that raises the B- at least the perceived  
2 B-

3 MR. YOUNG: So, we could have some public  
4 engagement that hopefully we come up with the right, you  
5 know, the right form letter, for lack of a better term,  
6 that has the right words in it, and that's the commitment  
7 letters everybody sends in.

8 MEMBER BALLINGER: Well, let be clear  
9 again. The objection is the qualitative factors, the use  
10 of qualitative factors because you're concerned C-now  
11 maybe I'm putting words in your mouth, of the  
12 subjectivity that can creep into using qualitative  
13 factors, the definition of qualitative factors.

14 MR. YOUNG: It's the use of qualitative  
15 factors to B- as a substitute for not getting there  
16 quantitatively, because if you look at what the SECY  
17 said, right, it's quantitative factors, and you can  
18 inform the decision making with qualitative. But, you  
19 know, we expect some sort of quantitative basis for this  
20 information, and it's like well, they did the  
21 quantitative measure, it's like no, we didn't get there.  
22 Okay, so now we go over the hump by using qualitative  
23 measures, and that just doesn't seem to be the right B- I  
24 mean, so where does that stop? So, every time I don't  
25 get them from quantitative measures, I'm going to invoke

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1 qualitative measures? I mean B-

2 MEMBER BLEY: If you look at Reg Guide 1.174

3 B-

4 MR. YOUNG: Which I haven't.

5 MEMBER BLEY: B- which is used in a  
6 different way, but that has you do risk calculations,  
7 but also has you go through an integrated decision  
8 process where you can bring things that may be  
9 responsible for extensive uncertainty, or lacks of  
10 knowledge into that decision process to jointly come up  
11 with a basis for considering the impact of changes. It's  
12 not quite what's written into the Backfit Rule or that  
13 sort of thing, but it is a kind of process that  
14 integrates strictly quantitative with a consideration  
15 of factors that are difficult to quantify. That sort of  
16 approach would smell better, or maybe not.

17 MR. YOUNG: You know, I'm going to have to  
18 plead ignorance. I have not read that.

19 MEMBER BLEY: Well, the other gentlemen  
20 probably are not ignorant of B-

21 MR. WEBSTER: 1.174 is where we risk-inform  
22 tech spec submittals.

23 MEMBER BLEY: Yes.

24 MR. WEBSTER: Again, as risk-informed the  
25 quantitative numbers are B-

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1                   MEMBER BLEY: Are part of it, but also  
2                   there's an integrated B-

3                   MR. WEBSTER: Right.

4                   MEMBER BLEY: B- process to consider things  
5                   that you haven't yet figured out how to quantify  
6                   properly.

7                   MR. FORD: And I don't know how well that  
8                   comports with the legal requirements, you know, in the  
9                   Backfit Rule for significant safety benefits. I haven't  
10                  thought of how that would connect to B-

11                  MR. YOUNG: Yes. So, I mean, I don't think  
12                  necessarily we were going to solve the thing here, but  
13                  it was just to make this comment, and if we had to have  
14                  some subsequent engagement with the Staff to find out,  
15                  you know, hey, what is the best path forward for this,  
16                  happy to have that engagement and figure out what that  
17                  right solution is.

18                  MEMBER BLEY: I assume this conversation  
19                  has been going on with the Staff.

20                  MR. YOUNG: We've had some recent  
21                  conversations.

22                  MEMBER BLEY: So, it's fairly recent.

23                  MR. YOUNG: Well, we just saw this last  
24                  week. Right?

25                  MEMBER BLEY: Yes, but you kind of knew what

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1 was coming, but go ahead.

2 CHAIR SCHULTZ: Yes, as this is the  
3 Fukushima Subcommittee, I throw out some B- another  
4 thought for a B- a thought exercise, and that is at least  
5 to me when Fukushima happened, and the response in the  
6 days just thereafter by the NRC, and by the industry,  
7 and the United States seemed to at least rely partly on  
8 the fact that our reactors were safe, and some of that  
9 depended upon, I believe, the fact that we have Severe  
10 Accident Management Guidelines, we have things in  
11 place. We had a lot of work that we had done in terms  
12 of safety, operator performance beyond just operating  
13 the facilities, but going into elements associated with  
14 severe accident response, and leading up to there. So,  
15 that just tells me that, as you've said, this is an  
16 important feature, and it does concern me that we can't  
17 quantifiably demonstrate that this is an important part  
18 of what we do. We want to do it, and with some reasonable  
19 oversight by the Staff, we're willing to proceed. I hope  
20 we can find a way soon to make this happen.

21 I understand your point in terms of policy,  
22 the slippery slope discussion.

23 (Simultaneous speech)

24 MR. YOUNG: Yes, I just want to stress  
25 again, this isn't a question of pushing back on the right

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1 regulatory footprint. That's not what B-

2 CHAIR SCHULTZ: In terms of decision  
3 making, it seems as if we ought to be there but we're  
4 not, decision making to move forward and figure a way  
5 to set up the process.

6 MEMBER BLEY: I mean, the reason we all  
7 think it's important, I think, is because despite what  
8 we calculate events crop up every once in a while, maybe  
9 every 20 years or further than that, that puts us into  
10 a spot, but these would be really good to have. Then we  
11 say well, our calculations are still okay because we've  
12 done a better job on some of this than somebody else has.  
13 But there are a few areas of uncertainty that could  
14 affect this.

15 MR. YOUNG: Take the flip side though, too,  
16 is that now we have FLEX in place, right, which we didn't  
17 have before, so there's that whole other barrier that's  
18 in place now. I think that's obviously something to  
19 reflect on when you start thinking about SAMGs.

20 MEMBER BLEY: Absolutely. And the  
21 procedures for FLEX need to get integrated with all this  
22 stuff.

23 MR. YOUNG: That's right.

24 DR. SHACK: Just going back for a second to  
25 your reevaluated hazards, I mean, the orders were put

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1 in place to deal with Beyond-Design-Basis accidents and  
2 external events, and you've just stripped seismic out  
3 of it. It just seems a little peculiar.

4 MR. FORD: Well, the orders had you build a  
5 set of capabilities for Beyond-Design-Basis Events, and  
6 within those there was constraints put upon how you made  
7 the assumptions for designing those systems. You know,  
8 in most cases something that was robust for your current  
9 hazard was considered robust sufficiently to use for the  
10 FLEX hazard. So, it was just one of those constraints;  
11 otherwise, what would you have picked, you know,  
12 something X, Y, or Z? So our current FLEX designs have  
13 been built there.

14 Now, we did a B- I always forget the  
15 acronym, ESEP evaluation for plants whose GRMS was  
16 exceeding it in certain requirements to provide a level  
17 of confidence that FLEX could perform it beyond the  
18 current design basis. You know, what we are really  
19 pointing out is not that in the long run whether we make  
20 FLEX support a reevaluated seismic hazard or not, at  
21 least my way of looking at it, my real point was, one,  
22 that's not what we're doing right now. We're off  
23 spending millions of dollars doing SPRAs because that  
24 was the path decided, and if you B- if we want to change  
25 track, so far the industry has not committed to do this

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1 other track for the revised seismic hazard, and you can  
2 impose it, but then you need to evaluate that revised  
3 track under the Backfit analysis.

4 MR. YOUNG: And have the guidance.

5 MR. FORD: And have the documents, and we  
6 haven't yet put together the guidance on how to do that.  
7 You know, as we found with flooding, it's not as simple  
8 as, you know, just saying go use these new numbers and  
9 make it work. So, what we're really pointing out is that  
10 right now what's in this B- what's in the proposed  
11 rulemaking for the area of the seismic reevaluated  
12 hazard is not consistent with the current industry  
13 commitments for resolving the 50.54(f) letter. And if  
14 it's going to stay inconsistent with our commitments,  
15 then it needs to be appropriately evaluated under  
16 Backfit and the appropriate guidance put together.

17 MEMBER RICCARDELLA: This is Pete  
18 Riccardella. Could I make a comment?

19 CHAIR SCHULTZ: Yes, Pete, go ahead.

20 MEMBER RICCARDELLA: Yes. You know, I think  
21 regarding the seismic assessment, I mean, it's one thing  
22 when you have a bunch of existing equipment out there  
23 that's been there for years and years, and now you've  
24 got a new ground motion response spectra, and the  
25 appropriate road to go is a seismic risk assessment, but

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1 we're talking about new equipment that we're putting in,  
2 or that's been put in very recently when you had a pretty  
3 good idea what the new seismic criteria were going to  
4 be. I can't understand why it wouldn't be designed to  
5 the new seismic ground response spectra.

6 MR. WEBSTER: Well, one thing just B- you  
7 know, the FLEX order was implemented before the GMRS  
8 data was available to all sites, so it was B- we did it.  
9 We started implementing the FLEX before that  
10 information was available.

11 MR. YOUNG: Well, one thing, too B- let me  
12 just throw out a lifeline here. So, we've got Andrew  
13 Maller here from NEI who is heading up our interface on  
14 the seismic stuff, so let Andrew speak here for a minute  
15 on what he can share with this.

16 MR. MALLER: Thanks, David. So, I did just  
17 want to mention that we do have a number of activities  
18 going on in response to the 50.54(f) letter. In large  
19 part, a number of the plants are doing SPRAs that take  
20 out to 2020 under the current schedule, so that's the  
21 first phase of the 50.54(f) response. Phase 2 is where  
22 the NRC will look at any potential design-basis changes  
23 after that. So, what's unclear right now is where this  
24 rulemaking fits into the overall schedule for closure  
25 there.

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1                   We're trying to work that out. We don't have  
2                   the answers right now. It's not been at the top of our  
3                   list. We've had a number of Near-Term actions that we've  
4                   been working on that are also a part of the 50.54(f)  
5                   response, including figuring out the scope for  
6                   high-frequency limit evaluations, about fuel pool  
7                   evaluations, finishing up the expedited approach that  
8                   Bryan mentioned, so there's a number of things going on.  
9                   We're trying to figure out how the overall strategy for  
10                  closure on 2.1 seismic relates to this rulemaking, so  
11                  the idea is, like we said, we're not trying to say we  
12                  don't think this ought to be a part of this rulemaking.  
13                  What we're saying is that it needs to be a part of this  
14                  rulemaking once we get the guidance put together to  
15                  support this, and we're not there yet. So, one  
16                  B- obviously, one possibility is to just put a pause on  
17                  the rulemaking and wait for us to come up with the  
18                  guidance for seismic. Or the other concept would be to  
19                  pull out this part for now until we come up with that  
20                  working with the Staff, and then find the time to work  
21                  that in.

22                 MR. YOUNG: So, your second option, you're  
23                 talking about like a placeholder, move forward with this  
24                 and then fill it in later. Is that B-

25                 MR. MALLER: Yes, I think there's different

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1 regulatory options in order to do that. Our point was  
2 not that the rulemaking should not include seismic as  
3 an external hazard, but the way it's set up right now,  
4 it doesn't quite reflect the path that we're on, and we  
5 don't have the guidance yet to support where we're going  
6 to end up relative to mitigation strategies in terms of  
7 seismic.

8 MEMBER STETKAR: Well, I thought the order  
9 was a way to proceed ahead on the seismic event in a  
10 restricted sense where you looked at the consequences  
11 as being an ELAP and a loss of ultimate heat sink. I would  
12 look at the seismic PRA as something above that, that  
13 if we get new insights out of that, it could lead to  
14 regulatory action above and beyond that. But this was  
15 already considered as an adequate protection event for  
16 the seismic in a broad kind of sense that you really  
17 weren't quite sure what the consequences were, but you  
18 took a base case. And I don't see that that has to in  
19 any way conflict with what's going on under 2.1. To me,  
20 they're separate tracks, and you can proceed ahead with  
21 this rule, which essentially just embodies the orders.  
22 It's not really from that point of view, as the Staff  
23 made the argument before, it's not imposing any new  
24 requirements beyond what the orders did.

25 MR. FORD: And from our point of view, the

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1 orders did have us build mitigating capabilities for a  
2 seismic event, and instead of developing a new seismic  
3 spectrum or GRMS to evaluate against, you use the  
4 current design base B-

5 MEMBER STETKAR: Here's the problem, and  
6 this will help Pete also. There are plants out there who  
7 are taking installed equipment and taking credit for it  
8 as part of their FLEX strategy and enhancing, because  
9 it's not qualified right now to the existing seismic  
10 earthquake, enhancing that equipment so it meets the  
11 current seismic design basis. Those plants know fully  
12 well that their reevaluated seismic hazard will be far  
13 above their existing design basis. The strategy is you  
14 build it, you enhance it to the existing design basis,  
15 and then you say you can't justify further enhancing it  
16 under a Backfit Rule. That's why we're having this  
17 discussion.

18 MEMBER RICCARDELLA: It seems to me that the  
19 worst case would be that you've got this equipment put  
20 into your original SSE, you've got the new GRMS. The  
21 minimum you should have to do is a seismic risk  
22 assessment, or seismic margins analysis of that new  
23 equipment at least to show, you know, that it can  
24 withstand the new hazard. Maybe you didn't design it,  
25 just like you didn't design the original stuff, but

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1 that's what your seismic risk assessment is doing, is  
2 showing that you have sufficient margin.

3 MR. FORD: And we have done the ESEP that  
4 evaluated installed equipment. It was a subset of  
5 equipment to a higher seismic standard for those plants  
6 it was applicable to show that they were robust beyond  
7 their current design basis. But just one point of  
8 clarification, every plant is using for their FLEX  
9 strategies a fair amount of installed equipment. I mean,  
10 if you're going to have a portable pump and inject, you  
11 have to inject it into something, or you have to have  
12 tank that it's getting water out of, so everybody is  
13 using a fair amount of installed equipment in these  
14 strategies, and you have to.

15 So, our point was right now for the 50.54(f)  
16 letter is out path for resolving, you know, any safety  
17 concerns associated with the revised spectra has been  
18 depending upon your spectra, and whether you had IPEEE  
19 that covered it, and all these other things, has been  
20 a probabilistic approach in many cases. We have not B-

21 MEMBER RICCARDELLA: So, as a minimum you  
22 would do that on the newly installed FLEX equipment, as  
23 well. Right?

24 MR. FORD: On the newly installed B- you  
25 know, the B-

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1                   MEMBER STETKAR: Pete, it's not newly  
2 installed equipment. It's stuff that is there B-

3                   MEMBER RICCARDELLA: Well, somebody B-

4                   MEMBER STETKAR: No, wait. The stuff of  
5 concern is the existing pumps, and valves, and piping,  
6 and tanks, and you know, that's already there in the  
7 plant.

8                   MEMBER RICCARDELLA: I understand that, and  
9 the plan is to do a seismic risk assessment or a margins  
10 assessment of that. But then there's additional new  
11 stuff that they're putting in, and if they didn't do that  
12 to the new ground motion, I'm assuming that they will  
13 do a sort of risk assessment on that.

14                  MR. FORD: Well, it would be included, as  
15 necessary, into the SPRA risk assessment. I mean, if you  
16 ended up needing to credit that equipment to  
17 appropriately characterize the risk for your plant,  
18 then you would, but if it wasn't, you know, part of what  
19 you needed to look at to appropriately bound the risk,  
20 then you may not.

21                  MR. YOUNG: Andrew, is there any other  
22 clarity you can offer on that?

23                  MR. MALLER: Well, I was just going to say,  
24 I mean, obviously we did the expedited seismic  
25 evaluation process where we looked at a subset of

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1 equipment related to FLEX for an increased seismic  
2 hazard beyond the design-basis and, you know, across the  
3 fleet the results of that have been very positive with  
4 very B- with the number of plants without any  
5 modifications identified as a result of that. So, we've  
6 demonstrated the seismic margin within the fleet.

7 There are some questions here popping up,  
8 and I think that really gets to the point of why we don't  
9 think we're ready to move forward with this in the  
10 rulemaking, and we need to figure out what the guidance  
11 looks like. So, I think it's this sort of dialogue that  
12 really contributes to that point. We're just not there  
13 yet. That's all the message is, is we're just not there  
14 yet, and we need to work with the Staff to put it  
15 together.

16 MR. WEBSTER: Yes. And we definitely are not  
17 saying that we don't think seismic should be considered.  
18 We just think it's, like you said, we've just go some  
19 more evaluations to do to determine what the right  
20 safety improvement is, and what right evaluations need  
21 to be done.

22 MEMBER REMPE: Before you leave this B- I'm  
23 back on the Severe Accident Management Guidance, and I  
24 think I heard you say we aren't opposed to regulatory  
25 footprint, just the way that you've B- or the basis for

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1 it. And there were specific items mentioned about having  
2 configuration control, drilling them, et cetera. For  
3 the et cetera, during the earlier discussion, the Staff  
4 mentioned that industry had offered that we B- they  
5 could do some sort of collaborative review or something  
6 and, you know, to say well, did you think of this, and  
7 you need to include this, and is that your perception,  
8 too, that you don't mind having B- they're not going to  
9 do a detailed review. We heard the Staff say that, and  
10 also put it in several documents, but what about  
11 interactions and some sort of not a detailed official  
12 review, but some sort of interchange and oversight that  
13 way?

14 MR. YOUNG: Right. So, what you're asking  
15 that really involves the Owners Groups, and so I'm not  
16 an Owners Group representative, but let me if I can,  
17 again, reach out to my lifeline here. So, Jack  
18 Stringfellow, are you on?

19 CHAIR SCHULTZ: No, he would not be able to  
20 talk. We can open the line.

21 MR. YOUNG: Okay. Just give me one moment  
22 here. I just want to see if he's able to hop on. Jack  
23 is the Chairman of the PWR OG, and was instrumental in  
24 coming up with the proposal that Tim referred to earlier  
25 with respect to how this material could be looked at by

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1 the Staff on a periodic basis.

2 MEMBER REMPE: Oh, so there's some sort of  
3 written proposal that has B-

4 MR. YOUNG: There is a joint letter that the  
5 Owners Group sent in, the PWR/BWR Owners Group sent a  
6 joint letter offering a process by which the Staff could  
7 periodically look at updates to SAMG material. There  
8 was, I want to call a comment period in line with what  
9 Tim said earlier about it's not really a review, but  
10 there's a period in which the Staff can review this,  
11 provide some comments and feedback back if there's open  
12 questions, have some dialogue, make sure there's a clear  
13 understanding before it would go out to the industry.

14 MEMBER REMPE: That would be actually good  
15 if we could see that letter, and then if he has some  
16 comments about it.

17 CHAIR SCHULTZ: The line is open, we  
18 believe, so just ask and see if he's available.

19 MR. YOUNG: Okay, thank you. Hey, Jack  
20 Stringfellow, are you on the line? Anybody from the  
21 PWROG?

22 CHAIR SCHULTZ: Not hearing any, we'll  
23 close the line. He may be out there, we just don't know.

24 MR. YOUNG: That's right. Okay. I do feel,  
25 again, I'm not B- I can't speak B-

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1 CHAIR SCHULTZ: But B-

2 MR. YOUNG: I'm sorry, go ahead.

3 CHAIR SCHULTZ: But let's see what  
4 information you might be able to provide to us.

5 MR. YOUNG: Well, again, that was a summary.  
6 I don't want to get too much more into that because I  
7 think that starts to get directly into their business.  
8 But I have seen the letter, I do know the letter was sent  
9 it, and again was jointly signed by both the  
10 Chairpersons of their organizations, and it did offer  
11 B- I believe that the term that was used in the letter,  
12 in the offer letter was audit, is what they called it.

13 CHAIR SCHULTZ: If it happens to be  
14 internal, we'll get it here.

15 MEMBER STETKAR: It was sent to the Staff?

16 MR. YOUNG: Absolutely, yes, yes. Yes, they  
17 have it. And, in fact, the Owners Groups were attempting  
18 to be responsive to a request that came up in the meeting  
19 that Tim referred to back in May when we had that two-day  
20 workshop on SAMGs. This was one of the questions that  
21 the Staff asked for, and the Owners Groups were  
22 responsive to it. So, it is a process where, you know,  
23 I think the term they used in the letter was an audit.  
24 But, again, providing this material in advance on an  
25 electronic portal because it is, of course, you know,

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1 proprietary information, but giving B- I believe from  
2 memory, I think it was a 60-day review period to give  
3 the Staff plenty of time to review it and take a look  
4 at it, provide some comments or suggestions, or  
5 questions, and then get those resolved before it was  
6 sent out.

7 MEMBER REMPE: But getting those resolved  
8 sounds like a nice phrase that I'd like to see that  
9 letter.

10 MR. YOUNG: Yes, and I believe that's  
11 clearly the intent. I mean, obviously, now if we thought  
12 something was going to B- and here I am speaking for  
13 them. I believe their intent was if it was something that  
14 was going to drag on for quite a period of time, there  
15 was all kinds of other goods in the update package, then  
16 what they would probably do is maybe take that one  
17 element out, let's get all the other good stuff out  
18 there, and then we would B-

19 MEMBER REMPE: That's a good letter to see,  
20 so thank you.

21 MR. YOUNG: Okay.

22 CHAIR SCHULTZ: All right. We're ready for  
23 Slide 7.

24 MR. FORD: Okay. Just a few other comments.  
25 The new staffing and communication requirements that

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1 were put into Appendix E, we don't think that they should  
2 go in Appendix E. We think they should come up into this  
3 new Part 50.155. We're concerned that putting these back  
4 into Appendix E will cause some confusion of the  
5 appropriate change controls, whether or not they're  
6 part of the e-plans, and you apply the e-plan change  
7 controls to them versus the change controls of the  
8 section.

9 MR. YOUNG: And we appreciate the fact that  
10 there's some language in there now to that extent, but  
11 we just think that just the cleaner approach is just to  
12 keep it with the rest of the rule. So, we just suggest  
13 that everything be in 50.155. We think it's where it  
14 belongs.

15 MR. FORD: We also think on the change  
16 control that there needs to be some more discussion,  
17 maybe potentially some changes in the other sections.  
18 We're concerned about the going forward interaction  
19 between the normal design-base change controls and the  
20 change controls in this section. You know, we agree that  
21 you have to evaluate that in the appropriate areas it's  
22 just making sure that the lines are clear for when you  
23 just evaluate it against these Beyond-Design-Base  
24 requirements versus you evaluate it against your fire  
25 protection program requirements, or your security plan,

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1 or whatever those normal design-base requirements are.

2 MR. YOUNG: So, this was Tim's example  
3 earlier in his presentation. So, if clearly in  
4 design-basis space, you know, propping open security  
5 doors, you know, not a thing you can do, but if I'm  
6 evaluating a BDBE event, and it's clearly a BDBE event,  
7 and that's the only time it's ever going to get used,  
8 and the change control processes just somehow recognize  
9 the acceptability of that propping that security door  
10 open is okay in these conditions.

11 A couple of comments on the implementation  
12 period. We would suggest using four years versus the two  
13 outage item. You know, what happens with the two outage  
14 item all depending upon timing, some plants end up  
15 getting a very short window, potentially, and if four  
16 years is acceptable, then we think it would be  
17 appropriate just to put that in so they'd have time to  
18 implement.

19 And the last one is that we would request  
20 that we be given a fair amount of time to comment on this  
21 when it does come out. If we can get 120 days or that  
22 time frame, we think that would make it much easier for  
23 us to provide good comments, and would keep down the need  
24 for us to submit a request for an extension. And I think  
25 that is the end of the industry comments.

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1 CHAIR SCHULTZ: All right. Any further  
2 questions from the Committee to the industry with regard  
3 to the presentation? Hearing none, the next segment of  
4 the agenda is to ask for public comments, so we'll go  
5 ahead and open the phone line. And while the phone line  
6 is being opened, I'll ask if there are any comments from  
7 individuals in the room, comments that would be like to  
8 be made to the Committee? We're seeing none here, so I'll  
9 wait for a moment to get the signal that the line is open.  
10 The line is open as far as we know, but for us to assure  
11 that we need someone to say hello.

12 MR. LYMAN: Hello, this is Ed Lyman from  
13 UCS. Can you hear me?

14 CHAIR SCHULTZ: Yes, we can hear you, Ed.

15 MR. LYMAN: Okay, great.

16 CHAIR SCHULTZ: Please make a comment, if  
17 you'd like to.

18 MR. LYMAN: Yes, I would. Thank you. I'm  
19 sorry I can't be there in person today.

20 I have two comments. One is in response to  
21 what we just heard from the industry. And I was actually  
22 quite surprised to hear that they have a proposal which  
23 is very similar to what UCS proposed back in 2012 when  
24 the first Notice of Proposed Rulemaking for a Prolonged  
25 SBO rule was put out.

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1 CHAIR SCHULTZ: Ed, just a moment. You're  
2 breaking up on this end, and it may be the system.

3 MR. LYMAN: Okay.

4 CHAIR SCHULTZ: But are you on a speaker  
5 phone?

6 MR. LYMAN: Yes. Well, I'll try the handset.

7 CHAIR SCHULTZ: Thank you very much.

8 MR. LYMAN: Is that better?

9 CHAIR SCHULTZ: We'll find out in a moment.  
10 Thank you. Go ahead.

11 MR. LYMAN: Okay. So, we submitted comments  
12 back in July 2012 where we proposed that the success path  
13 approach should be taken where you define the series of  
14 external event scenarios and you carry them through to  
15 their conclusion, and you determine how the plant and  
16 the auxiliary or emergency equipment and the personnel  
17 will respond. And then you carry that through  
18 consistently. So that sounds like it's not too far from  
19 the approach that the industry was just proposing, which  
20 is a lot different from B- their argument was always we  
21 just want to consider this artificial boundary  
22 condition, some mysterious event causing an ELAP and a  
23 loss of access to the ultimate heat sink, and we don't  
24 know how that happened, and we're not going to think  
25 about the ways in which it happened. We're just going

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1 to focus on that. And we always thought that seemed to  
2 be an artificial and unrealistic approach. So, to the  
3 extent that approach can be integrated again into this  
4 process, we'd welcome it, but we also point out, as the  
5 industry did, that the B- what's sauce for the goose  
6 might be sauce for the gander, and the implications of  
7 that may go in a different direction for some scenarios  
8 than what the industry was anticipating, which was that  
9 things might be worse than that artificial ELAP  
10 scenario. So, I think that's encouraging.

11 CHAIR SCHULTZ: Ed, was that a letter from  
12 UCS to the Commission?

13 MR. LYMAN: Yes, it was a comment on the  
14 Advanced Notice of Proposed Rulemaking.

15 CHAIR SCHULTZ: Yes.

16 MR. LYMAN: It was May 7th, 2012.

17 CHAIR SCHULTZ: Thank you.

18 MR. LYMAN: Now, on the question of SAMGs  
19 and qualitative factors, first of all, I think there  
20 B- I think the industry is misreading the SRM, because  
21 the way I read it B- well, the way it B- what it says  
22 is that you use quantitative methods to the extent  
23 possible, but where they're not appropriate or  
24 possible, then you can use qualitative measures. It's  
25 not saying you can throw anything at the problem and say

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1 it's defense-in-depth. I think in the case of SAMGs  
2 there seems to be a large consensus from the Near-Term  
3 Task Force to what I heard from the members of the  
4 Committee that increasing the regulatory rigor of the  
5 SAMGs would be a positive development, and a significant  
6 increase in defense-in-depth, and that it's not just,  
7 you know, throwing some arbitrary measure at it and  
8 saying this is going to give us more defense-in-depth.  
9 That seems to be singled out as a very significant policy  
10 shift, and to the extent we think that should give  
11 considerable weight to going forward with what the Task  
12 Force recommended, and that's making SAMGs a rigorous,  
13 regulatory requirement that would entail significant  
14 review of not just checking the boxes, but insuring that  
15 it's actually a meaningful and workable plan.

16 So, if you're not going to review the  
17 details of the plan that thoroughly, then that's a more  
18 performance-based approach, and then you need to  
19 reflect that in enhanced exercises. And I don't know if  
20 the exercise, the drill and exercise provisions in this  
21 draft would be adequate to fully demonstrate that. So,  
22 I don't think you can have B- you need one or the other.  
23 Either you do a comprehensive sanity check on the SAMGs,  
24 or you require the licensees to demonstrate through  
25 performance testing that they'll work. So, I think that

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1 is going to need to be beefed up. So, I think that's all  
2 I have.

3 CHAIR SCHULTZ: Ed, this is Steve.

4 MR. LYMAN: Yes.

5 CHAIR SCHULTZ: Thank you very much for your  
6 comments, and they did come through very clearly, so  
7 thank you very much.

8 MR. LYMAN: I appreciate it.

9 CHAIR SCHULTZ: Are there others on the  
10 phone line that would like to make a comment? If so,  
11 please identify yourself, and make your comment.

12 MR. WILLIAMSON: This is Bill Williamson  
13 from TVA. I'm representing the BWROG and the PWROG.

14 CHAIR SCHULTZ: Yes, Bill.

15 MR. WILLIAMSON: Can you hear me?

16 CHAIR SCHULTZ: Yes. Please go ahead with a  
17 comment. Thank you.

18 MR. WILLIAMSON: My only comment is that  
19 both the Boiling Water Reactor Owners Group and the PWR  
20 Owners Group are validating their SAMGs. We're doing it  
21 with every means we have possible right now. For  
22 example, the PWRs has scheduled a time to go to the three  
23 different vendor's simulators and try them out and see  
24 how they work. The BWROG is going through the actual  
25 events that occurred at Fukushima Daiichi Units 1, 2,

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1 and 3 and looking to see how the SAMGs and supporting  
2 documents, TSGs would work through this. The Boilers and  
3 the PWRs are communicating with each other on what our  
4 findings are, and we expect to share this information  
5 with one another. And I think we will find some way to  
6 share it with the Staff, also.

7 MR. YOUNG: Bill, this is David Young. I  
8 mean, clearly, you guys have already done a significant  
9 amount of work already, the stuff that Tim referred to  
10 earlier. Right? So, these are just ongoing work  
11 activities to further enhance or improve the SAMG  
12 guidance. Is that a fair characterization?

13 MR. WILLIAMSON: David, that is a fair  
14 characterization. That is correct.

15 MEMBER BLEY: Any other comments, Bill?

16 MR. WILLIAMSON: I guess I would just add  
17 that one of the main focuses of what we're doing is to  
18 look at instrument readings and figure out how to  
19 validate them whether they're giving us a true  
20 indication, or where they're indicating error. And  
21 that's where a lot of our efforts have gone on, and are  
22 going on currently, also.

23 CHAIR SCHULTZ: Thank you. Are there other  
24 members of the public who like to make a comment for the  
25 record? Please state your name and make a comment.

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1 Hearing none, we'll B-

2 MEMBER REMPE: Before you do that, if Bill  
3 is B-

4 CHAIR SCHULTZ: No. It is a public comment  
5 period at this point. That's how we've announced it.  
6 We'll go ahead and close the phone line.

7 MR. YOUNG: Thank you, Bill.

8 MR. WILLIAMSON: You're welcome.

9 CHAIR SCHULTZ: All right. At this point  
10 then, like to have comments by members of the Committee,  
11 the Subcommittee. Joy, any closing comments?

12 MEMBER REMPE: Okay. I appreciated the  
13 presentations from the Staff and their efforts, as well  
14 as from industry today. The Staff during their  
15 presentation did mention about the B- their willingness  
16 to come back and communicate with us about the Draft  
17 Guides in upcoming months, and I would like to have put  
18 my vote in that I'd like to see that interaction occur.

19 With respect to what industry presented,  
20 definitely as I mentioned during the discussion, I'd  
21 like to see this letter from the BWR and PWR Owners  
22 Group. And then with respect to what Bill Williamson  
23 said on the line, I would like to, again B- and I've  
24 mentioned this to the Staff about B- or with the  
25 industry about the interactions with the Staff and the

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1 results of his audits. And he said well, we'd like to  
2 find a way to communicate to the regulator. And, again,  
3 those kind of details would I think provide more  
4 confidence with respect to me on what was occurring.

5 Also, I really had wanted to ask but we're  
6 not allowed to interact with the public commentators about  
7 what B- I mean, I think Bill mentioned that they were  
8 just doing the Fukushima Daiichi event, but what events  
9 in the PWR Owners Group evaluating just one event for  
10 the instrumentation B-

11 MR. YOUNG: No, the Ownerships look at a  
12 range of different events. I think Bill was just trying  
13 to B- what he thought was the interest of this crowd  
14 because of the nature of the mitigating design-basis  
15 events rule of Fukushima, but I mean they regularly look  
16 at OEs from a variety of different B-

17 MEMBER REMPE: But for the Severe Accident  
18 Management Guidelines, and to validate the  
19 instrumentation performance, are they looking at a  
20 range of events?

21 MR. YOUNG: They look at a range of  
22 conditions in the guidance for which alternate  
23 indications, confirming indications, calculation aids,  
24 trends. If you don't get an accurate reading, what's the  
25 trend? Those kinds of tools are all talked about in the

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1 Severe Accident Management Guidance from both Owners  
2 Groups.

3 MEMBER REMPE: They are talked about but to  
4 validate that they would survive, that's not in what  
5 I've seen for Severe Accident Management Guidance. And  
6 when they B- and feeling, knowing exactly when you can  
7 and can't trust. And I believe there are some activities  
8 to do that. I wasn't sure of the B- I wanted it on the  
9 record, so I'm glad you said although they're looking  
10 at a range of events.

11 MR. YOUNG: Am I on the record?

12 MEMBER REMPE: Right, I'm glad to hear that,  
13 but I'd like, again, if there were that exchange in  
14 having that with some sort of discussion with the  
15 regulator, it would make me feel better.

16 MR. YOUNG: So, let me say this, and maybe  
17 this will help. What Tim referred to a little while back  
18 was in May we had a two-day workshop, and I think  
19 everybody B- it seemed like everybody and their mother  
20 from the Staff was in this workshop. And day one was the  
21 PWRs, and day two was the BWRs. And it was a full day  
22 of going through soup to nuts, everything, all the  
23 guidance, the calc aids, the tech support guidelines,  
24 some of the basis information, and answering all those  
25 questions. And the idea of this two-day workshop was,

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1 if you will, try to baseline the Staff's knowledge on  
2 where are we right now? What are all the improvements  
3 that we've made since Fukushima, I should say the Owners  
4 Groups, the Owners Groups have made there. And try to  
5 get that information out there, and that understanding  
6 out there. And then with the idea being that kind of once  
7 we've baselined that, I believe their intent then is  
8 B- with this letter is to provide this ongoing look  
9 periodically as other changes are made so that the Staff  
10 is kept up to speed over time as to what the SAMGs are  
11 doing, what they're trying to solve, you know, that kind  
12 of thing. So, I believe that's the philosophy.

13 MEMBER REMPE: Okay. I think B- that's all  
14 I have. Thank you.

15 CHAIR SCHULTZ: Okay. Charlie?

16 MEMBER BROWN: Nothing more.

17 MEMBER BALLINGER: Nothing more.

18 MEMBER RYAN: Thank you for the  
19 presentations today. They were very informative. Thank  
20 you very much.

21 MEMBER BLEY: Nothing more, thanks.

22 CHAIR SCHULTZ: Dana?

23 MEMBER POWERS: I continue to feel like we  
24 are abandoning or degrading, at least, a drive to use  
25 risk-information to structure the regulatory system.

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1 And I'm getting the impression that we're doing things  
2 in a fairly chaotic fashion through running the risk of  
3 imposing inconsistent and divergent burdens on industry  
4 here. And I think that's something we've got to make sure  
5 does not happen. I think we have to work scrupulously  
6 to make sure that does not happen, that in a rush to show  
7 that we've done something, we don't end up with  
8 something that is burdensome and, ultimately, degrades  
9 safety by the introduction of complexity on the site,  
10 congestion on the site. And I get very concerned about  
11 our operating force being diverted into a focus, an  
12 unmerited focus on low- probability events at the  
13 expense of things that will happen on the plant. And the  
14 current set of presentations just reinforced my  
15 concerns in this area.

16 CHAIR SCHULTZ: Dick?

17 MEMBER SKILLMAN: Thank you for the  
18 information you've provided today. And I, too, as Dr.  
19 Rempe mentioned, I would like to see these Draft Guides  
20 another time. I think they will contain some meat that  
21 is important to us. Thank you.

22 CHAIR SCHULTZ: Bill?

23 DR. SHACK: No, I think I've commented  
24 enough.

25 CHAIR SCHULTZ: Members on the phone line,

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1 Pete?

2 MEMBER RICCARDELLA: Yes, this is Pete. I  
3 think personally the Committee needs to understand  
4 better how the updated seismic hazards are going to be  
5 addressed just by either through time or through a  
6 risk-based B-

7 (Telephonic interference)

8 MEMBER RICCARDELLA: That either would  
9 work, we just need to understand it a little better. I  
10 think it doesn't make any sense to put in a requirement  
11 that would be highly vulnerable to theseC-

12 CHAIR SCHULTZ: Pete, you're breaking up,  
13 if you're on a speaker. Are you?

14 MEMBER RICCARDELLA: Just hang on, I'll get  
15 off it.

16 CHAIR SCHULTZ: Thank you.

17 MEMBER RICCARDELLA: Hello, is that better?

18 CHAIR SCHULTZ: Much better.

19 MEMBER RICCARDELLA: Okay.

20 CHAIR SCHULTZ: Lesson learned.

21 MEMBER RICCARDELLA: Yes. I think the  
22 Committee needs to understand how these updated seismic  
23 hazards are going to be addressed with the FLEX  
24 equipment.

25 CHAIR SCHULTZ: Okay. Is Mike Corradini on

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1 the line, by any chance?

2 MEMBER CORRADINI: Yes, sir.

3 CHAIR SCHULTZ: Okay, Mike, would you like  
4 to make a comment in closing?

5 MEMBER CORRADINI: Well, I think most  
6 things have been said by the other members. To the  
7 extent, Steve, you've kind of captured all of this, I'  
8 guess I'll just thank the Staff for bearing with us for  
9 a long day of questions. I do think we should look at  
10 the guidance so that it's very clear. I understand  
11 Dana's concerns, so it strikes me that without looking  
12 at the guidance to make sure it's consistent, and it's  
13 understandable, some of Dana's concerns could occur.

14 And beyond the guidance, I think Pete's  
15 point, and I think John made it, also, is how an upgraded  
16 seismic hazard is going to be figured into dealing with  
17 the equipment that has to be used either partially or  
18 totally within the FLEX implementation. But that's it,  
19 thank you.

20 CHAIR SCHULTZ: Thank you, Mike. I'd also  
21 like to express my appreciation to the industry for the  
22 presentation this afternoon for having brought a lot to  
23 the table. And also to the Staff for their discussions  
24 earlier. It was very helpful to the Subcommittee to hear  
25 all of the presentations and hear responses to our

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1 questions. It's been a very fruitful afternoon.

2 So, I would close the formal meeting with  
3 that. I do have an informal announcement because the  
4 Fukushima Subcommittee does have a meeting tomorrow  
5 morning. Yes, let me close the record.

6 (Whereupon, the above-entitled matter went  
7 off the record at 5:09 p.m.)

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# Mitigation of Beyond-Design-Basis Events (MBDBE) Proposed Rulemaking

Advisory Committee on Reactor Safeguards  
Fukushima Subcommittee  
March 19, 2015

# Background

- Efficiency gains through consolidation
- Scope of proposed rulemaking as it relates to originating Near-Term Task Force (NTTF) recommendations:
  - All of recommendations 4, 7, and 8
  - All of 9.1, 9.2. and 9.3 – except long term Emergency Response Data System (ERDS)
  - 10.2 (command and control/decision maker qualifications) and 11.1 (delivery of equipment to site - phase 3 portion of Order EA-12-049)
  - Includes NTTF 9.4 (ERDS modernization)
- In terms of post-Fukushima regulatory actions already underway:
  - Makes generically-applicable Order EA-12-049 and Order EA-12-051
  - Addresses staffing and communications from NTTF 9.3 (10 CFR 50.54(f) request)
  - Addresses re-evaluated hazards from NTTF 2.1 (10 CFR 50.54(f) request)

# Proposed Rule Language

## Paragraph (a) - Applicability

- Applicability
  - Current operating reactors
  - New reactors
  - Decommissioning reactors
- Requirements apply to both current and new reactor licensees and applicants
  - Design features requirements in proposed § 50.155(d) are for new reactor plant designs, and are in addition to the remainder of the requirements (revised)
- Decommissioning provisions: (revised)
  - Once fuel is permanently removed from the reactor - no reactor or primary containment requirements
  - Once decay heat is sufficiently low versus SFP heat up/boil off to provide ample time: then only remaining mitigation is § 50.155(b)(2)
  - Once irradiated fuel is removed from the spent fuel pool - all requirements cease

# Proposed Rule Language

## Paragraph (b) – Integrated Response

- Integrated Response Capability (unchanged)
  - Beyond-design-basis external event mitigation
    - Would make Order EA-12-049 generically applicable
    - Formerly referred to as SBOMS (industry’s “FLEX” program)
  - Extensive Damage Mitigation Guidelines (EDMGs)
    - Would move § 50.54(hh)(2) requirements to this rule
    - No substantive changes to requirements
  - Severe Accident Management Guidelines (SAMGs)
    - Currently voluntary industry initiative
    - Regulation would require SAMGs
      - Inspection under ROP only - no licensing review.
    - No additional equipment requirements

# Proposed Rule Language

## Paragraph (b) – Integrated Response



- Integrate with Emergency Operating Procedures(EOPs)
  - Structured to not impact previous regulatory efforts on EOPs
- Supporting staffing and command and control
  - Both staffing and command and control should be in place after Order EA-12-049 implementation
  - Recognizes challenge of a site-wide event that could lead to core damage and involve offsite assistance

# Proposed Rule Language

## Paragraph (c) – Equipment Requirements

## Paragraph (e) – Training Requirements



- Equipment Requirements (**revised**)
  - Would make Order EA-12-049 equipment requirements generically applicable
  - Would make Order EA-12-051 spent fuel pool level instrumentation requirements generically applicable
  - § 50.155 (c)(2) revised to reflect COMSECY-14-0037:
    - Mitigation strategies equipment required by paragraph (b)(1) must be reasonably protected from the effects of natural phenomena that are the more severe of: (1) the design basis of the facility; or (2) the licensee's reevaluated hazards, stemming from the March 12, 2012, NRC letter issued under § 50.54(f), as verified by the NRC's assessment issued by [EFFECTIVE DATE OF THE RULE].
- Training (**unchanged**)
  - Training of personnel for activities not already addressed
  - Systems approach to training
  - Expect most training already addressed as part of EOPs and Order EA-12-049 implementation
  - New training should be in the SAMG area

# Proposed Rule Language

## Paragraph (d) – New Reactor Requirements



- New reactor design requirements (**revised**):
  - Only applies to applicants listed in paragraph § 50.155(a)(4)
  - Would require that design features be incorporated into new reactor plant designs that enhance coping durations and minimize reliance on human actions for an extended loss of all ac power concurrent with a loss of normal access to the ultimate heat sink
- Intent:
  - Require certain elements of the Commission’s advanced reactor policy statement for new reactor designs during ELAP/LUHS
    - “...longer time constants and sufficient instrumentation to allow for more diagnosis and management before reaching safety systems challenge or exposure of vital equipment to adverse conditions.”
    - “simplified safety systems that, where possible, reduce required operator actions”
  - Applicants would consider the effects of an ELAP/LUHS early in the design process and incorporate design features that provide enhanced capabilities to address these events

# Proposed Rule Language

Paragraph (f) Drills and Exercises (Unchanged)

Paragraph (g) – Change Control (Unchanged)

- Drills provide assurance that guideline sets are integrated and can be used
  - Initial drill(s) to show use and transitions
  - Follow-on drill(s) to provide assurance of continuing capability
  - Complex drill schedule: Initial drill within 2 refueling outages (RFs) and follow-on in 8 calendar years
  - Current operating licensees/holder of combined license (COL) after 52.103(g) finding:
    - 1<sup>st</sup> drill within 2 RFs – after that 8 year period
  - Applicants for a part 50 operating license (OL) or holder of COL before 52.103(g) finding:
    - Demonstrate use and transitions – initial drill(s)
    - Subsequent drills - 8 year period
- MBDBE Change Control
  - Facility changes can impact multiple regulatory areas; all change controls must be applied
  - No threshold criterion; must comply with requirements



# Proposed Rule Language

## Appendix E, Application, Implementation



- New Appendix E requirements (Unchanged)
  - Multi-source term requirements are incorporated directly into current Appendix E
  - New Section VII requirement for staffing and communications
  - Technology-neutral ERDS
- Application requirements (Unchanged)
  - Applications for new reactors
- Implementation: Will use the Cumulative Effects of Regulation (CER) process (Unchanged)

# Backfit Considerations

(Unchanged)

- The MBDBE rule has different supporting backfit bases:
  - Proposed rule requirements are severable
  - Order EA-12-049 and Order EA-12-051 requirements are not backfits (i.e., already imposed by orders)
  - All other requirements need justification under Part 50 backfitting provisions (operating reactors) and Part 52 issue finality provisions (new reactors) :
    - Items supporting Order EA-12-049 are technically backfits without impact
    - SAMGs and supporting requirements (drills and training that involve SAMGs)
    - Multi-source dose assessment (voluntarily implemented): Is a backfit but should not cause additional impact
    - New reactors requirements are designed to be “forward fitted”
    - Technology-neutral Emergency Response Data System (ERDS) remove technology reference, aligns with current practice, not a backfit

# SAMGs Backfit (Unchanged)

- Qualitative basis for imposing SAMG requirements
  - Guideline set used by operators and decision-makers following onset of core damage
  - SAMGs support making optimal decisions concerning containment
  - SAMGs support informing the emergency response organization with regard to protective actions (e.g., fission product barrier integrity)
  - The value of SAMGs, pre-planned guidelines for best use of all available resources to mitigate the accident
- Quantitative basis informed by Containment Protection and Release Reduction effort

# Draft Regulatory Guidance

- DG-1301 “Flexible Mitigation Strategies for Beyond-Design-Basis Events”
  - Current draft guidance would endorse NEI 12-06 rev. 1 with clarifications
  - NEI is revising NEI 12-06 rev. 0 (to produce rev. 1):
    - To reflect lessons-learned from implementation of Order EA-12-049
    - To address re-evaluated hazards
  - Includes guidance for new reactor designs to meet proposed § 50.155(d)
- DG-1317 “Wide-Range Spent Fuel Pool Level Instrumentation”
  - Would endorse NEI 12-02 (Previously endorsed for Order EA-12-051)
- DG-1319 “Integrated Response Capabilities for Beyond-Design-Basis Events”
  - Would endorse NEI 12-01 (Previously endorsed for RFI), NEI 13-06, and NEI 14-01

# DG-1301

- Preliminary Draft
- NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 1, Draft C, is basis
- Incorporates lessons learned in Order EA-12-049 implementation (alternative approaches, generic items, etc.)
- Work remaining includes:
  - Receipt of SRM-COMSECY-14-0037 to support development of NEI 12-06 Appendices for Seismic and Flooding Re-evaluations

# DG-1301 Appendix A

## (For New Reactor Designs)

- *Enhance coping durations*
  - Initially cope with installed SSCs at least 24 hours
    - After 8 hours, use of supplemental ac permissible
  - Then, cope at least 72 hours, using on-site equipment, before off-site resources are obtained
- *Minimize reliance on human actions*
  - Initially, minimal actions at limited and protected locations; monitoring, control, and coordination from the MCR or designed in location
  - Following the early phase, actions should be reasonable considering anticipated site conditions following the event

- NEI 12-01, “Guidelines for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities”
  - Accident response staffing
  - Communications systems
- NEI 13-06, “Enhancement to Emergency Response Capabilities for Beyond Design Basis Events and Severe Accidents”
  - Multi-unit dose assessment
  - Training
  - Drills and exercises
  - EP facilities and equipment
- NEI 14-01, “Emergency Response Procedures and Guidelines for Beyond Design Basis Events and Severe Accidents”
  - SAMGs - No detailed review of Owners Group or plant-specific SAMGs
  - Command and control
  - Procedure integration

# Status and Path Forward

- Proposed rule package is in concurrence:
  - Due to EDO on April 16, 2015 and Commission on April 30, 2015
  - Draft guidance should be issued with proposed rule in summer 2015
  - Recognize the ongoing work on DG-1301 and can meet with the ACRS prior to July or during public comment period if the Committee desires.
- Future ACRS interactions
  - Full committee – April 9, 2015 (proposed rule)
  - Full committee – TBD (final rule)



# **Industry Perspective on Draft Mitigating Beyond Design Basis (BDB) Events Rule**

Bryan Ford

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Entergy Nuclear

March 19, 2015 • ACRS Meeting

# MBDBE Rule - Positives

- Right topics addressed with “high-level” language
- Reflects the significant amount of industry work since Fukushima
  - Existing Order requirements and commitments
  - Responses to 50.54(f) letter of 3/12/12
- Staff intends to support use of industry-developed guidance – additional work needed
- Changes have been made based on previous industry comments

# MBDBE Rule – Areas for Improvement

- Reevaluated Hazards
  - MBDBE capabilities need to address a spectrum of plant conditions caused by different initiating events (hazards) and resulting damage states
    - In some reevaluated hazard cases, AC power and/or ultimate heat sink may be available
  - Rule wording should accommodate Alternate/Targeted Hazard mitigation strategies
    - Affects “reasonable protection” and “containment”
  - Inconsistent with current seismic path forward

# Reevaluated Hazards – (b)(1)

- Strategies and guidelines to mitigate beyond-design-basis external events from:
  - Natural phenomena that result in an extended loss of all ac power concurrent with a loss of normal access to the ultimate heat sink
  - The licensee's reevaluated flood hazards, stemming from the March 12, 2012, NRC letter issued under § 50.54(f), as verified by the NRC's assessment issued by [EFFECTIVE DATE OF THE RULE].

## Reevaluated Hazards – (c)(2)

- The equipment relied on for the mitigation strategies required by paragraph (b)(1) of this section must be reasonably protected from the effects of natural phenomena. ~~that are the more severe of: (1) the design basis of the facility; or (2) the licensee's reevaluated hazards, stemming from the March 12, 2012, NRC letter issued under § 50.54(f), as verified by the NRC's assessment issued by [EFFECTIVE DATE OF THE RULE].~~

# MBDBE Rule – Areas for Improvement

- Proposed § 52.79 and § 52.80
  - We do not believe that these requirements are necessary for new plants
  - Adequately addressed in current design review requirements (designed to higher standards)
- Use of qualitative factors to justify imposing SAMG requirements is not in accordance with Commission direction (SRM-SECY-14-0087)

# MBDBE Rule – Areas for Improvement

- Emergency Response
  - Relocate the new staffing and communications requirements from Appendix E to new Part 50.155
- Change control
  - Other change processes should recognize the differences between design/licensing basis and BDB external events
    - What is not acceptable in one instance (design basis) may be acceptable in the other (BDB)

# Other Comments

- Implementation should be specified in “years,” not 2<sup>nd</sup> outage restart
  - Recommend 4 years to minimize CER
- Given the scope and complexity of the proposed rule, the industry requests that the public comment period be initially established at the maximum possible duration
  - Obviate the need to request/process an extension